NAVAL
POSTGRADUATE
SCHOOL

MONTEREY, CALIFORNIA

THESIS

AN EXPLORATORY ANALYSIS OF LITTORAL COMBAT SHIPS' ABILITY TO PROTECT EXPEDITIONARY STRIKE GROUPS

by

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September 2003

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Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** September 2003	**3. REPORT TYPE AND DATES COVERED** Master's Thesis

4. TITLE AND SUBTITLE: An Exploratory Analysis of Littoral Combat Ships' Ability to Protect Expeditionary Strike Groups	**5. FUNDING NUMBERS**
6. AUTHOR(S) Motale E. Efimba	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	**10. SPONSORING/MONITORING AGENCY REPORT NUMBER**

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited	**12b. DISTRIBUTION CODE**

13. ABSTRACT ***(maximum 200 words)***

This thesis uses an agent-based simulation model named EINSTein to perform an exploratory study on the feasibility of using Littoral Combat Ships (LCSs) to augment or replace the current defenses of Expeditionary Strike Groups (ESG). Specifically, LCS's ability to help defend an ESGs in an anti-access scenario against a high-density small boat attack is simulated. Numbers of CRUDES (CRUiser, DEStroyer, Frigate) ships are removed and LCSs are added to the ESG force structure in varying amounts to identify force mixes that minimize ship losses. In addition, this thesis explores various conceptual capabilities that might be given to LCS. For example, helicopter/Unmanned Combat Aerial Vehicles (helo/UCAVs), Stealth technology, close-in high volume firepower, and 50+ knot sprint capability. Using graphical analysis, analysis of variance, and large-sample comparison tests we find that being able to control aircraft is the most influential factor for minimizing ship losses. Stealth technology is another significant factor, and the combination of the two is highly effective in reducing ship losses. Close-in high volume firepower is effective only when interacting with helo/UCAVs or stealth. 50+ knot sprint capability is potentially detrimental in this scenario. An effective total sum of CRUDES ships and LCS is between five and seven platforms.

14. SUBJECT TERMS Einstein, LCS, Littoral Combat Ship, ESG, Expeditionary Strike Group, Assured Access, Agent-Based Simulation	**15. NUMBER OF PAGES**
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

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requirements for the degree of

MASTER OF SCIENCE IN OPERATIONS RESEARCH

from the

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ABSTRACT

This thesis uses an agent-based simulation model named EINSTein to perform an exploratory study on the feasibility of using Littoral Combat Ships (LCSs) to augment or replace the current defenses of Expeditionary Strike Groups (ESG). Specifically, LCS's ability to help defend an ESGs in an anti-access scenario against a high-density small boat attack is simulated. Numbers of CRUDES (CRUiser, DEStroyer, Frigate) ships are removed and LCSs are added to the ESG force structure in varying amounts to identify force mixes that minimize ship losses. In addition, this thesis explores various conceptual capabilities that might be given to LCS. For example, helicopter/Unmanned Combat Aerial Vehicles (helo/UCAVs), Stealth technology, close-in high volume firepower, and 50+ knot sprint capability. Using graphical analysis, analysis of variance, and large-sample comparison tests we find that being able to control aircraft is the most influential factor for minimizing ship losses. Stealth technology is another significant factor, and the combination of the two is highly effective in reducing ship losses. Close-in high volume firepower is effective only when interacting with helo/UCAVs or stealth. 50+ knot sprint capability is potentially detrimental in this scenario. An effective total sum of CRUDES ships and LCS is between five and seven platforms.

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LIST OF KEY WORDS SYMBOLS, ACRONYMS AND ABBREVIATIONS

Agent	Most primitive entity in EINSTein
ANOVA	ANalysis Of VAriance
ARG	Amphibious Readiness Group
Baseline	An ESG consisting of three CRUDES ships and three amphibious ships
Choke Point	A narrow body of water flanked by land that connects two large bodies of water
CIC	Combat Information Center, a radar display room
CIWS	Close In Weapon System
CNA	Center for Naval Analyses
CO	A unit's Commanding Officer (usually in the context of a ship's captain)
CRUDES	Cruiser, Destroyer and Frigate ships
CSG	Aircraft Carrier Strike Group
EDATF	Emergency Defense Air Task Force
EINSTein	Enhanced ISAAC (see below) Neural Simulation Toolkit
Enemy	Different colored (in reference to agents)
ESG	Expeditionary Strike Group
Firepower	High volume close-in firepower
Friendly	Like colored (in reference to agents)
GOO	Gulf Of Oman
Harpoon	BGM-84, a cruise missile to attack surface vessels
Helo	Helicopter(s)
ISAAC	Irreducible Semi-Autonomous Adaptive Combat

"Knee"	"Knee of the curve" i.e. point of optimization where additional spending adds low proportion of benefit (decreased margin of return)
LCAC	Landing Craft Air Cushion
LCS	Littoral Combat Ship
LCU	Utility Landing Craft
MOE	Measure Of Effectiveness
MSE	Mean Square Error
MSS	Mean Sum of Squares
NAG	Northern Arabian Gulf
OTH-T	Over-The-Horizon Targeting
RAM	Rolling Airframe Missile
RPG	Rocket Propelled Grenade
Run-Set	A group of discrete simulation runs using a uniform set of inputs
SAG	Surface Action Group
SOP	Standard Operating Procedures
Speed	50-60 knot sprint capability.
Stealth	Stealth Technology
TTP	Tactics Techniques and Procedures
UCAV	Unmanned Combat Aerial Vehicle

ACKNOWLEDGMENTS

I'd like to thank my father Robert for giving be a shining example for academic excellence. Andrew Ilachinski and Greg Cox for developing EINSTein and providing a foundation for my study. Jeff Kline for introducing me to this wonderful and potentially impacting thesis topic. Vince Roske and the members of the Joint Staff's J8-Warfighting Analysis Division for funding my experience tour and introducing me to contacts. Richard Snead for continued guidance. Paul and Susan Sanchez for design techniques. Russ Gottfried for being the "darned XO." Finally, Tom Lucas for being my advisor.

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EXECUTIVE SUMMARY

The United States' naval expeditionary forces' capabilities allow for quick reaction to hostilities, providing humanitarian aid, power projection, providing logistical support to forces ashore, as well as other operations. Oceangoing amphibious landing ships in Expeditionary Strike Groups (ESGs) transport troops, vehicles, and supplies all over the world wherever they are needed and provide military commanders greater flexibility in planning operations. However, if the amphibious ships encounter resistance while moving into position to perform operations, they need to fight their way into position for expeditionary operations.

Due to amphibious ship design for maximizing the support of various amphibious waterborne and airborne operations, they have limited combat capabilities. These ships are armed only with Close In Weapon Systems (CIWS) and small arms (25mm machineguns and smaller) for own ship's defense and have no major fire control system. However, amphibious aircraft carriers have, in addition to the above weapons, short-range NATO Sea Sparrow missiles and Rolling Airframe Missiles (RAM) for air defense. In order to counter littoral threats, where amphibious operations are performed, the Navy has transformed Amphibious Readiness Groups to ESGs by assigning dedicated combatant ships: cruisers, destroyers, and frigates (CRUDES), to protect the three amphibious ships. The CRUDES ships have tremendous firepower provided by extensive fire control systems, a wide array of anti-surface and anti-air missiles, and main gun(s). However, they require large crews and are expensive to build, and operate. Insufficient numbers of CRUDES ships in an ESG is a potential liability against high-density small boat attacks or coordinated surface action. This study investigates such a scenario.

Looking to the future, areas in which we may perform amphibious operations do not tend to have large navies with large combatant ships—like destroyers or greater. Many costal nations defend their coasts at affordable cost with patrol boats and possibly missile corvettes, meeting a "green water" (littoral) navy requirement. Corvettes, coastal

patrol boats, and smaller vessels equipped with small arms and possibly four Exocet or Styx missiles are considerably less expensive than CRUDES ships and require a fraction of the crew. Also, the attack by a small, suicidal boat laden with explosives, rendering USS COLE out of action for nineteen months, showed that small boat attacks are a viable threat against the U.S. Navy. One question this study explores is: **"How can the U. S. Navy effectively counter the high-density small boat threat?"**

Recently, the Navy has announced that it is creating a new type of ship, the Littoral Combat Ship (LCS), to augment carrier strike groups' (CSG) and ESGs' protection in coastal environments. These ships will be approximately the size of a corvette, possibly with options such as: the capability to control a helicopter or Unmanned Combat Aerial Vehicle (UCAV), an organic helicopter or UCAV, the latest stealth technology, the ability to shoot surface-to-surface missiles for high volume close-in firepower, and 50-plus knot sprint capability. Although they are oceangoing, they are envisioned to fight in the littoral area, where our ESGs operate, with greater flexibility, greater numbers, and at a lower cost than CRUDES ships. Other questions this study explores are: **"Is the LCS a better option than the U.S. Navy's current arsenal to defend ESGs? What capabilities enhance LCS's performance?"**

This thesis uses an agent-based simulation model named EINSTein (Enhanced ISAAC (Irreducible Semi-Autonomous Adaptive Combat) Neural Simulation Toolkit), developed by the Center for Naval Analyses (CNA), to explore these questions. EINSTein allows for investigation on how various LCS candidates might perform in a range of scenarios. In war, each unit has a Commanding Officer (CO) who has an overall mission and specific tasks pertaining to the unit or sub-group of units. However, each CO is different, with a different personality and perspective, and a characteristic way of fighting in the war. This is a major reason why EINSTein was chosen for this study; agent-based models allow for these personality differences. Two other reasons why EINSTein was chosen for this study are agent-based models are fast and tend to be stochastic, allowing for an analyst to explore many scenarios, capabilities and assumptions in a relatively short amount of time. Since agent-based models are stochastic, no two discrete runs are the same. Moreover, we get a distribution of possible

outcomes from any given input combination, simulating chance and Clausewitz's "fog of war."

This thesis explores varying ESG ship force structures and LCS capabilities in an anti-access scenario where the ESG is traveling through a choke point to reach its amphibious operations area. Employing the same threat, a high-density small boat attack, observations are taken on ship survivability by platform type. Alternatives compared include the current CRUDES supported ESG, with and without organic armed aircraft, and LCS replacement of CRUDES platforms. Additionally, this study reviews different LCS design factors and their interaction, to determine which are most effective. Effectiveness is measured by the number of platforms lost by the force.

By analyzing the data with Analysis of Variance (ANOVA) and large-sample comparison tests, aircraft are found to be the most influential factor in minimizing ship losses, with or without LCS. Furthermore, this particular finding is consistent with the U.S. Navy's decision to design the initial block of LCS with the capability to employ and support an organic helicopter. For LCS, stealth technology is another significant factor, and the combination of stealth and air capability are effective in reducing ship losses. However, designing a hangar on a ship could reduce a ship's stealthiness. Therefore, if stealth and aircraft are considered for LCS design, planners may opt for LCS to possess aircraft control capability while a larger ship (amphibious aircraft carrier or CRUDES ship) provides aircraft with logistical support.

Close-in high volume firepower on board LCS is effective only when interacting with helo/UCAVs or stealth. This capability is a good choice if aircraft or stealth (not both) can be combined with another capability. However, all three capabilities employed can effectively eliminate ship losses. A 50-plus-knot sprint capability is potentially detrimental in this scenario when LCS platforms depart from the mutual force defense. When LCS operates within the strike group, defending against attackers, enhanced speed is no factor due to stationing requirements of remaining in a smaller area and staying with slower ships. An effective total sum of CRUDES ships and LCS is between five and seven platforms. It is recommended that at least one of these platforms be a CRUDES

ship for air defense capability, added command and control, and fire support for amphibious operations.

EINSTein is an abstraction of fleet tactical warfare. The thesis spends a fair amount of discussion time to draw the connection between agent activity and shipboard operations. Nevertheless, its depiction of the effects of design considerations rings plausible for this scenario. A properly designed experimental study accounted for individual factors and interactions. It yielded results that enable analytical approaches, warfare designs and alternatives to be compared. This research provides a quantitative basis for further, higher resolution studies that should consider the measurable benefits of air capability and stealth and the relative ineffectiveness of tactical speed for this new littoral combatant ship.

I. INTRODUCTION AND PROBLEM

A. INTRODUCTION

1. Amphibious Operations

The United States' naval expeditionary forces' capabilities allow for quick reaction to hostilities, providing humanitarian aid, power projection, providing logistical support to forces ashore, as well as other operations. Oceangoing amphibious landing ships in Expeditionary Strike Groups (ESGs) transport troops, vehicles, and supplies all over the world wherever they are needed and provide military commanders greater flexibility in planning operations. However, if the amphibious ships encounter resistance while moving into position to perform operations, they need to fight their way into position for expeditionary operations.

According to the Joint Doctrine for Amphibious Operations, amphibious operations "can be generally broken down into five major types: assaults, withdrawals, demonstrations, raids and other amphibious operations."[1] Amphibious assaults involve moving landing forces from ships to a hostile or potentially hostile shore. An amphibious withdrawal is the extraction of friendly forces from a hostile or potentially hostile shore to a ship. Amphibious demonstrations are shows of force "to deceive with the expectation of deluding the enemy to a course of action unfavorable to it."[2] On the other hand, amphibious raids are swift incursions to or temporary occupations of an objective, followed by a planned withdrawal. Other amphibious operations consist of noncombatant evacuation operations, foreign humanitarian assistance and logistic support of forces ashore.[3]

Amphibious ships have been designed to support these missions. They have built-in stern wells that are wide enough to allow Landing Craft Air Cushion (LCAC) and utility landing craft (LCU) to enter and transport Marines, Marine equipment, other passengers or amphibious operation equipment. Also, all amphibious ships have flight

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[1] S. A. Fry, *Joint Publication 3-02: Joint Doctrine for Amphibious Operations* (Washington, DC: Joint Staff, 2001), I-2.

[2] Ibid., I-2.

[3] Ibid., I-3.

decks to support air amphibious operations. Amphibious ships are armed only with Close In Weapon Systems (CIWS) and small arms (25mm machineguns and smaller) for self-defense and have no major fire control system. The exceptions are amphibious aircraft carriers which have, in addition to the above weapons, short-range NATO Sea Sparrow missiles and Rolling Airframe Missiles (RAM) for air self-defense.[4]

2. Amphibious Asset Protection, from ARGs to ESGs

Amphibious ships are not designed for fighting hostile naval forces, especially highly maneuverable patrol craft.[5] Increasing this mission capability would decrease available shipboard space for supplies and Marine forces, the focus of the ships' mission. The design of amphibious ships left Amphibious Readiness Groups (ARGs) (composed of three amphibious ships) vulnerable to attacks by littoral countries, in particular, surface navy and land-based air action. ARGs' primary organic offensive weapons against surface navy action were small arms. The amphibious aircraft carriers have short range NATO Sea Sparrow and RAM for own ship's defense if attackers use surface-to-surface missiles. The Emergency Defense of the Amphibious Task Force (EDATF) is another available defensive entity in an ARG. The EDATF is made up of Marine AV-8 Harrier jump jets, AH-1 Cobra helicopters and UH-1 Iroquois helicopters, which can swiftly defeat enemy forces in the air or on the water.[6] However, the drawback of the EDATF is that all the aircraft need to be in the air or quickly have safe wind direction and speed for launching from the carriers. Also, employing the EDATF takes away air assets, fuel, and ammunition originally apportioned to the Marine Air-Ground Task Force (MAGTF) for ground operations. ARGs required better offensive capabilities and layered defense against surface threats.

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[4] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 160-181.

[5] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 160-181.

[6] John Jamison, "Marines and Sailors Recreate History with Emergency Defense Bent on Protecting the Amphibious Task Force, " *Marines Online*, March 1997. Available from the World Wide Web @ http://www.hqmc.usmc.mil/marines.nsf/0/5a6b7811d5841c9f8525645d00750a32?OpenDocument. Accessed 30 August 2003.

In order to counter littoral threats, the Navy has transformed ARGs to Expeditionary Strike Groups (ESGs) by assigning dedicated combatant ships: cruisers, destroyers, and frigates (CRUDES), to protect the amphibious ships.[7] These ships have tremendous firepower provided by extensive fire control systems, a wide array of anti-surface and anti-air missiles, and main gun(s) with barrel sizes of 76mm or greater. However, they require large crews and are expensive to build and operate. For example, AEGIS Destroyers have a crew of 325 sailors and cost approximately $930 million per ship ($CY93).[8] Crew requirements and costs of the CRUDES ships restrict their numbers in the fleet, and so only three are assigned to ESGs. An insufficient number of CRUDES ships in an ESG is a potential liability against high-density small boat attacks or coordinated surface action.[9] This study investigates such a scenario.

3. Sea Base Protection

Once forces are ashore, the vessels providing the sea base for such ground forces remain on station to support operations at the objective. The sea base, composed of the amphibious ships from the ESG and potentially maritime preposition supply ships, is vulnerable to surface threats. The maritime preposition supply ships are logistical ships that, with no weapons listed, have less defensive fighting power than any of the ships in an ESG.[10] The sea base relies on the protection of the CRUDES ships assigned to the participating ESG and the sea base is set up well after the Navy establishes sea control for the particular littoral area. However, high-density small boat attacks remain a hazard for the duration of an operation.

B. PROBLEM

1. Probable Threat

Looking to the future, areas in which we may perform amphibious operations do not tend to have large navies with large combatant ships—like destroyers or greater.

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[7] Deep Blue, *Expeditionary Strike Force Concept: Far ... From the Sea the Power of Teamwork*. (Sherman Oaks, CA: Aretè Associates, 2003) 2-6.

[8] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 105, 125, 136, 147.

[9] Jessica Davis, "New Expeditionary Strike group to Enhance Navy-Marine Corps Team," *Navy Newsstand*, December 2002. Available from the World Wide Web @ http://www.news.navy.mil/search/display.asp?story_id=9403. Accessed 25 July 2003.

[10] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 289-292.

Many costal nations will have patrol boats and possibly missile corvettes because of costs and the need for only a "green water" (littoral) navy. These nations defend their coasts well at an affordable cost. Corvettes, coastal patrol boats and smaller vessels equipped with small arms and possibly four Exocet or Styx missiles are considerably less expensive than CRUDES ships and require a fraction of the crew.[11] [12] Consequently, these countries can field a more abundant fleet of smaller ships for the price of one or two CRUDES ships. The attack by a small, suicidal boat laden with explosives, on USS COLE showed that small boat attacks are a viable threat against the US Navy. The attack rendered USS COLE out of action for nineteen months.[13] One question this study intends to explore is: **"How can the U. S. Navy effectively counter the high-density small boat threat?"**

2. LCS Option

Recently, the Navy has announced that it is creating a new type of ship, the Littoral Combat Ship (LCS), to augment carrier strike groups' (CSG) and ESGs' protection in coastal environments.[14] These ships will be approximately the size of a corvette, possibly with options such as: the capability to control a helicopter or Unmanned Combat Aerial Vehicle (UCAV), an organic helicopter or UCAV, the latest stealth technology, the ability to shoot surface-to-surface missiles for high volume close-in firepower, and 50-plus knot sprint capability.[15] Although they are oceangoing, they are envisioned to fight in the littoral area, where our ESGs operate, with greater flexibility and numbers than other combatant CRUDES ships. In addition, the LCS is

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[11] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 103-145, 206.

[12] John Pike, "Pohang (PCC Patrol Combat Corvette)," *Global Security.org*, July 2002. Available on the World Wide Web @ http://www.globalsecurity.org/military/world/rok/pohang.htm. Accessed 16 September 2003.

[13] David Icenhour, "Keys to the County Presented Aboard USS COLE," *Alexander County News Release*, July 2002. Available from the World Wide Web @ http://www.co.alexander.nc.us/news/2002%20News%20Releases/Key%20to%20the%20County%20USS%20Cole.htm. Accessed 25 July 2003.

[14] Sandra I Erwin, "Littoral Combat Ship Moving Closer to Reality," *National Defense Magazine*, April 2003. Available from the World Wide Web @ http://www.nationaldefensemagazine.org/article.cfm?Id=1079. Accessed 20 August 2003.

[15] Naval Warfare Development Command. *Littoral Combat Ship Concept of Operations Development SITREP* (Newport, RI: Naval Warfare Development Command, November 2002).

envisioned to have a lower cost and a smaller crew per ship than current escort ships.[16] [17] However, the addition of a new combat system may not necessarily yield the desired results or efficiencies. Other questions this study intends to explore are: **"Is the LCS a better option than the U.S. Navy's current arsenal to defend ESGs? What capabilities enhance LCS's performance?"** These questions are answered in the Data and Analysis chapter.

C. WHY AGENT BASED SIMULATION?

There are no easy answers to the questions posed above. In particular, there are tremendous uncertainties about what situation, where and whom ESGs might have to fight when LCSs are proposed to deploy in the fleet. Furthermore, we do not know what equipment and accompanying tactics potential threats might use. Simulation is a way to explore such questions. Running simulations allows for investigation on how various LCS candidates might perform in a range of scenarios.

Agent-based models are types of simulations that have recently been used to help explore questions like those above. Agent-based simulations create entities that perform various actions. Each agent simulates a unit (a soldier, aircraft, tank, ship, armored vehicle, artillery, etc.) that acts (move, sense, shoot, communicate, etc.) autonomously or cooperatively. The overriding missions for each unit in the simulation are to fight, survive, make sure the agent's teammates survive and destroy the enemy. Real war is similar. In war, each unit has a Commanding Officer (CO) that has an overall mission and specific tasks pertaining to the unit or sub-group of units. However, each CO is different, with a different personality and perspective, and a characteristic way of fighting in the war. This is a major reason why an agent-based model was chosen for this study; agent-based models allow for these personality differences.

Two other reasons why an agent-based model was chosen for this study are agent-based models are fast and tend to be stochastic. A discrete run in an agent-based model will usually take no longer than a minute. This speed allows an analyst to explore many

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[16] U.S. Navy, *Department of Defense Information Paper: Background Assumptions on 30 Year Shipbuilding Plan*, September 2003.

[17] Sandra I Erwin, "Littoral Combat Ship Moving Closer to Reality," *National Defense Magazine*, April 2003. Available from the World Wide Web @ http://www.nationaldefensemagazine.org/article.cfm?Id=1079. Accessed 20 August 2003.

scenarios, capabilities and assumptions in a relatively short amount of time. Since agent-based models are stochastic, no two discrete runs are the same. Moreover, we get a distribution of possible outcomes from any given input combination. The variability simulates chance and Clausewitz's "fog of war." For these reasons this thesis utilizes the agent based simulation, EINSTein, developed by the Center for Naval Analyses (CNA).

II. MODEL AND SIMULATION

A. INTRODUCTION

This chapter explains the EINSTein model, discusses the testing scenario, and goes over the assumptions and factors used in this study. The EINSTein section talks about the model, its strengths and its limitations. The anti-access scenario and baseline personalities and capabilities are explained in the scenario section. The assumptions and factors section discusses key assumptions made in this study and starts to describe the factors that are explored.

B. EINSTEIN

1. Model

Enhanced ISAAC (Irreducible Semi-Autonomous Adaptive Combat) Neural Simulation Toolkit (EINSTein) will be used to gain insights to answer the questions of and possible trade offs between force composition and options. Andrew Ilachinski created EINSTein to be an artificial-life laboratory (Agent-based simulation) for exploring self-organized emergence in land combat.[18] Greg Cox of the Center for Naval Analysis modified it for use in naval warfare, which will be discussed later in this chapter.

EINSTein is a model that is a stochastic time-step simulation. Time-step simulations break time into equal periodic increments. For example, if an agent moves three squares per time-step, then an agent will move to a new square three squares away from its current position at the next time-step. This is similar to what a knight can do in chess. The knight, and agent, never is located in any of the squares between its current position and future position but moves (like teleportation) from the current position to the future position. Unlike chess, all the agents in EINSTein may move simultaneously at

[18] Andrew Ilachinski, *ISSAC/EINSTein: An Artificial-Life Approach to Land Combat* (Alexandria, VA: Center For Naval Analyses, February 2003). Available from the World Wide Web @ http://www.cna.org/isaac/. Accessed 28 February 2003.

every time step. EINSTein uses ISAAC agents that can represent individual combat units from troops, to aircraft, to capital ships.[19] ISAAC agents contain four main characteristics:

Doctrine: a default local-rule set specifying how to act in a generic environment

Mission: goals directed behavior

Situation Awareness: sensors generating an internal map of the environment

Adaptability: an internal mechanism to alter behavior and/or rules[20]

These characteristics are appropriate for naval warfare. The doctrine characteristic is in keeping with the U.S. Navy's doctrinal approach of every ship having a set of standard operating procedures (SOP) and battle orders, which give ship COs (Commanding Officers) and their crews guidance on what actions to take for various situations. Naval Strike Group Commander's intentions, which contain the battle group goals, are simulated in this model by the mission characteristic. The situational awareness characteristic is appropriate in simulating the bridge and Combat Information Center (CIC, tactical display room) working in concert using radars, chart position fixes, visual observations and tactical data link information to maintain the battle space picture for the ship. EINSTein's adaptability characteristic models a CO and the crew's ability to take calculated risks is combat, given the battle space picture.

The EINSTein battlefield is a two dimensional area where no two agents occupy the same position. The agents, only red or blue, are initially positioned in either a formation that the user specifies or at random. Both sides (red and blue) have a single "flag" that symbolizes a tactical objective to gain or defend. Agents exist in one of three states: alive (undamaged), injured (damaged), or killed (dead). A set of distinctive personalities and abilities can be defined for squad members existing in each state. Each agent has a set of operating characteristics (sensor range, firing range, communications

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[19] Andrew Ilachinski, *ISSAC/EINSTein: An Artificial-Life Approach to Land Combat* (Alexandria, VA: Center For Naval Analyses, February 2003). Available from the World Wide Web @ http://www.cna.org/isaac/. Accessed 28 February 2003.

[20] Andrew Ilachinski, *Towards a Science of Experimental Complexity: An Artificial-Life Approach to Modeling Warfare* (Alexandria, VA: Center For Naval Analyses, February 2000). Available from the World Wide Web @ http://www.cna.org/isaac/. Accessed 28 February 2003.

range, and communications weight, i.e. level of information) within which it senses and assimilates simple forms of local information, and a personality, which determines the general manner in which the agent responds to its environment.[21]

The agents are grouped into squads. Each side (red and blue) can have up to ten squads. Agents in a particular squad have the same set of personalities, abilities and operating characteristics. This is similar to COs of ships in the same class using the same doctrine when operating in a battle group. Also, ships in a class will have virtually the same operating and fighting capabilities. In a fleet there is little difference in the tactics, techniques and procedures (TTP) from one cruiser to another cruiser. On the other hand, there is a major difference between the SOPs of a cruiser and an Amphibious ship because of the different radar systems, weapon systems, maneuverability and size, to mention just a few reasons.

a. Personality and Movement

The personalities of agents are defined by a six-component (personality weight) vector, $\mathbf{w} = [w_1, w_2, \ldots, w_6]$. The weights can be any real number. A positive personality weight represents an attraction. On the other hand, negative weights represent repulsion. Weights of zero represent indifference. The six components that an agent has the propensity to be attracted to move toward or a desire to move away from are:

w_1 = desire to move to or from alive friendly agents (like-colored agents)

w_2 = desire to move to or from alive enemy agents (different colored agents)

w_3 = desire to move to or from injured friendly agents

w_4 = desire to move to or from injured enemy agents

w_5 = desire to move to or from friendly flag

w_6 = desire to move to or from enemy flag

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[21] Andrew Ilachinski, *ISSAC/EINSTein: An Artificial-Life Approach to Land Combat* (Alexandria, VA: Center For Naval Analyses, February 2003). Available from the World Wide Web @ http://www.cna.org/isaac/. Accessed 28 February 2003.

EINSTein takes each weight (w_i) and divides it by the total personality weight (the sum of the absolute value of the individual weights=$\Sigma_i |w_i|$) to calculate the percentage of the total personality weight that w_i merits. EINSTein uses this percentage against other weights' percentages, along with what the agent senses, to generate movement that maximizes the agent's utility during a particular time-step. If there are multiple most enticing moves for an agent at a particular time-step, the agent will randomly choose one of them. See Ilachinski, ISSAC/EINSTein: An Artificial-Life Approach to Land Combat, http://www.cna.org/isaac/ for the details on how the value of potential moves are calculated.

The CRUDES ships' (agents') alive personality vector in the anti-access scenario is 10, 40, 0, 40, 0, 10, for weights w_1 through w_6, respectively. If a CRUDES ship had an alive friendly ship to starboard and an alive enemy ship to port, it will desire to move toward the alive enemy ship. However, if a CRUDES ship is flanked in the same way by an alive enemy ship and an injured enemy ship, the agent will randomly choose between the two options. This choice simulates a CO's judgment. Some CO's might think that the injured enemy ship is less of a threat, therefore approaching and engaging the alive enemy ship would be the best decision. Other COs would think that the injured enemy ship is an easier threat to eliminate and would reduce the combined enemy fighting capability. So, approaching the injured enemy ship would be the better of the two decisions. EINSTein's advancements allow for agents moving in a formation, as well.

An agent's personality may also be augmented by a set of meta-rules that take into account its environmental conditions. The class-1 meta-rule prevents an agent from moving toward an enemy flag unless it is surrounded locally by a minimum number of friendly agents. The class-2 meta-rule prevents an agent from moving toward friendly agents once a threshold number of friendly agents surround the agent. Other rules deal with engaging in combat, retreat, pursuit, support, and holding position. These personalities and meta-rules serve as battle orders from a strike group commander to subordinate unit commanders. In the test runs of the anti-access scenario, the amphibious ships often maneuvered into combat with the CRUDES ships rather than following behind the CRUDES ships. To improve fidelity, amphibious ships have a cluster meta-

rule set established so they have a greater desire to cluster than approach the enemy flag. The clustering meta-rule is set so that the amphibious ships desire to cluster with at least four friendly ships. Considering that there are only three amphibious ships in an Expeditionary Strike Group (ESG), the amphibious ships follow CRUDES ships and LCSs to the objective, following the meta-rule to cluster with a minimum of four friendly ships.

b. Combat

EINSTein's combat uses an agent's maximum number of targets to engage to determine how many targets to randomly choose for targeting that are within the agent's firing range. Then, EINSTein uses uniform random variables against an agent's single shot probability of hitting to determine if the agent hits the targeted agents. If an agent is hit its state is degraded. The degradation progresses from alive to injured, then injured to dead. Once an agent degrades to the injured state, it uses the set of injured personality traits and ability traits defined for its squad's injured state. If an agent is degraded to the state of dead, the agent ceases to exist. Fratricide is a possibility that can be enabled in EINSTein's combat simulation, adding to the realism. Harpoon (BGM-84) is a great example of a weapon used by the U.S. Navy that has fratricide as a possible result. Although navy crews are trained to employ Harpoon to minimize fratricide, Harpoon's seeker looks for and locks onto the first ship it can see while it is in terminal phase. It does not differentiate between friendly, enemy or neutral shipping. There are other weapons that navies employ that do not differentiate between targets. Human error and the "fog of war" coupled with these weapons bring about the possibility of fratricide.

c. EINSTein for Naval Combat

A snapshot of EINSTein being used for naval combat analysis is shown below in Figure 1. The picture is taken from Dr. Greg Cox's, from the Center for Naval Analyses, simulation "Gamelet," held at the Naval Postgraduate School. In this scenario, blue enemy ships are poised to defend the Northern Arabian Gulf (NAG) from red U.S. ships in a CSG starting in the Gulf Of Oman (GOO) trying to reach

their objective in the NAG. The four blue dots in Iran are shore missile batteries. The single red dot to the left of the "10" is an AWACS plane providing enemy position information to the red ships in the CSG.[22]

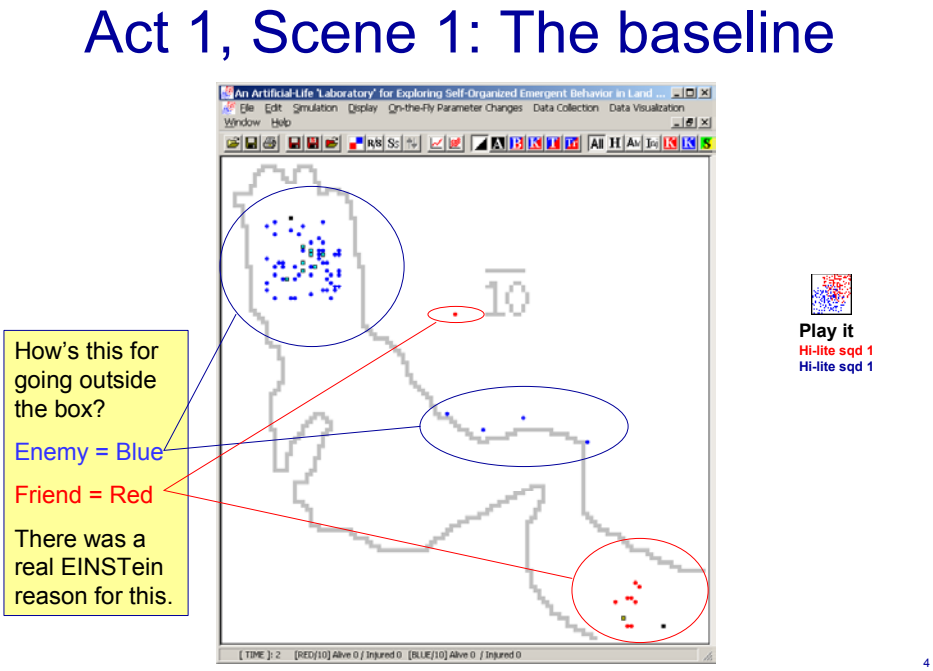

Figure 1 Example of EINSTein Window

To modify EINSTein for naval combat, Dr. Cox removed all the terrain aspects unless he wanted to create impassable land surrounding the water. He modeled capabilities and personalities to (abstractly) emulate real platforms. He used these platforms in a naval scenario where he and students explored the utility of LCS and possible LCS capabilities for augmenting CSG defense. The study of the "Gamelet" exposed insights on influential LCS factors and influential tactics that would be beneficial to defending a CSG from an enemy Surface Action Group (SAG).

Dr. Cox's "Gamelet" serves as a blueprint for this thesis. The battlefield, enemy small boats, and CRUDES ships were borrowed from the "Gamelet," with slight modifications. The baseline LCS, firepower factor, stealth factor and speed factor are

[22] Greg E. Cox, *EINSTein Visits the Persian Gulf (via Monterey, California): A Naval Requirements War 'Gamelet' Held at the Naval Postgraduate School 11-15 FEBRUARY 2002*, (Alexandria, VA: Center for Naval Analyses, March 2002).

also borrowed from Dr. Cox's "Gamelet." This study took note of the strengths and weaknesses of using EINSTein to explore naval combat, and decided that EINSTein's strengths greatly outweigh its weaknesses for exploratory purposes.

2. Strengths

EINSTein has proven to be a way to gain insights on combat and combat performance. Over the past two winter quarters at the Naval Postgraduate School, Dr. Cox has involved students in Joint Campaign Analysis in his exploratory study of LCS. He and students used EINSTein to simulate LCS's participation in protecting a CSG in an anti-access scenario.[23] The study demonstrated that agent-based models could effectively simulate naval warfare. The study encompassed in this thesis utilizes some of the techniques learned from Dr. Cox's study.

In terms of their personalities, agents act like COs in charge of their ships. All the COs know the operational objective, but each has slightly different methods for accomplishing the mission. Specific benefits include that the model is stochastic. A set of inputs will produce different outputs for each discrete simulation run, thus providing a range of outcomes. EINSTein, like many agent based models, is a quick model in which many runs can be performed in a short time (approximately ten seconds to perform one 500 step run). This enables us to look at many scenarios and variables in a reasonable amount of time. Finally, additional naval studies were performed with EINSTein in the Naval Postgraduate School's Joint Campaign Analysis class.

Picking up where previous naval studies left off and making adjustments for this scenario was not difficult. EINSTein's allowance for fratricide adds to the model's ability to simulate combat. Weapon systems like harpoon missiles and small arms are fire-and-forget weapons that do not differentiate between friend and foe. Once those missiles reach a designated area they begin searching and then attack the first contact they acquire. Small arms fire travels in a fairly straight line, so rounds hit whatever is in their path. The fog of war and motion of the ocean limits a small arms operator's ability to properly aim at opposing

[23] Greg E. Cox, *EINSTein Visits the Persian Gulf (via Monterey, California): A Naval Requirements War 'Gamelet' Held at the Naval Postgraduate School 11-15 FEBRUARY 2002*, (Alexandria, VA: Center for Naval Analyses, March 2002).

forces and adds to the possibility to fratricide. Fratricide is set in the model to a range of ten squares from a platform's position with a one percent probability of hitting friendly forces.

3. Limitations and Required Abstractions

In general, EINSTein is a low-resolution model that is best at gleaning broad insights as opposed to detailed predictions. For this study, EINSTein's notable limitations are its treatment of speed, time, ship performance capabilities, and aircraft. There are only five levels for speed (0, 1-4). The scale is fixed so EINSTein has relative size and speed limitations. For this study one level of speed will equate to 25 knots. An agent that simulates most ships will have a speed of 1, i.e. simulating 25 knots. Agents that simulate the fastest ships, those that can achieve approximately 50 knots, will have a speed of 2. Helicopters and UCAVs will have a speed of 4 to represent their ability to fly approximately 100 knots.[24] [25] Speed and ranges are relative to how one considers a time-step. This study uses one square on the EINSTein battlefield to equal one nautical mile (NM). Considering that it takes a CRUDES ship 25 time-steps to move 25 squares, 25 time-steps will be considered an hour in the model.

Although the time step aspect makes simulating real life easier, the simulation loses some of the fluidity of real life. Certain events, like an agent entering a sensor arc of another agent, could be missed if the event would have occurred in the period between time-steps. A ship or aircraft's performance in the model depends on its abilities and personality, so inputs must be adjusted and tested to ensure proper reactions. Sometimes a personality vector does not take full advantage of the platform's abilities. This study will use one set of personality vectors to a level that seemed reasonable for all capabilities. Using one set of personality vectors was done as a control mechanism in order to focus on the ship configurations and capabilities.

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[24] Dennis Sorensen, *Naval Unmanned Aerial Vehicles*, (Patuxent River, MD: Navy Unmanned Aerial Vehicles- PMA263, September 2003). Available on the World Wide Web @ http://uav.navair.navy.mil/vtuav/default.htm. Accessed 5 September 2003.

[25] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 441.

For the aircraft, there is more than one way to simulate a helicopter or UCAV in EINSTein. One approach is to create a squad of aircraft agents. The other is to increase the weapon range and sensor range of the ship that in real life would be controlling the aircraft. Both methods do not properly emulate an aircraft's need to return to its base ship to replenish expended munitions. The first method's aircraft never return to the ship to reload and the second sets both the ships' and aircrafts' weapons at the same capability in range and probability of hit. In method one, a squad of aircraft in the model will become fairly autonomous, sometimes allowing aircraft to fly outside of the safe aircraft flying distance from its controlling ship. The second method doesn't take into account that the aircraft can be shot down, losing their benefits, and that the opposing forces have to target aircraft and ships separately. This is the most significant shortcoming in the model due to limited control of aircraft agents and a degree of abstraction. This study uses method 1 to simulate aircraft, taking advantage of their contribution, but capturing their vulnerability to enemy fire.

Another drawback of EINSTein is that there is no way to add neutral shipping. The only agents that exist in this model are opposing red and blue agents. Neutral shipping complicates combat situations by adding more ships that need to be examined for neutrality or hostility and adding ships to avoid from shooting. Platforms on both sides have perfect battlespace knowledge of contact position, battle damage assessment on each contact, and IFF (Identification Friend or Foe, whether the platform a friend or a foe) inside of their sensor range,

C. SCENARIO

This study required plausible scenarios to properly examine the capabilities of LCS. The scenarios have to examine operations in littoral areas and properly flex the probable threats. This study focuses on surface threats. Considering how much damage a small boat with explosives inflicted to USS COLE (DDG 67) and the likelihood that most countries near potential ESG operating areas will only have small boats, this study uses the high-density small boat attack as the primary threat to the ESG. Another reason the high-density small boat attack was used in this study was because some of these small

boats, like Boghammer Patrol Boats, carry RPG (Rocket Propelled Grenades) and cruise missiles. Like the Exocet that took USS STARK (FFG 31) out of action, cruise missiles can deliver crippling damage to larger combat ships.

The enemy force consists of one squad of thirty high-speed small boat agents. Their personalities and capabilities are the exact same as the high-speed small boat agents used in Dr Greg Cox's previous studies. The enemy high-speed boats are envisioned to be a midpoint boat between the common motorboat with a machine gun and a Fast Patrol Boat (FPB 354).[26] The model's enemy high-speed boats' key capabilities are shown below in Table 1.

	Movement per time step		Staying Power		Sensor/Fire range		S S Phit (no. engage)	
Squad	Alv	Inj	Alv	Inj	Alv	Inj	Alv	Inj
HS Boats	2	1	1	1	15/8	8/4	0.05 (1)	0.025 (1)

Table 1 Red Force High-Speed Boat Capabilities

1. Red Force

a. Enemy High-Speed Small Boat Capabilities

When undamaged, a high-speed boat's movement in this model is up to two squares per time step (approximately fifty knots). After receiving one direct hit, the high-speed boats transition from the undamaged to the damaged state. Undamaged high-speed boat's sensors can detect up to fifteen NM, simulating low quality surface search radar and low quality CIC (tactical display room) with limited manning. The high-speed boat can shoot up to eight NM from its position. The shooting range models small arms and the occasional possibility of using an RPG or an Exocet missile. Also, the high-speed boats can engage one target per time-step with a five percent probability of hitting the target, which simulates the ability to only bring one weapon system to bear because of small crew size and the inaccuracy of using a human as the fire control system. The probability of hit may seem low for modern weapon systems. However, in EINSTein, each ship will fire weapons at all targets within its sensor and weapon ranges each time-

[26] Peene- Werft GmbH, *Naval Shipbuilding: Fast Patrol Boat FPB 354*, (Stralsund, Germany: Peene-Werft GmbH, September 2003). Available on the World Wide Web @ http://www.peene-werft.de/en/schiffe/d_fpb354.html#top. Accessed 16 September 2003.

step. The low values account for the probability that the target is actually engaged and hit—which includes the probabilities that the target is identified, tracked, attacked and hit.

When damaged, the high-speed small boat agents' movement is slowed to one square per time step, simulating degraded propulsion performance (approximately twenty-five knots). A damaged high-speed boat's transition to a dead state occurs after receiving one direct hit. Damaged high-speed boat's sensors can detect up to eight NM, simulating that the surface search radar is destroyed and the boat is using visual sensors. To simulate only having small arms and RPGs as weapons and injured operators the high-speed small boat agents can shoot up to four NM from the agent's position, and can engage one target per time-step with a two and a half percent probability of hitting.

b. Red Force Enemy High-Speed Small Boat Personalities

The enemy high-speed small boat personalities are shown below in Table 2. An undamaged high-speed small boat most desires to approach undamaged (alive) and damaged (injured) enemy (blue in this case) forces equally and desires to approach the enemy objective (enemy flag) half as much. The desire to approach the enemy objective helps to initiate an engagement between blue and red forces. These personalities fit in with an aggressive attack style expected from a high-density small boat attack. The boats seek out the enemy and then aggressively stay with the enemy until the enemy is destroyed. This personality also takes advantage of the high-density small boat attack's numbers. The aggressiveness drives more small boats to flood the enemy combatant's radar picture, making it harder for enemy combatants to target individual small boats—like a shark with a school of fish. A damaged high-speed small boat also seeks to engage undamaged and damaged enemy ships equally. These injured personalities are set as such because high-speed small boats will likely be already near blue forces when they are damaged. Red force boats focus only on destroying blue ships.

	When Alive						When Injured					
Squad	To alv friend	To alive enemy	To inj friend	To inj enemy	To friend flag	To enemy flag	To alv friend	To alive enemy	To inj friend	To inj enemy	To friend flag	To enemy flag
HS Boats		40		40		20		50		50		

Table 2 Red Force High-Speed Boat Personalities

2. Blue Force Capabilities

The scenario this study examines is an ESG in an anti-access setting. ESG agents' capabilities are listed below in Table 3. When undamaged, all the ESG agents move one square per time-step, simulating their ability to transit at approximately twenty-five knots. Taking into account the large size of amphibious ships and their defensive weapons, in this model, these platforms can take two direct hits before transitioning from the undamaged state to the damaged state. CRUDES ships tend to have a more capable defensive weapons suite so they have the capacity to take three direct hits before becoming damaged in this model. Note: this does not mean CRUDES ships can absorb three hits without damage, rather it is used to account for the CRUDES ship's defensive weapons—i.e., many incoming missiles will be successfully countered by hard kill and soft kill measures.

	Movement per time step		Staying Power		Sensor/Fire range		S S Phit (no. engage)	
Squad	Alv	Inj	Alv	Inj	Alv	Inj	Alv	Inj
Amphibs	1	1	2	2	20/10	10/7	0.10 (2)	0.05 (1)
CRUDES	1	1	3	2	30/20	20/15	0.15 (2)	0.075 (1)
LCS	1	1	1	1	20/10	10/7	0.10 (1)	0.05 (1)

Table 3 Baseline Blue ESG Force Capabilities

The baseline LCS is envisioned to have similar defensive capabilities as the enemy high-speed boats so it can only take one direct hit before transitioning from the undamaged state to the damaged state.[27] In the model, amphibious ships and LCSs can detect contacts twenty NM away emulating higher quality surface search radars, tactical data links, and a CIC manned with a trained crew. CRUDES ships detect platforms within thirty NM of their position due to their ability to use quality radars (like the SPY-1 and Combined Antenna System), use tactical data links, and having their CIC manned with a highly trained crew.

[27] Sandra I Erwin, "Littoral Combat Ship Moving Closer to Reality," *National Defense Magazine*, April 2003. Available from the World Wide Web @ http://www.nationaldefensemagazine.org/article.cfm?Id=1079. Accessed 20 August 2003.

To simulate an amphibious ship and LCS being armed with small arms, as well as systems like CIWS and NATO Sea Sparrow (in surface mode), in the model amphibious ships and LCSs can shoot up to a distance of ten NM from their position. CRUDES ships, with their better weapon systems, like SM-2 (in surface mode) or Harpoon missiles, can shoot up to twenty NM from their position. Amphibious ships can engage two targets (thanks to greater manning) with a ten percent probability of hit (decent fire control). On the other hand, LCSs can only shoot one target (lower manning) with the same ten percent probability of hit. CRUDES ships, with their better combat and fire control suites, can shoot two targets with a fifteen percent probability of hitting them.

Upon being damaged there is no change to the ship's speed. Damaged amphibious and CRUDES ships can take two more direct hits before destruction, simulating their ability to take substantial amounts of damage before being sunk or completely knocked out of combat. Damaged LCSs, like the enemy high-speed boats, can only take one direct hit before being destroyed. In the model, amphibious ships and LCSs simulate having decreased radar ranges and a degraded tactical data link by limiting their detection range to ten NM from their position. CRUDES ships do the same by limiting their sensor detection range to twenty NM when damaged. Amphibious ships and LCSs have a firing range of seven NM to simulate the loss of some primary weapons with a better ability for fire control than the high-speed boats. CRUDES ships are expected to have one of their primary surface weapons when damaged, so their firing range is fifteen NM. All damaged ships can only engage one target. Amphibious ships and LCSs shoot with a five percent probability of hitting while CRUDES ships shoot and hit with a probability of seven-and-a-half percent. This lower probability simulates degraded fire control capability. ESG unit personalities will be discussed in the following section. Alternative LCS capabilities will be discussed in the next chapter.

3. Anti-Access Situation and Blue Force Personalities

The anti-access scenario simulates an ESG transiting through a choke point. A choke point is a narrow body flanked by land that connects two large bodies of water. There is little room for ships to maneuver in a choke point. The Straits of Gibraltar, the Formosa Straits and waterways in between the North Sea and the Baltic Sea are examples. ESGs will have to pass through one to reach some littoral areas so its ships

can perform amphibious operations. A group of ships transiting a choke point usually can only pass in a line or at the most two abreast. The exit of a choke point is an excellent place to deploy forces to resist transiting ships. Resisting forces can virtually cross the "T" by positioning their forces at the exit so that many of the resisting ships can shoot their weapons while the transiting force will only have a portion of their ships that can shoot weapons without risk of fratricide.

This thesis analyzes an ESG transiting from its starting point in the GOO to its destination up in the NAG in an anti-access scenario. The ESG attempts to pass through the Straits of Hormuz while fending off a high-density small boat attack. The ESG (blue) agents' personalities are shown below in Table 4. The individual weights add up to one hundred ($\Sigma_i |w_i|=100$) to ease recognition of the percentage of the total personality weight devoted to a component of the personality vector. When undamaged, amphibious ships in the model desire to move toward friendly undamaged friendly platforms with forty percent of the total personality weight, damaged (injured) friendly platforms with forty percent of the total personality weight, and the objective (enemy flag) with twenty percent of the total personality weight. The undamaged personality vector emulates amphibious ship COs' desire to say with the protection of other ships while also desiring to approach the objective to perform amphibious operations. Damaged amphibious ships desire to be near undamaged platforms for safety is shown by increasing that weight to forty five percent of the total weight and lowering the desire to approach the objective to fifteen percent of the total weight. However, the meta-rule for the amphibious ship, explained in Chapter II, section A-1-a, paragraph 3, makes the amphibious ships most desire to cluster with at least four platforms.

Anti-Access Personalities												
	When Alive						When Injured					
Squad	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag
Amphibs	40		40			20	45		40			15
CRUDES	10	40		40		10	20	20	20	30		10
LCS	10	25	10	40		15	20	15	20	30		15
Helo/UCAV	10	25	10	40		15	30	10	20	30		10

Table 4 Blue ESG Force Anti-Access Personalities

Undamaged CRUDES ships' desire to engage enemy ships undamaged and damaged cover forty percent of the total personality weight each. Their tendencies to move toward fellow alive ships and approach the objective encompass ten percent each. This study uses an aggressive CRUDES CO personality to better protect the amphibious ships. Their mission is to seek out and eliminate the threat so that the amphibious ships can perform their mission out of harms way. The undamaged CRUDES ships try to engage enemy ships before the amphibious ships are inside the enemy ships weapons range. When damaged, CRUDES ships become less aggressive and try to take advantage of numbers while still trying to engage the enemy. Now, thirty percent of their personality weight is devoted to trying to finish off damaged enemies.

CRUDES COs' desires to join with undamaged friendly forces, to join with injured friendly forces, and to engage undamaged enemy ships, are twenty percent each, balancing desires to protect the ESG and join with friendly forces for added protection. CRUDES ships also have a meta-rule enabled to not proceed to the objective in the NAG unless they are near three other friendly platforms. This meta-rule was enabled so that the CRUDES ships would not leave the amphibious ships behind on their way to the objective. The meta-rule was not enabled on the LCSs because it would be futile when the LCSs have the speed factor enabled and can move twice the speed of the amphibious ships that try to follow. This has implications for the simulated LCS activity, as discussed in Chapter IV. Amphibious ships make it to the objective in most runs when they and another platform survive.

LCS COs, when commanding an undamaged ship, also have an aggressive personality. They desire finishing off damaged enemies most, with forty percent of the total personality weight given to this task. Next is their desire to engage undamaged enemy ships, covering twenty five percent of the weight. The strike group commander's intent that LCSs scout ahead is forced on LCSs by giving their COs' desire to approach the objective fifteen percent of the total weight. Finally, the LCS COs desire to join with friendly forces, undamaged and damaged, with ten percent of the total weight each. Undamaged helo/UCAVs (helicopter/Unmanned Combat Aerial Vehicles) are given the same personality vector as an undamaged LCS.

Damaged LCSs have less aggressive COs. Their COs most desire to finish off damaged enemy ships, but this comprises only thirty percent of the total personality weight. The COs desire to join the protection of friendly forces, damaged and undamaged, with twenty percent apiece. They desire to approach the objective and undamaged enemy ships with fifteen percent of the total weight each. Damaged helo/UCAVs also aggressively desire to engage damaged enemy ships with thirty percent of their total personality weight, however they desire to seek the protection of undamaged friendly forces with the same percentage of the total weight. The balance between aggressive and conservative allows for the possibility of an aggressive pilot protecting the ESG at all costs or a conservative pilot attempting to maximize the number of friendly forces engaging enemy forces. Like damaged CRUDES ship COs and damaged LCS COs, damaged helo/UCAV pilots desire to join damaged friendly forces with twenty percent of the weight, and desire to both approach the objective and engage undamaged enemy ships with fifteen percent.

The battlefield is shown in Figure 2. The initial blue center of gravity, referred to in EINSTein as the blue flag, is positioned in the GOO and the red flag is positioned in the NAG. Blue platforms and red platforms are randomly positioned near their respective flag for each run. Initially, personalities drive the ESG forces (blue) toward the NAG and the enemy high-speed small boats (red) toward the GOO. They meet at the northbound exit of the Strait of Hormuz and engage in a fight-to-the-finish. At the end of the run cycle (500 time steps), data is collected and the battlefield is randomly reset for the next run until a run set is completed. The line above the “10” to the left of the red forces shows the length of 10 NM (squares) in the model.

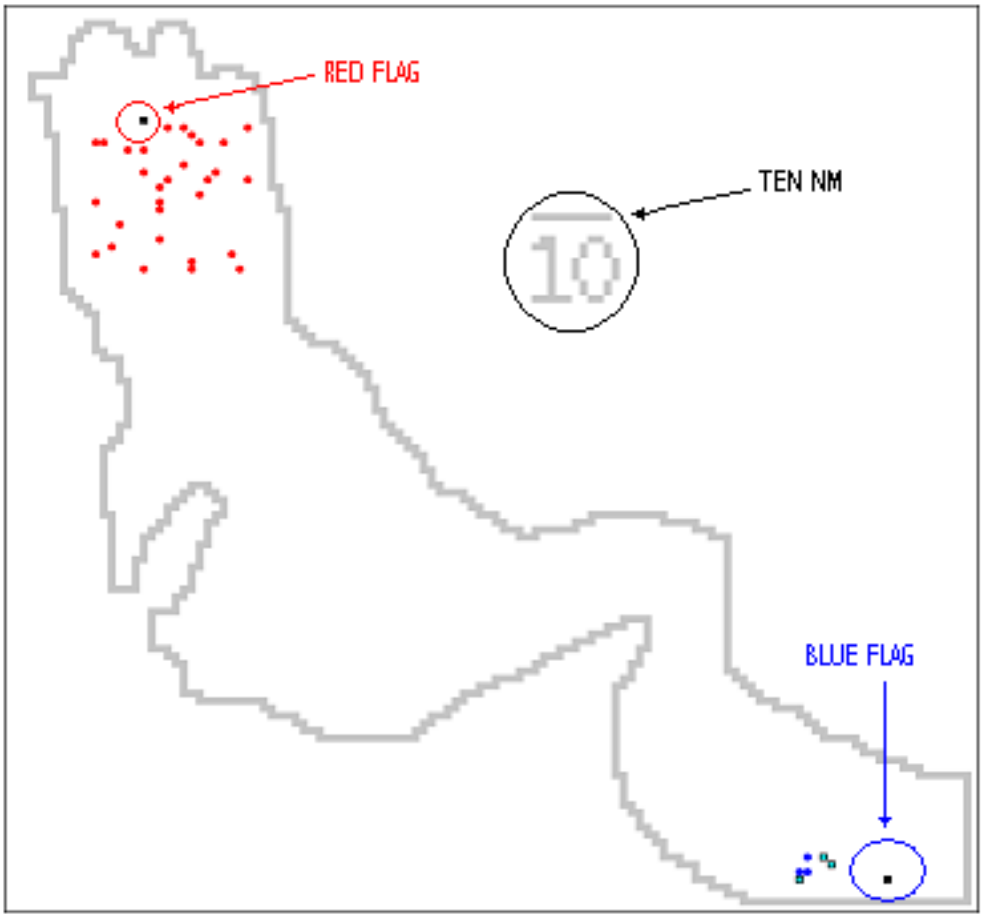

Figure 2 Anti-Access Battlefield

D. ASSUMPTIONS AND FACTORS

1. Assumptions

As with all models, there are by-products of the simulation and assumptions made with this study. Some by-products, like how many EINSTein time-steps represent an hour of real time, have been mentioned above. That there is no change in personality, even though a ship might have different capabilities, isolates the effects of changing the capabilities even though the personality vectors do not optimize specific capabilities. This experiment assumes that the LCS will be armed with weapons limited to line of sight ranges. LCS is not expected to be armed with Over-The-Horizon Targeting (OTH-T) weapons like the PEGASUS class PHM.[28] [29] OTH-T weapons require larger ships

[28] Sandra I Erwin, "Littoral Combat Ship Moving Closer to Reality," *National Defense Magazine*, April 2003. Available from the World Wide Web @ http://www.nationaldefensemagazine.org/article.cfm?Id=1079. Accessed 20 August 2003.

[29] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 197.

and will raise the cost of LCS for the weapon system, and also the requirement of capabilities to effectively use the weapons. Another assumption made in this thesis is that sea-based UCAV capabilities will be available shortly after the LCS enters the fleet.[30]

This study assumes that the LCS will have some sort of tactical data link. The tactical data link might not allow LCS to target and shoot beyond the horizon, but it allows the LCS to know the battlespace situation for quick and appropriate response. Although some newer tactical data links allow ships to cooperatively engage the enemy with other ships' fire control data as their own, most of the ships in the fleet do not have tactical data links with that capability. CRUDES are modeled in EINSTein to operate the same. Of course, DDGs, FFGs and CGs differ from each other. Each class of ships has specific weapon systems (and numbers of weapon systems), radar systems, fire control systems, and operating speeds. In fact, even CGs within the same class differ from each other. TICONDEROGA class CGs built before USS BUNKER HILL (CG 52) are equipped with the MK 26 guided missile launcher system, while BUNKER HILL and later TICONDEROGA class CGs have the MK 41 vertical launch system increasing missile capacity and missile launching speed.[31] For our purposes, we assume that these ships are qualitatively similar with respect to the capabilities of LCS, amphibious ships and enemy high-speed boats.

2. Factors

Along with the baseline LCS, the Navy is looking at four options to improve LCS combat performance. Those options are helo/UCAVs, stealth technology, high volume close-in firepower, and 50+ knot sprint capability. This study will model these capability factors in the anti-access scenario and explore possible interactions between the factors. Also, this study will examine these factors' effects in a diverse set of ESG ship combinations.

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[30] Cynthia Curiel, "Northrop Grumman Given Approval to Design, Build X-47B Navy UCAV Demonstrators; Award Strengthens UAV Partnership with Defense Department," *Northrop Grumman Press Release*, May 2003. Available from the World Wide Web @ http://www.capitol.northgrum.com/contracts/ngcontr050103b.html. Accessed 27 August 2003.

[31] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 105-6, 125-6, 143.

III. EXPERIMENTAL DESIGN

A. INTRODUCTION

This chapter covers the Littoral Combat Ship (LCS) design factors, the experimental design, and data farming. The LCS design factors section discusses the four options (potential LCS capabilities) explored in this study and how they are modeled in EINSTein. The experimental design section explains the mathematical process used to ensure all combinations of the factors are simulated, as well as all of the possible Expeditionary Strike Group (ESG) ship configurations incorporating LCS. Data farming techniques and some Measures of Effectiveness (MOEs) are discussed in the data farming section.

B. FACTORS

To obtain insights about what features may improve LCS's performance, this study explores four Littoral Combat Ship design factors: helicopters/Unmanned Combat Aerial Vehicles (helo/UCAVs), stealth technology (stealth), high volume close-in firepower (firepower), and 50+ knot sprint capability (speed). The baseline LCS (for reference), modified LCS, and Helicopter/UCAV capabilities, as modeled in EINSTein, are listed below in Table 5. The changes to the LCS capabilities are in bold.

	Movement per time step		Staying Power		Sensor/Fire range		S S Phit (no. engage)	
LCS	1	1	1	1	20/10	10/7	0.10 (1)	0.05 (1)
LCS stealth	1	1	**3**	**2**	20/10	10/7	0.10 (1)	0.05 (1)
LCS firepower	1	1	1	1	**20/7**	**10/5**	**0.20 (4)**	**0.10 (2)**
LCS speed	**2**	**1**	1	1	20/10	10/7	0.10 (1)	0.05 (1)
Helo/UCAV	4	2	3	1	30/10	10/7	0.10 (1)	0.05 (1)

Table 5 LCS, Modified LCS, and Helo/UCAV Capabilities

1. Helicopters and Unmanned Combat Aerial Vehicles

This study considers helicopters and UCAVs to be the same type of entity in the model, similar to our grouping of CGs, DDGs, and FFGs as CRUDES ships. Helos and

UCAVs fly at approximately the same speed and carry similar weapons, such as hellfire missiles.[32] [33] Helos and UCAVs do differ in flight characteristics and operation; however, these differences are relatively small (like the differences between CRUDES ships), justifying the abstraction of placing helos and UCAVs in the same category.

As explained above in Chapter II, section A-3, paragraph 3, Helo/UCAVs exist as a squad of agents in this model. They emulate the variability of a pilots' decision-making process and the possibility that a helo/UCAV can be shot down. When the helo/UCAV factor is enabled for a run-set, all controlling ships (CRUDES and LCS) have helo/UCAVs. The number of helo/UCAVs for that run-set equals the sum of CRUDES ships and LCSs. This does disregard scenarios in which CRUDES ships have helos and LCSs do not, but these situations can be considered as times when the CRUDES ships' helos are in a no-fly status.

When undamaged, helo/UCAVs fly up to four squares per time-step (approximately 100 knots).[34] [35] When damaged, their speed drops to up to two squares per time-step (approximately fifty knots) to simulate degraded engines, hydraulics problems, or an injured pilot. Because the helo/UCAVs are fighting high-speed small boats with negligible anti-air capability, undamaged helo/UCAVs can absorb three direct hits before becoming damaged. The high-speed small boats are limited to visual air searches and would only have small arms weapons and RPGs (Rocket Propelled Grenades) available to shoot down aircraft. Damaged helo/UCAVs' lack of maneuverability and smoke make them easier to target, thus only one direct hit is required to destroy a damaged helo/UCAV.[36] Thanks to their altitude and radar systems,

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[32] Public Affairs Office, *U.S. Air Force Fact Sheet: RQ-1 Predator Unmanned Aerial Vehicle* (Langley AFB, VA: Air Combat Command, May 2002). Available on the World Wide Web @ http://www.af.mil/news/factsheets/RQ_1_Predator_Unmanned_Aerial.html. Accessed 29 July 2003.

[33] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 441.

[34] Dennis Sorensen, *Naval Unmanned Aerial Vehicles*, (Patuxent River, MD: Navy Unmanned Aerial Vehicles- PMA263, September 2003). Available on the World Wide Web @ http://uav.navair.navy.mil/vtuav/default.htm. Accessed 5 September 2003.

[35] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 441.

[36] Peene- Werft GmbH, *Naval Shipbuilding: Fast Patrol Boat FPB 354*, (Stralsund, Germany: Peene-Werft GmbH, September 2003). Available on the World Wide Web @ http://www.peene-werft.de/en/schiffe/d_fpb354.html#top. Accessed 16 September 2003.

undamaged helo/UCAVs have a sensor range of thirty NM (squares). However, damaged helo/UCAVs are reduced to using the crew's vision or degraded sensors at altitude, which limits their sensor range to ten NM. Undamaged helo/UCAVs have access to weapons, such as Penguin missiles, Hellfire missiles, and small arms, allowing them to shoot one target at up to ten NM away with a ten percent probability of hit. Damaged helo/UCAVs have damaged fire control systems and an injured crew, so they can shoot one target seven NM away with only a five percent probability of hitting.

2. Stealth Technology

Stealth technology makes LCS more difficult to target. From this difficulty, stealth also makes LCS harder to hit, damage and destroy. To account for stealth in EINSTein, a stealthy LCS has better staying power than a baseline LCS. The staying power of an undamaged stealthy LCS is set at three hits, compared to one hit for an undamaged baseline LCS, before it becomes damaged. A damaged, stealthy LCS's staying power improves to two hits before it is destroyed. Damaged baseline LCSs are destroyed after only receiving one hit. The change to staying power was made because it directly affects LCS's survivability. EINSTein does not allow for changing a platform's probability to hit a specific platform. Altering the probability of hit for the enemy high-speed boats would affect their ability to also hit CRUDES and amphibious ships, which is not the intention of the LCS stealth improvement. LCS's staying power was adjusted because it isolates the enemy high-speed boats' ability to damage and destroy a stealthier LCS.

3. Close-In High Volume Firepower

Close-in high volume firepower (firepower) gives LCS the capability to develop fire control solutions on multiple targets at shorter ranges with greater lethality. Firepower's benefits are that it increases the number of contacts LCS can target and engage, and it increases the LCS's probability to hit the targets. Firepower shortens the range LCS can shoot. The shorter range might require LCS to enter an enemy platform's weapons range before LCS is able to shoot the platform, creating a situation where LCS can be damaged before it ever takes a shot. However, the expectation is that because of the enemy's low probability of hit, LCS will engage and destroy more enemies with the firepower factor.

In EINSTein, the firepower factor shortens the undamaged and damaged shooting ranges to seven NM and five NM, respectively. However, the firepower factor increases an undamaged LCS's maximum number of targets that it can engage to four, with a twenty percent probability of hitting. Firepower allows a damaged LCS to engage two targets with a ten percent probability of hitting.

4. Speed, the 50+ Knot Sprint Capability

The speed factor increases LCS's undamaged speed to two squares per time-step (approximately fifty knots), simulating the 50+ knot capability. A damaged LCS, like a damaged baseline LCS, transits at twenty-five knots (one square per time-step). Speed is not modeled to affect a platform's survivability (direct hits required to degrade the platform from one state to another). The cruise missile's speed justifies this assumption. The harpoon missile, which travels at a speed of .85 mach (approximately 562 knots), would fly over twenty two NM (squares) in the period of one time-step.[37] Given its speed, a harpoon missile would not have significantly more difficulty attacking a ship that travels one more NM per time-step than its normal target that transits at twenty five knots. The speed factor is expected to give LCS the ability to engage enemy forces further away from the ESG's amphibious ships.

C. EXPERIMENTAL DESIGN

Each factor can have its own effects, beneficial and detrimental, on LCS's ability to defend ESGs. Factors that are enabled simultaneously give LCSs the effects of all the enabled factors and the enabled factors' interactions. The interactions provide effects that could not be explored unless the factors that bring it out are enabled both separately and simultaneously. For example, stealth coupled with firepower could give LCS the survivability to consistently close the enemy to take advantage of the increased firepower, therefore improving ESG defense.

This study took an organized approach to design the experiment so that all factors and their interactions could be examined. Table 6 displays the design of experiment. Using binary addition, four factors create sixteen different combinations to examine in this study, from r0, which has no factors enabled, to r15 which has all the factors enabled.

[37] Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet* (Annapolis, MD: Naval Institute Press, 1993) 484-5.

The left most column lists the factors being used (helo's stands for helo/UCAV). A factor is used in a particular run-set if there is a "1" in its row below the run-set name. A "0" in the factor's row below a run-set's name signifies that the factor will not be enabled for the run-set.

	run-sets															
factors	**r0**	**r1**	**r2**	**r3**	**r4**	**r5**	**r6**	**r7**	**r8**	**r9**	**r10**	**r11**	**r12**	**r13**	**r14**	**r15**
helo's	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
stealth	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
firepower	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
speed	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Table 6 Design of Experiment

The sixteen run sets (r0-r15) allow us to methodically explore how the factors and interactions affect a disposition of ships. Run-set r0 has no additional capabilities, thus using the baseline LCS. Run-set r1 includes helo/UCAVs in ESG defense. The r2 run-set uses stealthier LCSs. Helo/UCAVs combine with stealthy LCSs to defend the ESG in r3. Run-set r4 uses the firepower factor. Run-set r5 uses helo/UCAVs and close-in high volume firepower. Stealthy LCSs with firepower are used in the r6 run-set. Run-set r7 enables the helo/UCAV, stealth and firepower factors. The high-speed LCS is used for ESG defense in run-set r8. Speed and helo/UCAV factors are enabled in r9. Run-set r10 uses stealthy, speedy LCSs in ESG defense. R11 employs helo/UCAV, stealth and speed factors. Speedy LCSs with firepower are utilized in r12. Run-set r13 incorporates speed, firepower and helo/UCAVs. R14 utilizes stealthy, speedy LCSs with increased firepower. All four factors are enabled in run-set r15.

1. Ship Dispositions

The normal force structure mixture of an ESG is three amphibious ships and three CRUDES ships. This was the baseline ship disposition for this study. From the baseline, CRUDES ships were removed and LCSs added to the ESG for additional force structure mixtures to examine. The top two rows of Table 7 display the various alternative ship combinations that were added to the three amphibious ships to create an ESG for this study. No CRUDES ships were added to the baseline ESG because an extra CRUDES ship would add cost and manpower requirements greater than the baseline, not following

the goal of reducing the manpower and dollar costs of an ESG. No LCSs were added to the three CRUDES disposition because manpower and dollar costs would also be greater than what the baseline requires.

	3crudes	2crudes					1crudes							0crudes						
run	0lcs	1lcs	2lcs	3lcs	4lcs	5lcs	1lcs	2lcs	3lcs	4lcs	5lcs	6lcs	7lcs	1lcs	2lcs	3lcs	4lcs	5lcs	6lcs	7lcs
r0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r2		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r3		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r4		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r5		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r6		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r7		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r8		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r9		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r10		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r11		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r12		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r13		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r14		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
r15		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Table 7 Ship Disposition and Run-Set Plan

This thesis makes some hypotheses about possible force structure mixtures. Specifically, they are that with two CRUDES ships, one CRUDES ship and zero CRUDES ships, the optimal amount of LCSs to add to minimize ESG losses will be somewhere between one and five, one and seven, and one and seven, respectively. This study assumes that the "knee in the curve" (the place where additional forces do not add reduced benefit per force unit) for ship losses will be found in these ship dispositions.

The sixteen run sets for each disposition of ships are shown in Table 7. An "x" indicates that factors for the row's run-set are examined with the column's ship combination. The ship disposition of one CRUDES ship and four LCSs protecting three amphibious ships requires examination of all sixteen run-sets. However, the ship disposition with three CRUDES and zero LCS protecting the ESG only requires run sets r0 and r1 because the ship disposition includes no LCSs. Therefore, performing the other run sets that include LCS factors would not aid this analysis. Run-sets with the helo/UCAV factor enabled use an additional squad of helo/UCAVs. The amount of

helo/UCAVs for a particular ship combination equals the sum of CRUDES ships and LCSs. So, for example, an ESG with two CRUDES and three LCSs will have a squad of five helo/UCAVs flying in run-set r1.

D. DATA FARMING

Data farming is a concern for simulation studies. EINSTein allows users to retrieve survival data and statistics for the agents in individual runs. In addition, visually undamaged platforms maintain the original red or blue, and damaged platforms can be switched to change to a light red or light blue to show their change in status. Destroyed platforms are not shown unless the user toggles the "Display where red/blue agents were killed" setting. However, this study did not require showing destroyed platforms for measurements. Also, users can highlight specific squads, but there is no coloration difference in the members of a highlighted squad.

Unfortunately, finding damaged units by squad requires manual data collection. Specifically, at the end of a discrete run, an EINSTein user has to highlight a specific squad and take note of how many damaged (lighter colored) platforms are left in the blue force (not in the highlighted squad). Then, that number is subtracted from the total damaged for the blue forces (which is listed at the bottom of the simulation window) to calculate the number of damaged platforms in the highlighted squad. Finally, the number of damaged platforms in the highlighted squad is subtracted from the number of highlighted squad members to calculate the number of undamaged squad members. From that information a user knows how many undamaged and damaged platforms are in the highlighted squad and can enter that information into the database. This thesis used Microsoft Excel spreadsheets for storing the data. The total number of surviving platforms in a squad equals the sum of the number of undamaged platforms in the squad plus the number of damaged platforms in the same squad.

1. Measures of Effectiveness

Measures of Effectiveness (MOEs) are ways to quantify the goals of this study. This study's goal is to find a force structure mix in concert with LCS capabilities that protect an ESG in an anti-access scenario so that the amphibious ships can perform amphibious operations at the objective. To quantify this goal, we create MOEs of

amphibious ship survivors and amphibious ships damaged. Other MOEs relate to CRUDES survival, LCS survival, and helo/UCAV survival. The reasons for developing other MOEs include that the amphibious ships will need some protection once they arrive at the objective and establish the sea base for forces ashore and the navy does not want to spend money on a platform and place it in a position to be destroyed.

2. Initial Data Farming Issues

Now that the potential MOEs have been established, this study looks at what data output can be recovered (farmed) from EINSTein. EINSTein has a quick "Multiple Time-Series (Averages/Distributions)" run mode that can perform 100 runs of our scenario in less than two minutes. However, the mode does not break down the survivability data into specific squads and combines injured and killed into one casualty category. EINSTein was originally created for ground combat, and it is understood that injured and killed soldiers would be grouped as causalities for a ground commander. A damaged ship can still operate to some degree and effectively draw fire away from high value units, making it different from an injured soldier. EINSTein's "Interactive Time-Series (Default)" run mode allows users to perform discrete runs. Damaged platforms and specific squads can be highlighted, enabling a user to farm run data in the process mentioned in the first paragraph of the Data Farming section. However, this is a slow and tedious process, with a 50 run run-set taking between 10 and 30 minutes, depending on the number of squads and the variability of the data. One advantage of this approach is that the analyst visually assesses each run—thus gaining insights on the dynamics behind the numbers.

This study uses four input measures: starting number of amphibious ships, starting number of CRUDES ships, starting number of LCSs, and starting number of helo/UCAVs. At the end of the runs, output data is placed in up to eight categories on a Microsoft Excel spreadsheet:

Number of undamaged amphibious ships at the end of a run

Number of damaged amphibious ships

Number of undamaged CRUDES ships

Number of damaged CRUDES ships

Number of undamaged LCSs

Number of damaged LCSs

Number of undamaged helo/UCAVs

Number of damaged helo/UCAVs

Averages, minimums, maximums, and standard deviations can be created from and for these measures.

3. Number of Required Runs

This study used "Multiple Time-Series (Averages/Distributions)" run mode with the baseline inputs (3 amphibious ships, 3 CRUDES ships, run-set r0) to try to find the minimum required number of runs to perform to have data that encompasses most of the possibilities. Run-sets of 50, 100, 150 and 200 runs were performed. The standard deviations of the attrition data, shown in Table 8, show that there is little change in the estimate of the standard deviation of the casualty data (injured + killed) gained from doing more than 50 runs. Therefore, each run-set consists of 50 discrete runs. The 50 replications results in an estimated standard deviation on the mean number of blue ships attrited, our primary MOE, of $1.8455/\sqrt{(50)}=0.26$. 50 replications of 16 run-sets examining 19 ship combinations equates to 15,200 runs with LCS. An additional 100 runs are required to get the baseline and 3 CRUDES ship r1 run-sets.

	Number of Baseline Runs			
	50	100	150	200
Blue attrition stdev	1.8455	1.7511	1.7616	1.7651
Red attrition stdev	4.457	4.3531	3.9715	3.6374

Table 8 Baseline Runs' Attrition Estimated Standard Deviations as a Function of the Number of Replications

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IV. DATA AND ANALYSIS

A. INTRODUCTION

This chapter discusses the output data and the analysis. The data section talks about the observations, and discusses a slight personality adjustment to LCSs (Littoral Combat ships) and helo/UCAVs (Helicopters/Unmanned Combat Aerial Vehicles). The analysis section reviews the MOEs (Measures Of Effectiveness), and the three data groups. The analysis section also discusses analysis techniques, results, and graphical methods. Finally, the key findings section focuses on the results that are significant across the board and identifies the ship force mixtures and capabilities that perform the best.

B. DATA

1. Spreadsheet

This thesis uses a Microsoft Excel spreadsheet to store data and perform computations. Each spreadsheet is formatted like Table 9, which is the spreadsheet displaying the baseline (three CRUDES ships defending three amphibious ships, no factors enabled) run-set data. The initial numbers of amphibious ships, CRUDES ships, LCSs and helo (helo/UCAVs) are shown at the top. The spreadsheet is then divided into (from left to right) a reference column explaining what information is displayed in the row of the reference; alive (undamaged) amphibious ships' column; injured (damaged) amphibious ships' column; total surviving (undamaged + damaged) amphibious ships' column; alive (undamaged) CRUDES ships' column; injured (damaged) CRUDES ships' column; total surviving (undamaged + damaged) CRUDES ships' column; alive (undamaged) LCSs' column; injured (damaged) LCSs' column; total surviving (undamaged + damaged) LCSs' column; alive (undamaged) helo/UCAVs' column; injured (damaged) helo/UCAVs' column; and total surviving (undamaged + damaged) helo/UCAVs' column. The exception to this is the sample mean (xbar), calculated for the number of injured platforms associated with that column, and the average, calculated for the total number of lost (destroyed) platforms associated with the particular column.

	Starting Values for the Run-set					
	amphibs	crudes	lcs	helo		
	3	3	0	0		
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes
min	0	0	0	0	0	0
xbar	1.28	0.56	1.84	0.1	0.3	0.4
max	3	3	3	3	3	3
sig	1.1959114	0.786623	1.33033677	0.46291005	0.646813	0.7824608
sigxb	0.16912741	0.111245	0.18813803	0.06546537	0.091473	0.11065667
		amphib inj	amphibs lost		crudes inj	crudes lost
xbar		0.56	1.16		0.3	2.6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes
1	2	1	3	1	0	1
2	0	0	0	0	0	0
3	1	2	3	0	0	0
4	3	0	3	0	2	2
5	0	3	3	0	0	0
6	0	0	0	0	0	0
7	0	1	1	0	0	0
8	1	2	3	0	1	1
9	0	0	0	0	0	0
10	3	0	3	3	0	3
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	1	1	2	0	0	0
14	3	0	3	0	0	0
15	1	1	2	0	0	0
16	0	1	1	0	0	0
17	0	0	0	0	0	0
18	3	0	3	0	1	1
19	3	0	3	0	0	0
20	1	2	3	0	0	0
21	2	1	3	0	0	0
22	2	0	2	0	0	0
23	0	0	0	0	0	0
24	3	0	3	0	1	1
25	3	0	3	0	1	1
26	0	0	0	0	0	0
27	2	0	2	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	2	1	3	0	0	0
31	2	1	3	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	1	2	3	0	0	0
35	2	1	3	0	0	0
36	1	0	1	0	0	0
37	1	2	3	0	3	3
38	1	1	2	0	1	1
39	3	0	3	0	2	2
40	0	0	0	0	0	0
41	0	2	2	0	1	1
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	3	0	3	0	1	1
45	2	1	3	1	1	2
46	3	0	3	0	0	0
47	2	1	3	0	0	0
48	2	1	3	0	0	0
49	3	0	3	0	0	0
50	2	0	2	0	0	0

Table 9 Baseline Data Spreadsheet

Below the starting values are the initial statistics, these where calculated from the data below (in the same column). From top to bottom, the minimum value, average, maximum value, sample standard deviation (sig), and estimated standard deviation of the population average (sigxb) are calculated and displayed. Next is the losses section, where the average number of injured platforms and lost platforms are calculated and displayed. The average number of platforms injured, in the particular column, is taken from above value in average number of injured platforms. The average number of platforms lost, in the particular column, is calculated by subtracting the average number of total surviving platforms from the starting number of the platform for the run-set.

The final section is the data collection section. A run-set consists of 50 discrete runs of the simulation with the particular input values, ship disposition and factors (rX). At the end of each discrete run the number of undamaged and damaged platforms are entered in the row of the run's sequential number. For example, after the thirteenth run, data is entered in the same row as the "13" under the "run" column. The total number of surviving platforms is calculated by taking the sum of the number of undamaged platforms and the damaged platforms—i.e. summing the two cells to the left. The rest of these spreadsheets are displayed in Appendix A (Data).

2. Mini Analysis

Looking at the raw data and statistical calculations, one can take note of outliers and trends. Also, rough comparisons can be gleaned from the data. Helo/UCAVs seem to have a significant impact on ship survival, often improving average ship survival by two ships or more. However, helo/UCAVs also take massive losses. In the best cases helo/UCAV losses drop below 50%. This is because they perform very aggressively, rushing headlong into battle with enemy ships. The aim of this thesis is improving the survivability of ESG (Expeditionary Strike Group) ships, however. Helo/UCAVs are supporting elements in this endeavor, meant to help increase ship survivability. LCS speed appears to be detrimental to ship survival, yet speed slightly benefits helo/UCAV survival. Also, LCSs with stealth and firepower appears formidable.

3. Slight Change in Personality

It was noticed during initial runs that helo/UCAVs did not completely act as desired. LCS and helo/UCAV personalities were originally set as shown in Table 10, and

were used for the ship configurations of two CRUDES ships and one through three LCSs. In approximately one-fifth of the trials with helo/UCAV factors set, it was noticed that when undamaged helo/UCAVs engage enemy ships, they would leave combat to pursue the objective (enemy flag), placing the rest of the ESG in a vulnerable position. This characteristic of the helo/UCAV reduced their contributions to providing locating information on and attriting the threat. The platforms' desire to engage undamaged (alive) enemies had equal weight with their desire to approach the objective. To counter this, LCS and helo/UCAV personality vectors were altered, as shown in Table 4, to increase the motivation to engage enemy ships over pursuing the objective. These new vectors were used for the rest of the simulation runs.

Anti-Access Personalities												
	When Alive						When Injured					
Squad	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag
Amphibs	40		40			20	45		40			15
CRUDES	10	40		40		10	20	20	20	30		10
LCS	10	20	10	40		20	20	10	20	30		20
Helo/UCAV	10	20	10	40		20	30		20	30		20

Table 10 Blue ESG Force Anti-Access Personalities (2 CRUDES, 1-3 LCS)

C. ANALYSIS

Initially, for this study the primary MOE was the average total number of ships that survive. However, if more ships are added, the number of ships that survive could conceivably also increase and the "knee" of the curve (the point where the benefits of additional ships lessens) with reference to numbers would not be visible. Conceivably, 2 CRUDES + 2 LCS-r0 (for a total of 7 ships, including the amphibious ships) could have an average of 4 ships surviving while 2 CRUDES + 3 LCS-r0 (for a total of 8 ships) could have an average of 5 ships surviving. The 2 CRUDES + 3 LCS-r0 looks better than the 2 CRUDES + 2 LCS-r0 based on this MOE, however they both lose 3 ships. Therefore, adding one LCS to 2 CRUDES + 2 LCS-r0 adds no benefit to ship survivability, yet it is not easily visible using average total surviving ships as the MOE.

In order to deal with attrition properly, this thesis uses **the average number of ships lost as the primary MOE**. This MOE does not give undue advantage to the ESGs with greater numbers of ships. Looking at the example in the previous paragraph, the average number of ships lost MOE would show that adding one LCS to 2 CRUDES + 2 LCS-r0 does not reduce the number of ships lost. Therefore, adding a LCS to 2 CRUDES + 2 LCS-r0 would waste an asset and its cost, and the "knee" of the curve in this scenario may lie at the 2 CRUDES + 2 LCS-r0 level, or less, for any 2 CRUDES-r0 case. If the average number of ships that survive is the same for 2 CRUDES + 2 LCS-r0 and 2 CRUDES + 3 LCS-r0, then the average number of ships lost will be greater for 2 CRUDES + 3 LCS-r0. Again, signifying no added benefit of adding 1 LCS. However, if the total number of ships lost for 2 CRUDES + 3 LCS-r0 is less than the total number of ships to 2 CRUDES + 2 LCS-r0, then the added LCS does improve survivability. The added LCS survives and helps some of the ships that are destroyed in the 2 CRUDES + 2 LCS-r0 run-set survive. The total number of ships lost is calculated by taking the sum of average number of amphibious ships lost, average number of CRUDES ships lost, and average number of LCSs lost.

1. Data Organization

This study organizes the data into four distinct groups based on the number of CRUDES ships involved. The groups are 3 CRUDES, 2 CRUDES, 1 CRUDES and 0 CRUDES. Each is distinct from the others, and has enough similarities within the group to enable analysis and establishing the number of LCSs as a design factor. Each group would utilize different tactics due to the number of CRUDES ships in the ESG. Also, "knees" in curves comparing average total ships lost against number of LCSs are visible in graphical comparisons. Conceivably, the "knee" of the curves could exist at approximately the same number of LCS added to the CRUDES. Therefore, there is a possibility to find a sufficient amount of LCSs to add to the CRUDES ships in the set that reaches the point that minimizes ship losses per LCS added. Another benefit of organizing the data into these groups is that force planners have options on the number of CRUDES ships to assign to an ESG.

a. 3 CRUDES

The 3 CRUDES set of data has no LCSs and consists of 2 run-sets: the baseline and r1 (three CRUDES ships controlling three helo/UCAVs). The data is summarized in Table 11. The CRUDES column shows the number of CRUDES examined, and the LCS column displays the number of LCS examined. The Run-Set column displays the particular run-set examined, and the Helo, Stealth, Firepower and Speed columns show if the factor is enabled in the run-set. The Total Ship Loss column displays the average total ship loss for the ship disposition shown on the row coupled with the run-set factors over 50 runs. The 3 CRUDES set makes no change from what is currently out in the fleet. Analysis shows that employing helo/UCAVs for ship defense is highly beneficial in this scenario—at least as modeled in this thesis.

CRUDES	LCS	Run-Set	Helo	Stealth	Firepower	Speed	Total Ship Loss
3	0	r0	0	0	0	0	3.76
3	0	r1	1	0	0	0	0.58

Table 11 3 CRUDES Data Prepared for Analysis

There are many comparison methods that can be used to analyze the 3 CRUDES set's data. However, because both run-sets comprise large sample populations (50 observations), both run-sets are independent of each other, and each run-set has its own population mean and variance (standard deviation squared), this thesis uses a large-sample comparison test to analyze the 3 CRUDES set's data.[38] The Central Limit Theorem states that if there is a set of independent identically distributed random samples from a population and the sample set is sufficiently large, the sample mean will be approximately distributed as a normal distribution with a mean of the true mean and standard deviation equal to the true standard deviation divided by the square root of the number of samples in the set. Except in rare circumstances, if a sample set contains more than thirty observations the Central Limit Theorem can be used.[39] Therefore, the Central Limit Theorem is applied to all the data in this thesis, and analysis techniques that require data with a normal distribution, like the large-sample comparison test, are utilized.

[38] Jay L. Devore, *Probability and Statistics for Engineering and the Sciences: Fifth Edition* (Pacific Grove, CA: Duxbury, 2000) 360.

[39] Jay L. Devore, *Probability and Statistics for Engineering and the Sciences: Fifth Edition* (Pacific Grove, CA: Duxbury, 2000) 235-6.

The average ship loss for the baseline is 3.76 and the average ship loss for the 3 CRUDES-r1 run-set is 0.58. Using the large-sample comparison test, the null hypothesis, H_0, is that the baseline's average ship loss is statistically equal to the 3 CRUDES-r1 run-set's average ship loss. The alternate, H_a, is that the baseline's average ship loss is statistically greater than the 3 CRUDES-r1 run-set's average ship loss. Table 12 shows the comparison test and results. The comparison test uses the average ship losses, the sample standard deviations of ship loss, over the two samples, each of 50 runs, to calculate z in Equation 1.

Large-Sample Comparison Test		
	r0	r1
Avg Ship Loss	3.76	0.58
Standard Deviation	1.80204	1.011969
Sample Size	50	50
z =	10.87991614	
P-value	0	

Table 12 Large-Sample Comparison Test on the 3 CRUDES Data

$$z = \frac{r0_avg_ship_loss - r1_avg_ship_loss}{\sqrt{\frac{r0_stdev^2}{50} + \frac{r1_stdev^2}{50}}}$$

Equation 1 Large-Sample Comparison Test Formula to Calculate z

The P-Value is the probability that we would observe data as extreme, or more extreme, than what occurred if the two population means are identical. The P-value is calculate by 1-Φ(z), where Φ(z) is the cumulative distribution function of a standard normal distribution evaluated at z. The P-value is essentially 0 for this case. Therefore, because the probability of achieving these observations, if the null hypothesis is true, is so close to zero, this result cannot be considered to be merely the result of chance. Consequently, we conclude that air assets matter. However, no helo/UCAVs survived any of the 3 CRUDES-r1 runs. Therefore, at risk to themselves, they engaged and attrited the threat sufficiently so that the CRUDES ships successfully engaged the

remainder. In addition, by being out front, the air assets served as scouting platforms, providing situational awareness to the ships of the ESG.[40]

b. 2 CRUDES

The 2 CRUDES set has fewer organic land attack missiles and organic naval fire support systems than the baseline for amphibious operations. However, its command and control capabilities are greater than those of an ESG with zero or one CRUDES ship. The 2 CRUDES ESGs also have LCS. The 2 CRUDES data group is displayed in Appendix B (Data Groups for Analysis). A graph of average total ship loss vs. number of LCS, for each run-set, is shown in Figure 3. With the exception of the baseline, r4 (firepower), r8 (speed), and r12 (firepower and speed) LCS configurations, adding LCSs to the 2 CRUDES ESGs yields fewer losses. Note, the points in the graph are estimates. The standard deviation of each is estimated as the run-set's sample standard deviation divided by the square root of the sample size. The sample standard deviation is usually around 1.5 and the sample size is always 50. Thus, the random points have associated standard deviations of about $1.5/\sqrt{50}$, which equals .21. For cases with fewer losses, the sample standard deviations are usually much smaller than 1.5.

[40] Wayne P. Hughes, *Fleet Tactics and Coastal Combat* (Annapolis, MD: U.S. Naval Institute, 2000) 92-3.

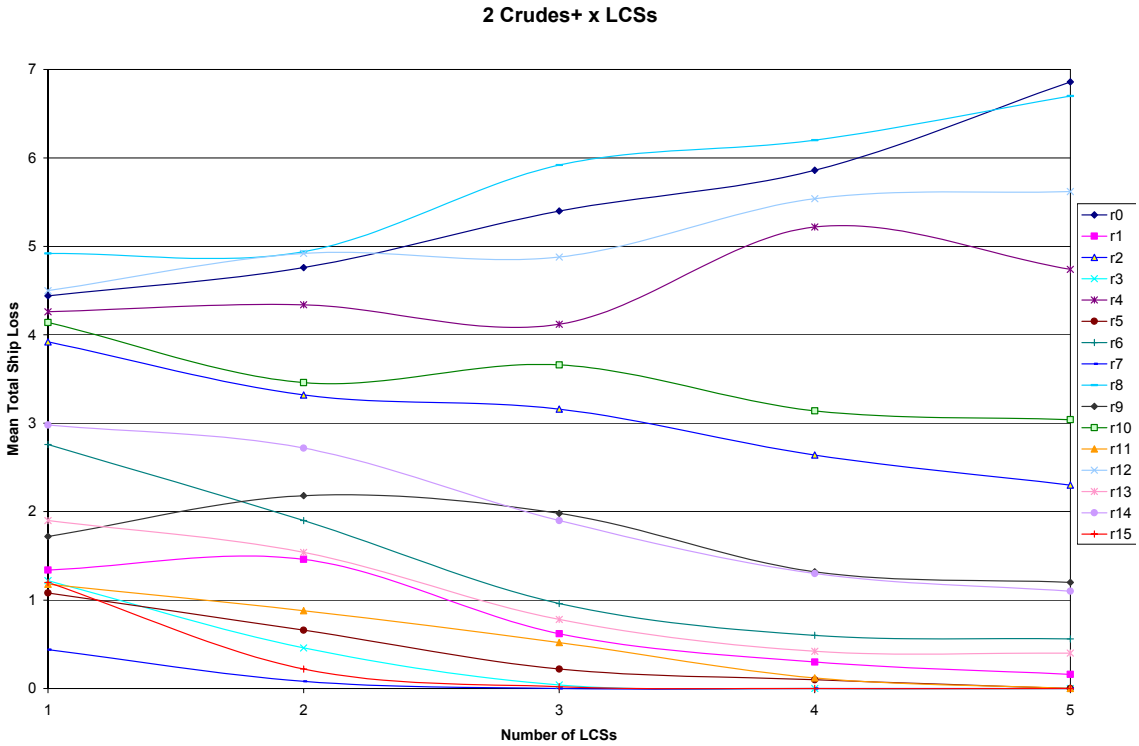

Figure 3 2 CRUDES + X LCS, Ship Loss vs. Number of LCS

Taking a look at the main factors (baseline, helo/UCAV, stealth, firepower, and speed) by themselves, in Figure 4, helo/UCAV (r1) and stealth (r2) ship losses diminish as LCSs are added. However, when LCSs are added to the baseline (r0), and speed (r8) cases, they merely add to ship losses. The firepower (r4) case does not appear to change force performance, seemingly almost flat and indicating that 1 LCS might be the "knee" of that particular line. The total ship loss for 2 CRUDES + 2 LCS is higher than 2 CRUDES + 1 LCS. This is consistent with the 1 and 0 CRUDES sets of data using that run-set. These graphs provide good preliminary analysis and ANOVA (ANalysis Of VAriance) will provide further detailed review. The body of this study displays graphs of note, but all may be found in Appendix D (Graphs).

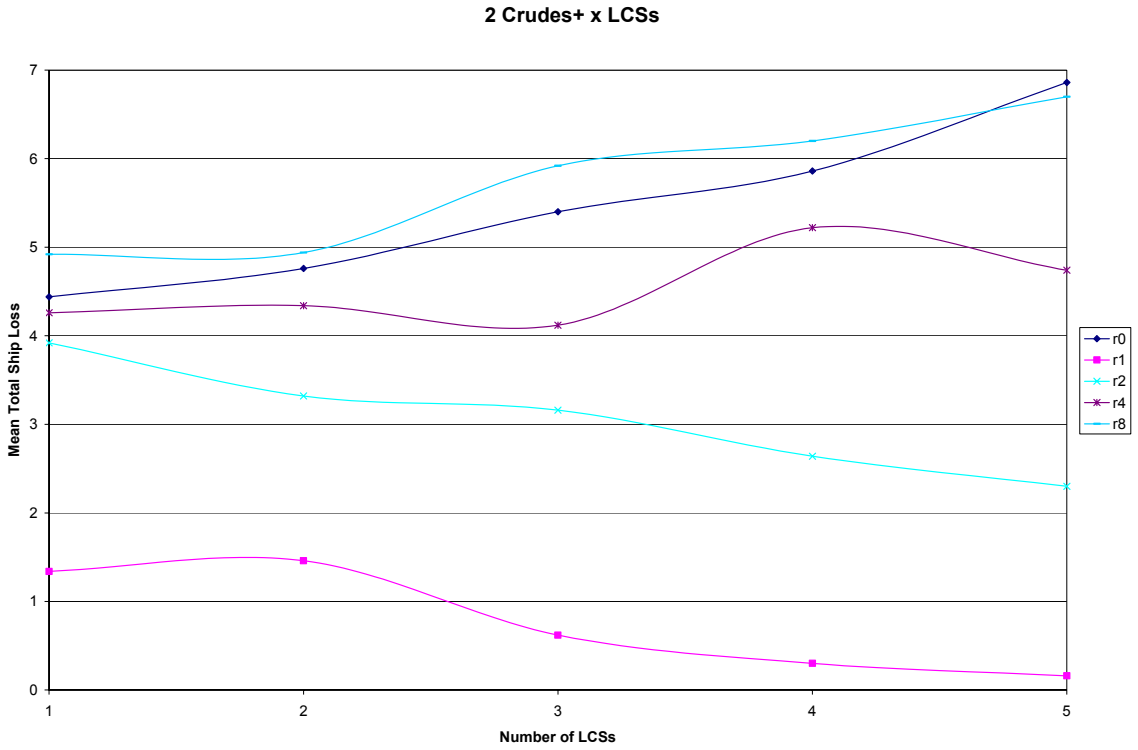

Figure 4 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, Main Factors Only

ANOVA was performed, individually, on the 2-, 1-, and 0- CRUDES sets. ANOVA is a collection of statistical procedures for the analysis of quantitative responses from experimental units.[41] It is the approach this study is taking in order to discern which factors account for significant differences in force performance. The null hypothesis is that there is no difference in the average number of ships lost if a factor is changed (whether a LCS capability is enabled or not, the number of LCSs assigned to the ESG, and combinations of the aforementioned factors). The alternate is that force survival does change as a particular factor changes. This approach is taken for each main factor and each multiple factor interaction of interest.

The number of LCSs, whether or not air assets are present, whether or not stealth is employed, whether firepower is augmented, and whether high-speed is used, are all characteristics that may contribute to differences in ESG effectiveness. The number of LCSs characteristic takes the number of LCS assigned to an ESG so the factor could

[41] Jay L. Devore, *Probability and Statistics for Engineering and the Sciences: Fifth Edition* (Pacific Grove, CA: Duxbury, 2000) 402.

be one of five or six numbers. The other factors are binary, meaning that they are 1 if they are enabled and 0 if not. In zero, one or two CRUDES force dispositions, ANOVA will examine average total ship loss as a function of number of LCSs, the helo/UCAV factor, stealth, firepower, and/or speed. Interactions among these design considerations are also examined.

The ANOVA of the 2 CRUDES force total ship losses as a function of the factors (numbers of LCSs, Helo/UCAV, stealth, firepower, and speed), including up to three-way interactions (e.g., number of LCSs * if the stealth factor is enabled * if the speed factor is enabled), is shown in Table 13. An interaction occurs when the effect of one factor depends on the values of other factors. There are a sufficient amount of residuals to use to check the model. Residuals are the sample counterparts of error terms and equal the differences between observed and predicted average ship losses. The residual mean square error (MSE, which is under the Mean Sq and in line with residuals, in the table) measures the variation of estimates around a parameter. A good residual MSE should be as low as possible to show that the sample estimates are near the observed simulation outputs. However, if there are too few residuals the model will be over-fit.[42]

An over-fit model may not have much variability in its evaluation, but its predictive accuracy will be quite poor. The residual mean square error of this model, 0.0559, is significantly better (smaller) than the ANOVA model using the same function with only two-way interactions (e.g., number of LCSs * if the stealth factor is enabled), which has a residual MSE 0.2737. Also, the ANOVA model with three-way interactions has a better residual MSE than the ANOVA model using the same function with up to four-way interactions, which has a residual MSE of 0.0560. Another test for the ANOVA model with three-way interactions is the residual plot. The residual plot in Figure 5 shows that the residuals have a normal looking, homoscedastic pattern. This means the data fits the model, but not perfectly, as there is randomness. In addition, the expectation is that hypothesis tests in the ANOVA are unbiased.

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[42] Lawrence C. Hamilton, *Regression with Graphics: A Second Course in Applied Statistics* (Pacific Belmont, CA: Duxbury, 1992) 32, 73.

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LCS.f	**4**	**4.0100**	**1.0025**	**17.941**	**0.0000015**
HELO	**1**	**204.6080**	**204.6080**	**3661.733**	**0.0000000**
STEALTH	**1**	**57.0882**	**57.0882**	**1021.669**	**0.0000000**
FIREPOWER	**1**	**12.4031**	**12.4031**	**221.970**	**0.0000000**
SPEED	**1**	**4.4462**	**4.4462**	**79.571**	**0.0000000**
LCS.f:HELO	**4**	**2.5767**	**0.6442**	**11.528**	**0.0000413**
LCS.f:STEALTH	**4**	**5.9270**	**1.4818**	**26.518**	**0.0000001**
LCS.f:FIREPOWER	**4**	**0.9260**	**0.2315**	**4.143**	**0.0125266**
LCS.f:SPEED	4	0.1673	0.0418	0.748	0.5700467
HELO:STEALTH	**1**	**21.6112**	**21.6112**	**386.761**	**0.0000000**
HELO:FIREPOWER	**1**	**3.2886**	**3.2886**	**58.854**	**0.0000002**
HELO:SPEED	1	0.0000	0.0000	0.001	0.9776283
STEALTH:FIREPOWER	**1**	**0.3672**	**0.3672**	**6.572**	**0.0181029**
STEALTH:SPEED	**1**	**0.2442**	**0.2442**	**4.370**	**0.0489123**
FIREPOWER:SPEED	1	0.0110	0.0110	0.198	0.6611606
LCS.f:HELO:STEALTH	**4**	**8.1823**	**2.0456**	**36.608**	**0.0000000**
LCS.f:HELO:FIREPOWER	**4**	**1.2244**	**0.3061**	**5.478**	**0.0035053**
LCS.f:HELO:SPEED	4	0.0834	0.0208	0.373	0.8251777
LCS.f:STEALTH:FIREPOWER	4	0.2971	0.0743	1.329	0.2918246
LCS.f:STEALTH:SPEED	4	0.0125	0.0031	0.056	0.9937063
LCS.f:FIREPOWER:SPEED	4	0.1582	0.0395	0.708	0.5956583
HELO:STEALTH:FIREPOWER	**1**	**1.4742**	**1.4742**	**26.384**	**0.0000435**
HELO:STEALTH:SPEED	**1**	**0.5746**	**0.5746**	**10.283**	**0.0042365**
HELO:FIREPOWER:SPEED	1	0.2142	0.2142	3.834	0.0636347
STEALTH:FIREPOWER:SPEED	1	0.0174	0.0174	0.311	0.5826719
Residuals	21	1.1734	0.0559		

Table 13 ANOVA of the 2 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions

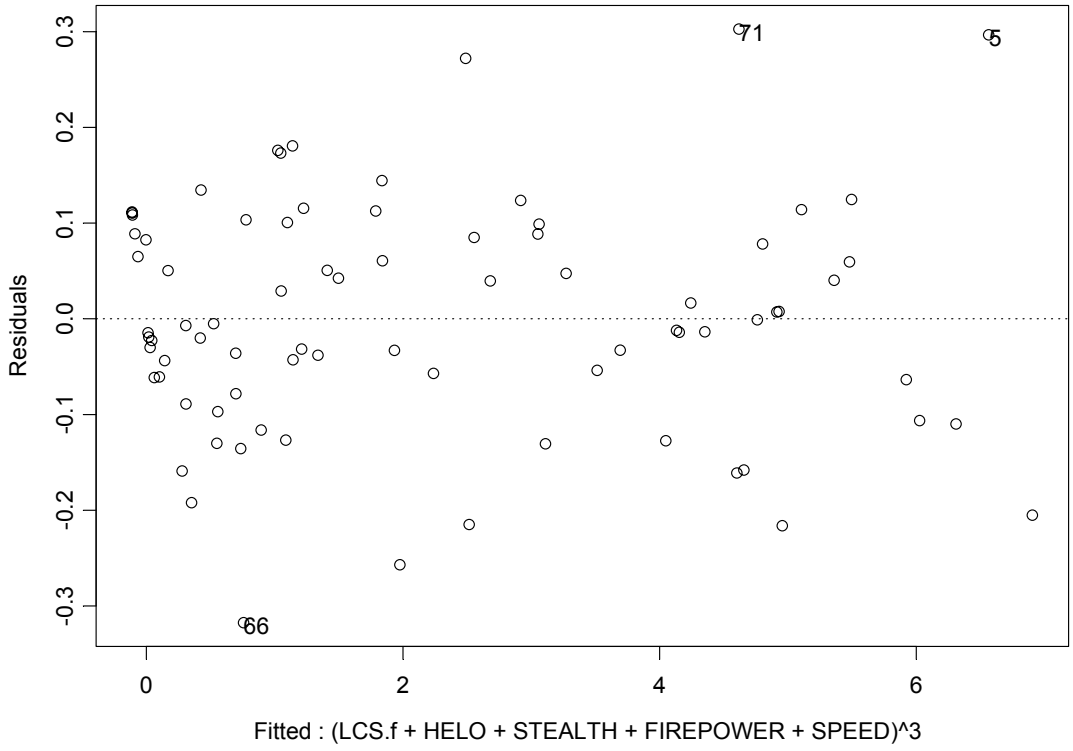

Figure 5 Residual Plot for the 2 CRUDES ANOVA

Looking at the ANOVA in Table 13, the Pr(F) column gives the P-value for each model term. When it is sufficiently small—on the order of less than 1-in-20 chance—the factor or interaction is statistically significant. The factors and interactions with a significant P-value are in bold print. All the factors (helo/UCAV, stealth, firepower, speed and numbers of LCSs) influence ship loss by themselves. The SS (Sum of Squares) under the "Sum of Sq" header measures how much variability is explained by that factor. The larger the SS, the more influential the factor or interaction is.

The influence of helo/UCAVs is almost four times greater than the next largest, stealth. Presence of aircraft is the single most influential factor when it comes to force effectiveness. This study looks at graphical comparisons later to discover if the helo/UCAV factor's influence has a beneficial or detrimental effect on average ship loss. Figure 6, comparing r2 (stealth) to r3 (stealth + helo/UCAV), shows that aircraft have a beneficial effect on preventing ship loss. Ship loss for r3 bottoms out at 0 at

approximately three LCSs or more, and r2 performs consistently worse by two ship losses. Other graphs that display similar comparisons isolating the helo/UCAV factor are in Appendix D.

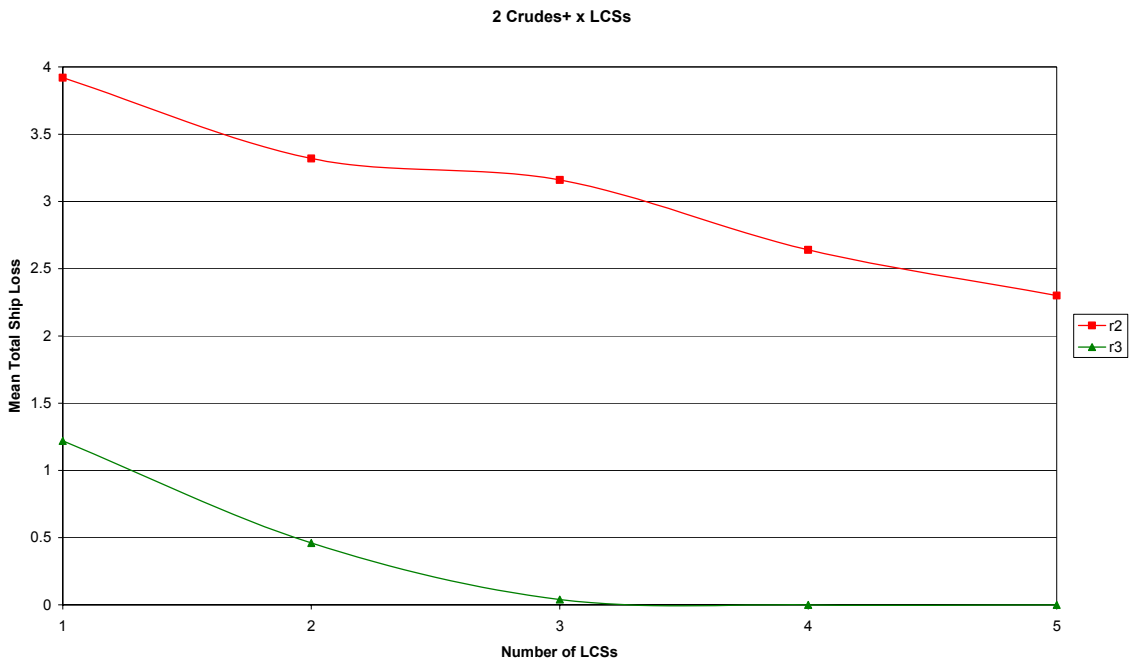

Figure 6 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r2 and r3

The next most influential factor is stealth. Its ability to explain variability in the MOE, under SS, is more that two times greater than the next largest contributor, the interaction between air assets and stealth. Stealth is also significant, with a very beneficial effect on reducing ship losses [Appendix D]. Because the helo/UCAV interaction with stealth is the next most influential term, having both aircraft and stealth makes an ESG well protected. If all factors cost the same and only two could be chosen, then helo/UCAVs and stealth would be the best choices in this scenario.

Firepower comes in fourth for influence and it has a positive influence. The interaction of numbers of LCS, the helo/UCAV factor and the stealth factor is next, further highlighting how the helo/UCAV-stealth combination is advantageous to have for an ESG in this situation. The results for speed, an influential factor, are mixed. Figure 7, the graph comparing r1 (helo) and r9 (helo and speed), as well as others, shows speed has a potentially detrimental effect. The speed effect shows that not all influential factors

have a beneficial effect on average total ship loss. LCSs with the speed factor acted too aggressively. They would tend to charge ahead of the CRUDES ships, thus allowing the threat to engage the ESG piecemeal. A smart CO (Commanding Officer) would not do this. More importantly, if using speed is detrimental to force effectiveness, then this tactical capability would be worthless. The other factors in bold are significant, but the aforementioned factors provide the most significant influence on average ship loss.

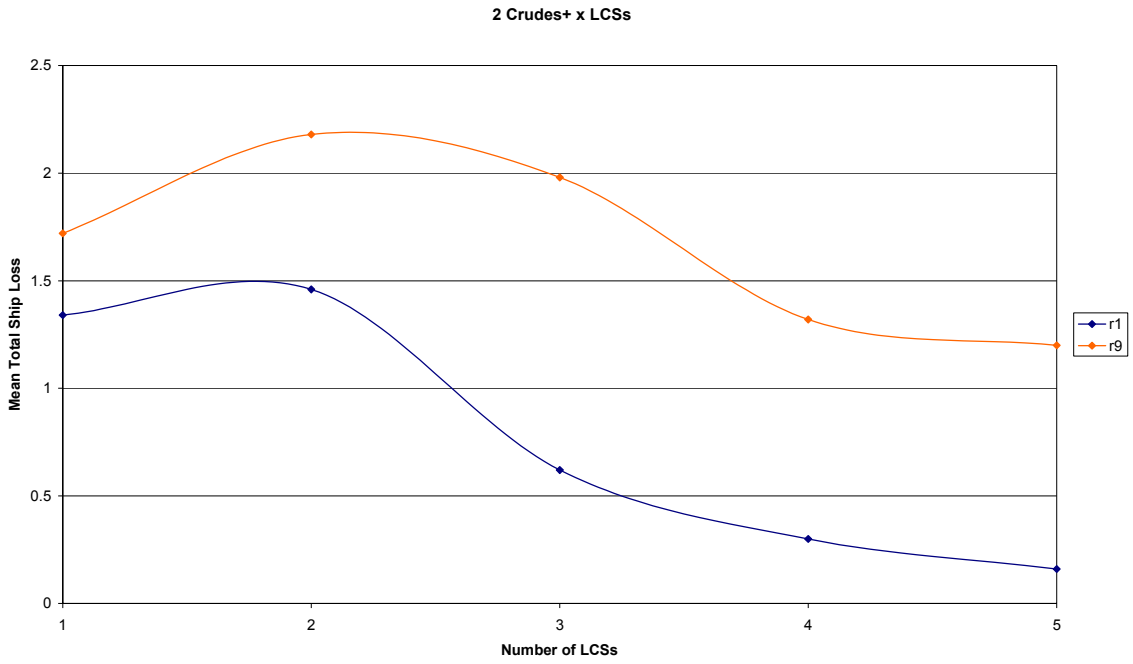

Figure 7 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r9

c. 1 CRUDES

The 1 CRUDES set only has a single organic land attack missile shooter and naval fire support system, for amphibious operations, but has the flexibility to have the amphibious aircraft carrier or the CRUDES ship as the strike group command and control platform. The 1 CRUDES set also has the benefits of LCS. The summary of the 1 CRUDES data is displayed in Appendix B (Data Groups for Analysis). A graph of the average total ship loss vs. number of LCS, separated by run-set, is shown in Figure 8. Like the 2 CRUDES display, the 1 CRUDES display shows, with the exception of r0, r4, r8, and r12, that the run-sets improve with additional LCSs. For the main effects in Figure 9, helo/UCAV (r1) and stealth (r2) losses shrink with each additional LCS. On

the other hand, the baseline (r0), and speed (r8) cases get worse with more LCS ships. The average ship loss for the firepower (r4) case does not seem to change as LCSs are added.

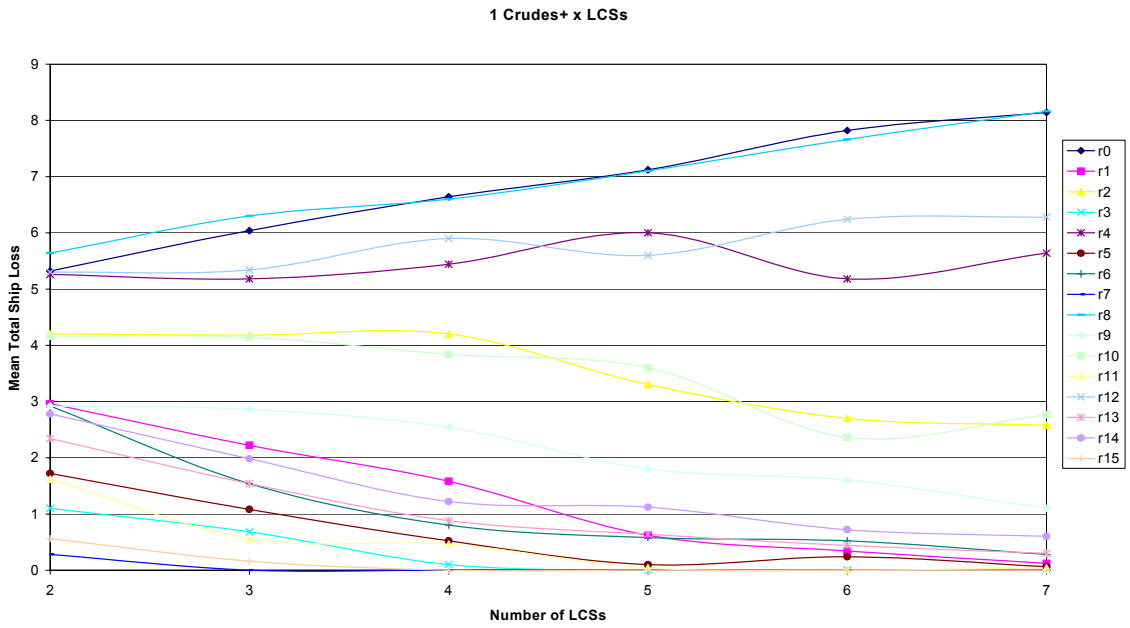

Figure 8 1 CRUDES + X LCS, Ship Loss vs. Number of LCS

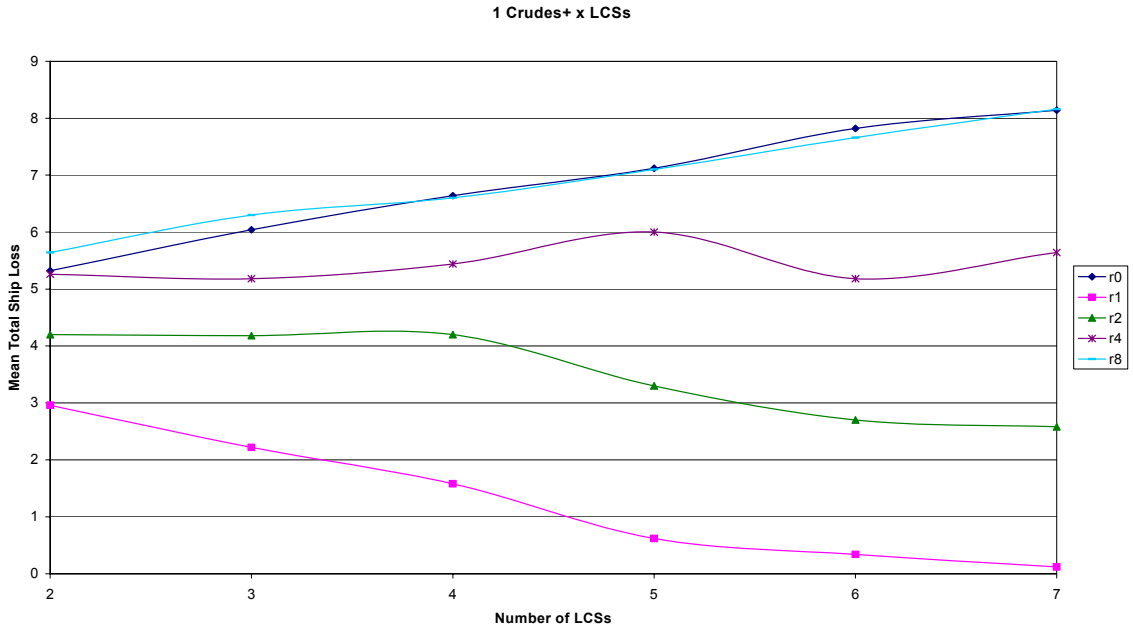

Figure 9 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, Main Factors Only

The ANOVA of the performance for the 1 CRUDES ESG is summarized in 0. Like with the ANOVA model chosen for the 2 CRUDES set, there are sufficient residuals to use to check this chosen model. The residual MSE for this model, 0.0724, is better (smaller) than the ANOVA model using the same function with only three-way interactions, which has a residual MSE 0.1137. The chosen model has only a slightly worse residual MSE than the ANOVA model using the same function with up to four-way interactions, which has a residual MSE of 0.0648. However, the chosen model is better when it comes to allowing for variability (number of residuals). The chosen ANOVA model has 21 residuals for comparison to the function while the ANOVA model with up to four-way interactions only has 5 residuals. In a step-wise approach, analysis shows that the interaction of number of LCSs, the helo/UCAV factor, stealth, and firepower yields a P-value of 0.0108198, showing a significant effect on average ship loss. Additionally, the model passes the residual plot check. The residual plot, which is displayed in Appendix D, shows a homoscedastic and normal distribution about zero.

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LCS.f	**5**	**8.3928**	**1.6786**	**23.192**	**0.0000001**
HELO	**1**	**304.0240**	**304.0240**	**4200.516**	**0.0000000**
STEALTH	**1**	**144.3542**	**144.3542**	**1994.454**	**0.0000000**
FIREPOWER	**1**	**33.3233**	**33.3233**	**460.407**	**0.0000000**
SPEED	**1**	**1.6224**	**1.6224**	**22.416**	**0.0001124**
LCS.f:HELO	**5**	**4.9900**	**0.9980**	**13.789**	**0.0000049**
LCS.f:STEALTH	**5**	**4.2129**	**0.8426**	**11.641**	**0.0000177**
LCS.f:FIREPOWER	5	0.6875	0.1375	1.900	0.1372766
LCS.f:SPEED	5	0.0265	0.0053	0.073	0.9956677
HELO:STEALTH	**1**	**48.0534**	**48.0534**	**663.925**	**0.0000000**
HELO:FIREPOWER	**1**	**8.0042**	**8.0042**	**110.589**	**0.0000000**
HELO:SPEED	1	0.2440	0.2440	3.371	0.0805358
STEALTH:FIREPOWER	1	0.2204	0.2204	3.045	0.0955858
STEALTH:SPEED	**1**	**0.5104**	**0.5104**	**7.052**	**0.0147939**
FIREPOWER:SPEED	1	0.0054	0.0054	0.075	0.7874095
LCS.f:HELO:STEALTH	**5**	**17.9690**	**3.5938**	**49.654**	**0.0000000**
LCS.f:HELO:FIREPOWER	**5**	**2.9450**	**0.5890**	**8.138**	**0.0002114**
LCS.f:HELO:SPEED	5	0.0856	0.0171	0.237	0.9418963
LCS.f:STEALTH:FIREPOWER	5	0.7443	0.1489	2.057	0.1117734
LCS.f:STEALTH:SPEED	5	0.1950	0.0390	0.539	0.7446132
LCS.f:FIREPOWER:SPEED	5	0.0881	0.0176	0.244	0.9384032
HELO:STEALTH:FIREPOWER	**1**	**3.7446**	**3.7446**	**51.737**	**0.0000004**
HELO:STEALTH:SPEED	**1**	**0.2904**	**0.2904**	**4.012**	**0.0582456**
HELO:FIREPOWER:SPEED	**1**	**0.4538**	**0.4538**	**6.269**	**0.0206068**
STEALTH:FIREPOWER:SPEED	1	0.0748	0.0748	1.034	0.3208633
LCS.f:HELO:STEALTH:FIREPOWER	**5**	**1.4373**	**0.2875**	**3.972**	**0.0108198**
Residuals	21	1.5199	0.0724		

Table 14 ANOVA of the 1 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions + # LCSs*helo/UCAV*stealth*firepower

Again, the null hypothesis is that a design factor or interaction makes no difference on average ship loss. The probability of observing the results in this study, were the null hypothesis true, Pr(F), is almost zero for all the main effects and several interactions highlighted in bold in Table 14. Next, the explained variance, "Sum of Sq" column, provides insight into which factors are more influential (cause variation in the response) on force performance. Preasence of helo/UCAVs is more than twice as influential than the next largest, which is stealth. Helo/UCAVs remain the most influential factor when it comes minimizing ship losses. The plots in Appendix D show that the presence of helo/UCAVs leads to lower average ship loss, including displays that isolate the helo/UCAV factor.

As in the 2 CRUDES group, the next most influential single factor is again stealth. Stealth's SS is more than three times greater than the next largest term, helo/UCAV's interaction with stealth. Not only is stealth significant, it has a beneficial effect on minimizing ship loss. The fact that helo/UCAVs interaction with stealth is the next most influential term shows that having both helo/UCAVs and stealth makes an ESG well defended. Again, firepower comes in fourth for influence and it has a positive influence. The interaction of number of LCSs, helo/UCAVs, and stealth makes a decent showing for influence. These factors provide the most significant influence on force performance.

d. 0 CRUDES

The 0 CRUDES set has no organic Tomahawk missiles or organic naval gunfire systems for amphibious operations. However, a fleet commander has greater flexibility in employing CRUDES ships, which includes assigning them on demand to launch land attack missiles or provide naval fire support for amphibious operations. The amphibious aircraft carrier is the only major strike group command and control platform in the ESG. The 0 CRUDES data is displayed in Appendix B (Data Groups for Analysis).

A graph of the average total ship loss vs. number of LCS, separated by run-set, is shown in Figure 10. Like the 2 and 1 CRUDES displays, the 0 CRUDES display shows, with the exception of r0, r4, r8, and r12, that the run-sets get better with each added LCS. Speed and firepower are not good options by themselves. Also, looking at the main effects in Figure 11, helo/UCAV (r1) and stealth (r2) diminish losses with each additional LCS. On the other hand, the baseline (r0), speed (r8), and now firepower (4) cases get worse as LCSs are added. Simply stated, more ships with these capabilities are more targets that can be lost.

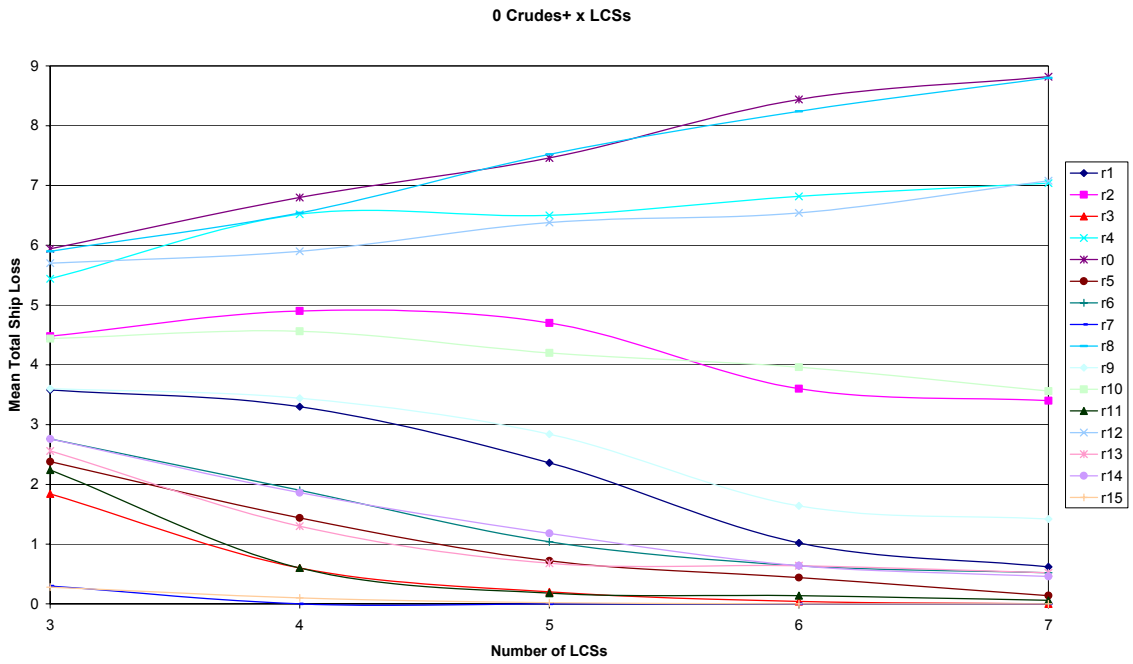

Figure 10 0 CRUDES + X LCS, Ship Loss vs. Number of LCS

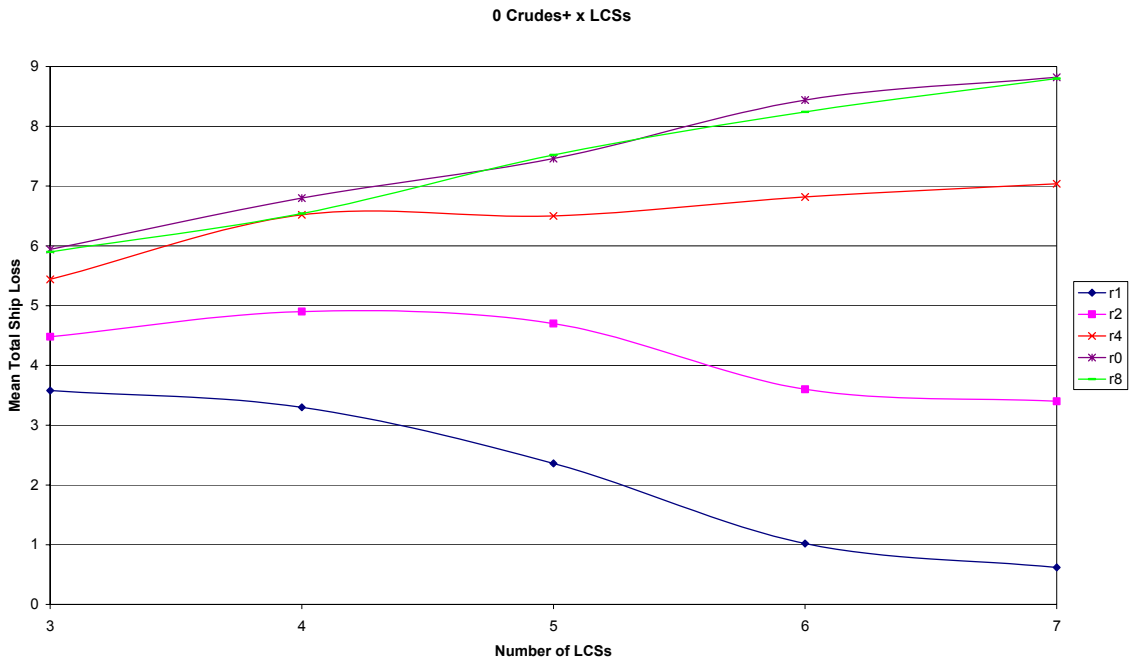

Figure 11 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, Main Factors Only

Like the 1 CRUDES set's ANOVA model, the 0 CRUDES set's ANOVA model of force performance is a function of number of LCSs and the four LCS factors, with interactions, in 0. This model has sufficient residuals to check model adequacy. By including the four-way interaction, the unexplained variance in this model is 20% of that for the model with only three-way interactions. The chosen ANOVA model has a slightly worse residual MSE than the ANOVA model using the same function with up to four-way interactions, but it has seventeen residuals for comparison, as opposed to the model with up to four-way interactions which has only has four residuals. The interaction of number of LCSs, the helo/UCAV factor, stealth, and firepower has a P-value, Pr(F), close to zero. Again, the residuals comply with the normality and homoscedasticity assumptions, as shown in Appendix D.

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LCS.f	**4**	**6.1828**	**1.5457**	**57.84**	**0.0000000**
HELO	**1**	**291.4661**	**291.4661**	**10907.08**	**0.0000000**
STEALTH	**1**	**153.6242**	**153.6242**	**5748.84**	**0.0000000**
FIREPOWER	**1**	**40.2996**	**40.2996**	**1508.07**	**0.0000000**
SPEED	1	0.0396	0.0396	1.48	0.2400798
LCS.f:HELO	**4**	**10.3625**	**2.5906**	**96.94**	**0.0000000**
LCS.f:STEALTH	**4**	**4.1066**	**1.0266**	**38.42**	**0.0000000**
LCS.f:FIREPOWER	**4**	**0.3206**	**0.0802**	**3.00**	**0.0482526**
LCS.f:SPEED	4	0.2362	0.0591	2.21	0.1112523
HELO:STEALTH	**1**	**37.5106**	**37.5106**	**1403.70**	**0.0000000**
HELO:FIREPOWER	**1**	**5.1918**	**5.1918**	**194.28**	**0.0000000**
HELO:SPEED	**1**	**0.2856**	**0.2856**	**10.69**	**0.0045207**
STEALTH:FIREPOWER	**1**	**1.1761**	**1.1761**	**44.01**	**0.0000042**
STEALTH:SPEED	1	0.0162	0.0162	0.61	0.4462951
FIREPOWER:SPEED	1	0.0396	0.0396	1.48	0.2400798
LCS.f:HELO:STEALTH	**4**	**18.1258**	**4.5315**	**169.57**	**0.0000000**
LCS.f:HELO:FIREPOWER	**4**	**4.3364**	**1.0841**	**40.57**	**0.0000000**
LCS.f:HELO:SPEED	4	0.0322	0.0081	0.30	0.8729508
LCS.f:STEALTH:FIREPOWER	**4**	**0.3423**	**0.0856**	**3.20**	**0.0393104**
LCS.f:STEALTH:SPEED	4	0.1094	0.0273	1.02	0.4234147
LCS.f:FIREPOWER:SPEED	4	0.0476	0.0119	0.45	0.7741740
HELO:STEALTH:FIREPOWER	**1**	**8.0011**	**8.0011**	**299.41**	**0.0000000**
HELO:STEALTH:SPEED	1	0.1022	0.1022	3.83	0.0670954
HELO:FIREPOWER:SPEED	1	0.0530	0.0530	1.99	0.1768911
STEALTH:FIREPOWER:SPEED	1	0.0361	0.0361	1.35	0.2610174
LCS.f:HELO:STEALTH:FIREPOWER	**4**	**1.9255**	**0.4814**	**18.01**	**0.0000061**
Residuals	17	0.4543	0.0267		

Table 15 ANOVA of the 0 CRUDES Set's Total Ship Losses, Including up to 3-Way Interactions + # LCSs*helo/UCAV*stealth*firepower

All significant factors are in bold in the ANOVA summary table. All main effects (with the exception of speed), without any interactions, influence ship loss. Helo/UCAV capability is almost two times more influential than the next factor, stealth. So again, Helo/UCAV is the most influential factor when it comes to ship losses. Figure 12 compares r4 (firepower) to r5 (helo/UCAV + firepower) and the other graphical comparisons in Appendix D show that helo/UCAVs lower the average number of ships lost. Graphs that display similar comparisons isolating the helo/UCAV factor are in Appendix D.

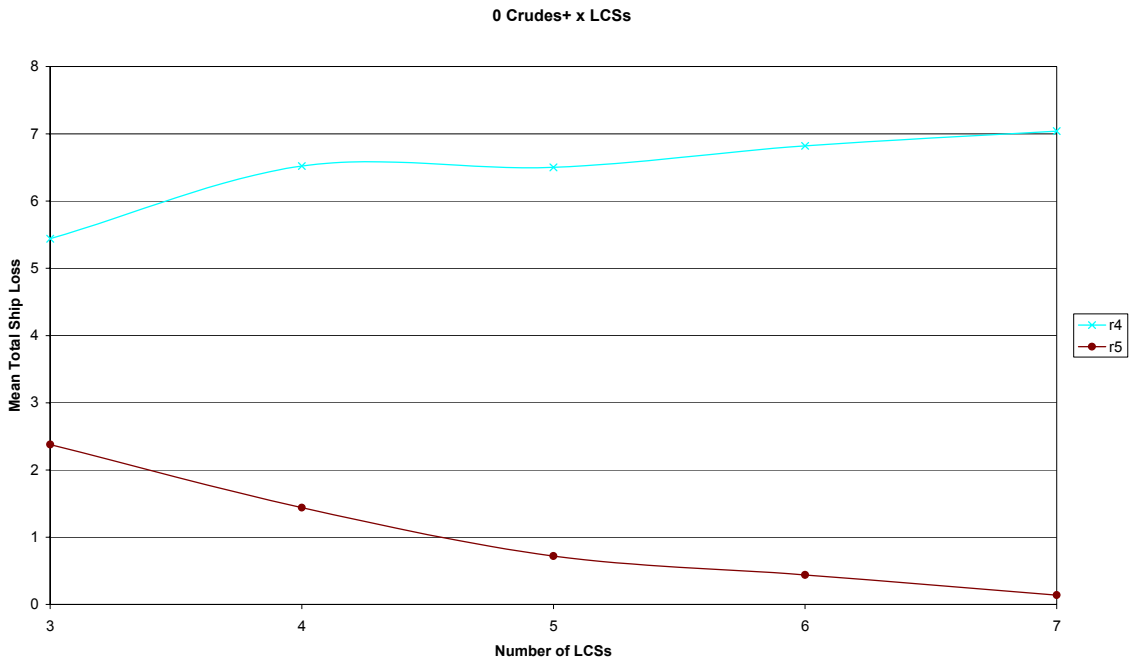

Figure 12 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r4 and r5

Again, the next most influential factor is stealth. Stealth is more than three times greater than the third largest factor, firepower. Stealth is also very significant, and looking at graphical comparisons in Appendix D we see that stealth has a beneficial effect on ship loss. Firepower is the third most influential factor on average ship loss and it has a positive influence. The helo/UCAV interaction with stealth comes in a close fourth and is almost two times greater than the next most influential term, the interaction of numbers of LCSs, helo/UCAV, and stealth. These factors provide the most significant influence on average ship loss.

D. KEY FINDINGS

Across the board helo/UCAV is the most significant factor in reducing ship losses, and the baseline, firepower alone, speed alone, and firepower with speed are not good options to choose. When LCSs are involved, stealth is also very significant in reducing ship losses. Having both air assets and stealth design prove beneficial in reducing ship losses. Firepower is influential when designed with helo/UCAVs or stealth. Figure 13 shows that r6 (stealth + firepower) performs substantially better than r2 (stealth).

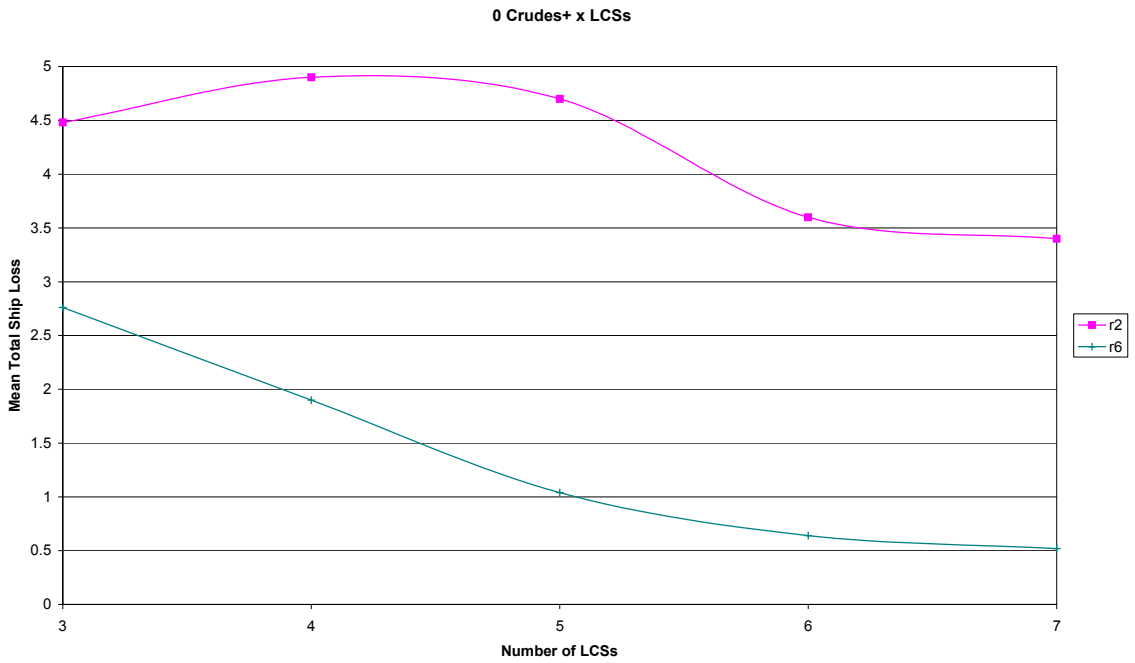

Figure 13 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r2 and r6

1. Best Performers of Each Set

This thesis set a threshold number that a run-set's average ship loss needs to achieve for the particular run-set can be considered as acceptable. Keeping with the Chief of Naval Operations statement that LCSs were not going to be expendable, the threshold is set so that average losses has to be less than or equal to one ship.[43] The only run-set that met that requirement in the 3 CRUDES set is 3 CRUDES-r1—i.e., with helo/UCAVs. The run-sets of the 2 CRUDES set that met this requirement are displayed in Figure 14. Figure 15 displays the run-sets in the 1 CRUDES set that met the requirement. The run-sets from the 0 CRUDES set that reduced losses to less than one ship are shown in Figure 16. Run-sets r1 (helo/UCAV), r3 (helo/UCAV + stealth), r5 (helo/UCAV + firepower), r6 (stealth + firepower), r7 (helo/UCAV, stealth and firepower), r11 (helo/UCAV, stealth and speed), r13 (helo/UCAV, firepower and speed), and r15 (helo/UCAV, stealth, firepower and speed) beat the threshold at some point (i.e., with enough LCSs) for the 2-0 CRUDES sets. Run-set r14 (stealth, firepower and speed)

[43] Marty Kauchak, "Navigating Changing Seas: Navy Chief Harbors No Illusions About the Challenges that Lie Ahead," *Armed Forces Journal International* (August 2002): 4. Available on the World Wide Web @ http://www.afji.com/AFJI/Mags/2002/August/navigating_4.html. Accessed 24 September 2003.

was one of the best for the 1 and 0 CRUDES sets. Additionally, looking at the graphs, it seems no matter the number of CRUDES ships the "knee" of the curve seems to exist somewhere between five and seven total platforms protecting the three amphibious ships. This means if the ESG has 2 CRUDES ships, a commander should probably add three to five LCSs, with the capabilities that make it one of the best, for a well-protected ESG—i.e. the sum of CRUDES ships and LCSs should equal between five and seven.

Using the best performing run-set r7, this study examined force structures of 1 CRUDES + 1 LCS and 2 LCSs defending ESG and the data is displayed in Appendix A (Data). The average ship loss is 1.54 and 0.94, respectively; meaning one of fewer protecting platforms could be available after such an engagement. Considering the ESG requires defense once it has reached its objective, 1 CRUDES + 1 LCS, 2 LCSs and 1 LCS would not be an effective defense for ESG in this scenario. This section's key findings lead to other interesting conclusions, discussed in Chapter V.

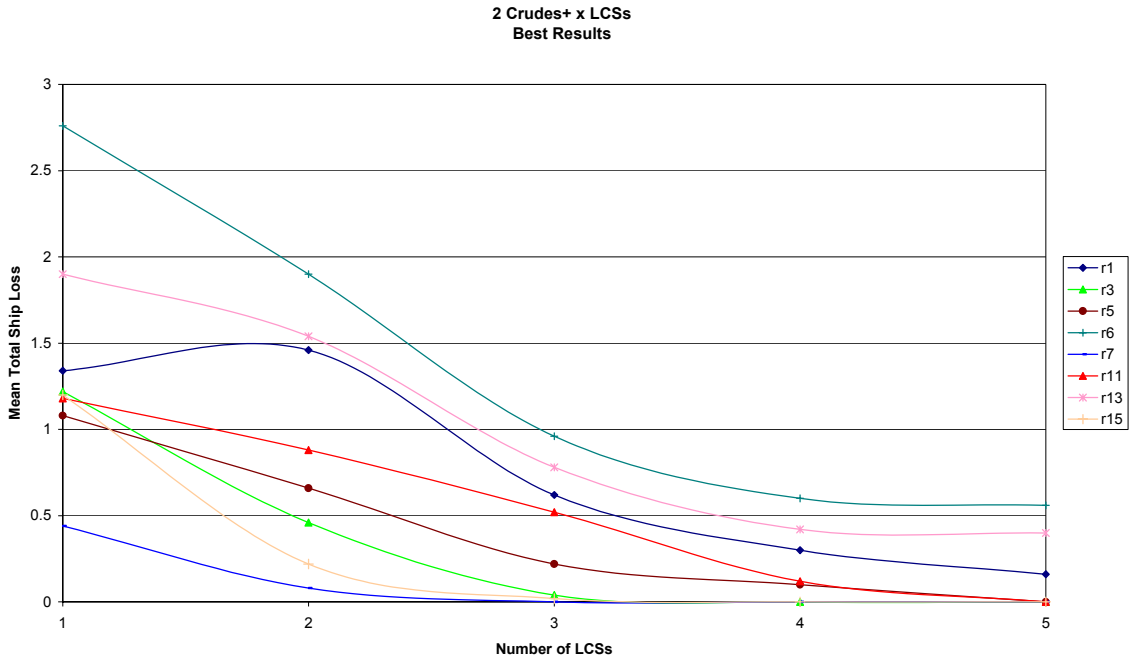

Figure 14 Best of 2 CRUDES + X LCSs

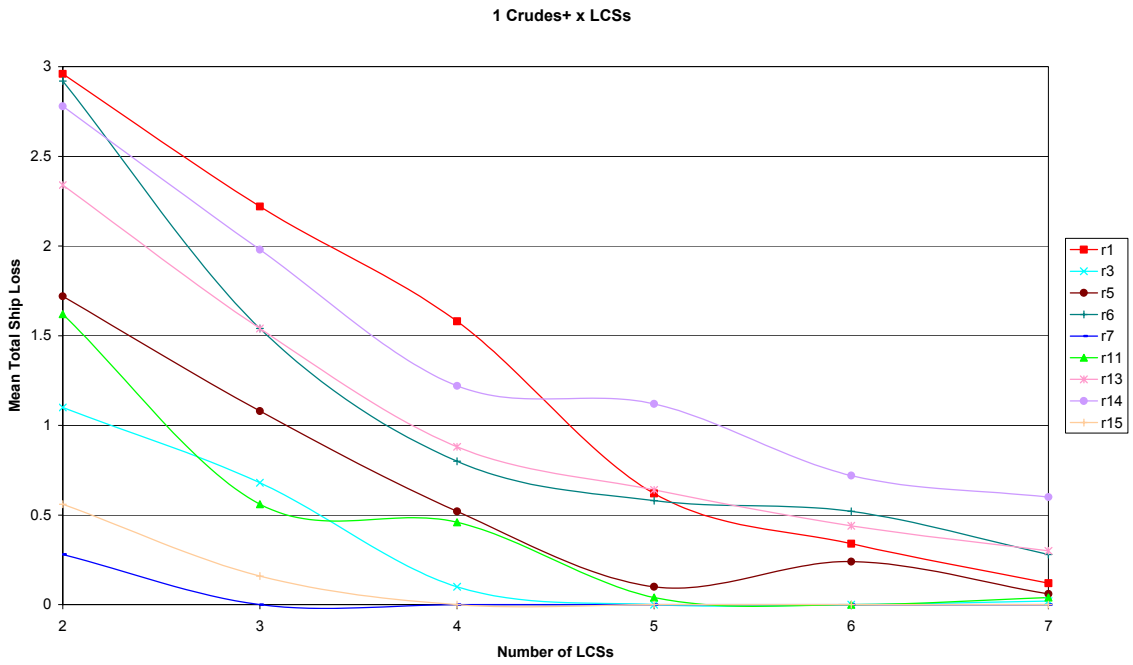

Figure 15 Best of 1 CRUDES + X LCSs

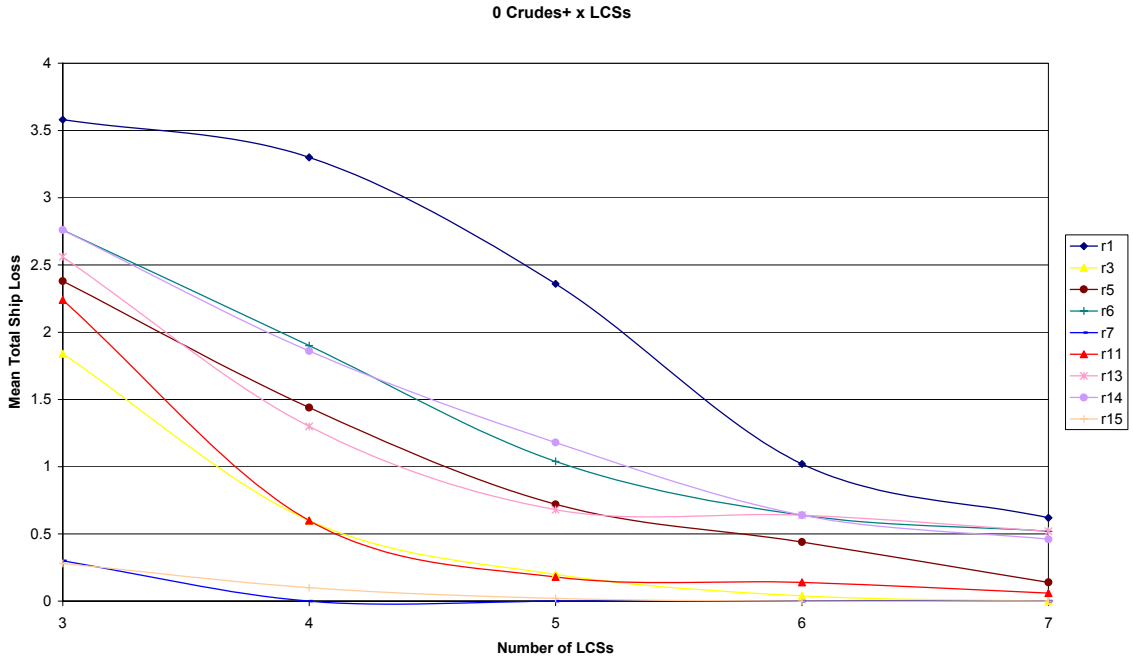

Figure 16 Best of 0 CRUDES + X LCS

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V. CONCLUSIONS AND FUTURE STUDIES

A. INTRODUCTION

This chapter discusses conclusions, makes recommendations, and talks about potential future studies. The conclusions and recommendations section discusses conclusions made from the analysis and comes up with recommendations on LCS (Littoral Combat Ship) numbers and capabilities to successfully protect ESGs (Expeditionary Strike Groups) against a high-density small boat attack. The future studies section discusses possible additional studies examining LCS possibilities.

B. CONCLUSIONS AND RECOMMENDATIONS

When designing a new class of ship, such as the Littoral Combat Ship, many options must be considered. Before metal is bent, decisions must be made about what capabilities are required. This study uses the EINSTein simulation to explore the potential effectiveness of various force mixes and LCS capabilities to protect an ESG. Before summarizing our conclusions and recommendations it is important to emphasize that these findings are based on an exploratory analysis with a relatively simple and highly abstract model. The numbers, characteristics and tactics of the enemy were fixed. Therefore, the results should be viewed as tentative working hypotheses that should be tested with other means—perhaps more detailed models.

This study's primary finding is that a helo/UCAV (helicopters/Unmanned Combat Aerial Vehicle) capability is consistently the most significant factor in reducing ship losses in this scenario. All run-sets with the helo/UCAV factor enabled, except for r9 (helo/UCAV and speed), decreased the average number of ships lost to less than one. These findings are consistent with the U.S. Navy's decision to design the initial block of LCS with the capability to employ and support an organic helicopter.

The combination of both helo/UCAV and stealth factors achieved average ship losses for ESG ships below 1.0, given at least four protecting platforms (CRUDES + LCS), below 0.5, given at least five protecting platforms, and almost no losses, given seven protecting platforms. These outcomes merit strong consideration that LCS should probably have both the capability to control a helo/UCAV and a stealthy hull. Designing

LCS with a helicopter hangar or UCAV maintenance facilities might offset the effects of building a stealthy hull. Equipping LCS with only control capabilities would allow for a more compact and stealthier LCS hull form, while reaping the benefits of armed air support for maritime missions, if a larger platform, like the amphibious carrier or a CRUDES ship, could be charged with the duties of providing logistic support for the helo/UCAVs. Such an approach would enable LCS's weight, space and crew to be used for other purposes.

Close-in high volume firepower does not appear to add as much capability as the helo/UCAV and stealth factors. However, combining it with helo/UCAVs or stealth lowers average ship losses to below 1. If program officers are forced to choose either helo/UCAV or stealth (no combination of the two) designs, this study recommends purchasing the helo/UCAV and firepower for LCSs.

As modeled in this study, and if not used wisely, tactical speed is a potential liability to LCS protection of the ESG. In all the cases with a high-speed design, force effectiveness is worse than when it is not enabled. Smart Commanding Officers would not tend to leave the mutual defense of the ESG, and this study could have used a meta-rule to model this behavior. Why introduce speed when it is unwise to use it? When LCS operates within the strike group, defending against attackers, enhanced speed is no factor due to stationing requirements of remaining in a smaller area and staying with slower ships. Also, the other factors would most likely add weight to LCS, increasing the cost to have the high-speed ability, so speed is not a recommended capability.

Although the 0 CRUDES set has good results for ESG defense in this study, tactical experience dictates that ship force mixtures should have at least one CRUDES ship to defend the force. At least one CRUDES platform enhances ESG air defense capabilities, enables greater flexibility in support of amphibious operations, improves command and control, contributes land attack capability, and provides naval surface fire support. Only in the most permissive tactical scenario does a 0 CRUDES alternative make sense, and force planners cannot assume this to be the case.

C. FUTURE STUDIES

1. Defending an ESG Sea-Base

When ESGs arrive in a theater, they may perform amphibious operations without establishing an "iron mountain" ashore. During this sea-to-objective maneuver (STOM), the force establishes a sea-base to provide logistical support for forces ashore. To maintain a reliable tether and preserve the flow of supplies and support, the force maintains station in a limited maneuvering area. This presents a vulnerability in need of defense. The same threat used in this thesis is a viable scenario for an ESG providing a sea-base, making it a reasonable focus of analysis in EINSTein. A tentative set of personalities for such a study is listed in Table 1, see also the scenario described by Figure 1. Ship force structures and LCS capabilities can be explored in a similar fashion to this study to find beneficial alternatives.

In Theater Personalities												
	When Alive						When Injured					
Squad	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag	To alv friend	To alv enemy	To inj friend	To inj enemy	To friend flag	To enemy flag
Amphibs	33		33		33		33		33		33	
CRUDES	30	30		40			30	20	20	30		
LCS	15	25	20	40			25	15	25	35		
Helo/UCAV	15	20	15	40			25	20	25	30		

Table 16 Blue Agent In Theater Personalities

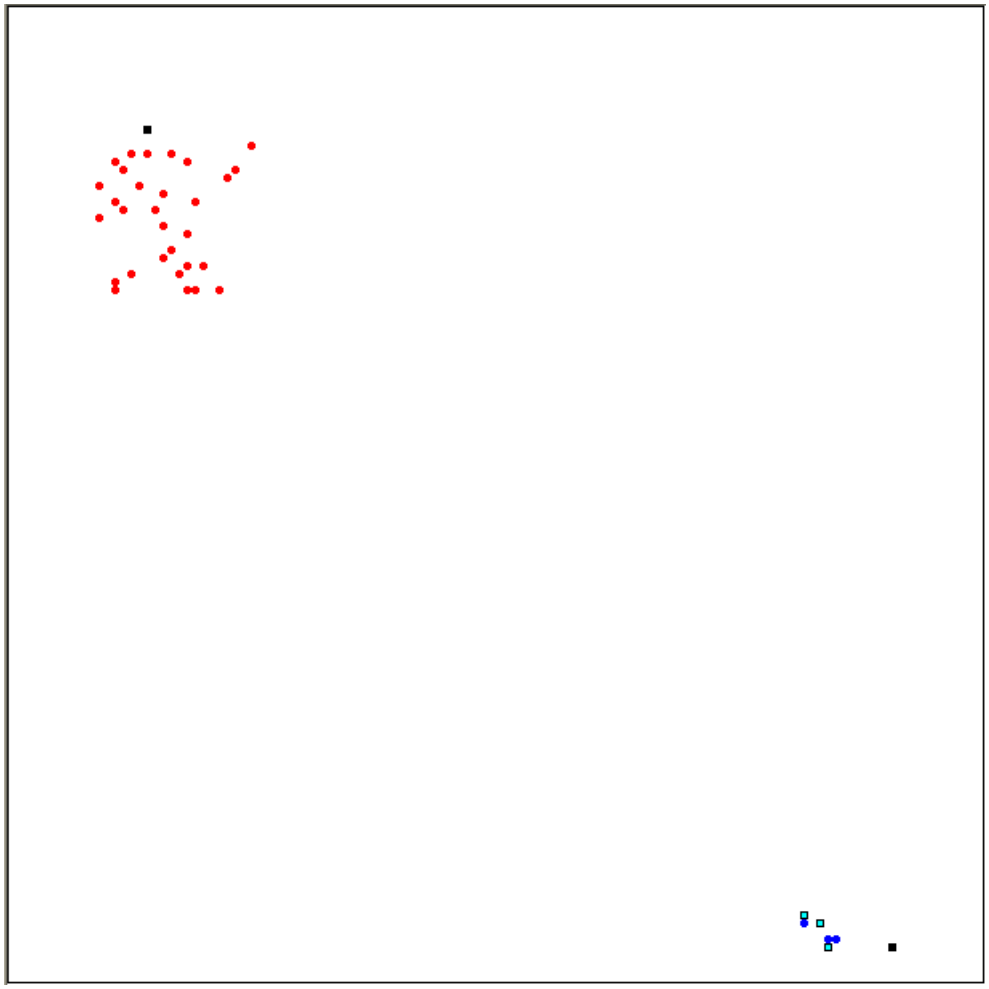

Figure 17 In Theater Battlefield

2. LCS Modularity

LCS modularity is another issue that needs to be explored. LCSs are perceived to have modularity, meaning that part of the vessel will be able to be switched when different missions are required. One module can best suit LCS for defense against a surface threat like that explored here. Other modules outfit LCS with ASW (Anti-Submarine Warfare), MIW (Mine Warfare), or possibly AW (Air Warfare) capabilities. All of these capabilities should be explored in viable scenarios to find what specific capabilities would help LCS defend an ESG or CSG (Carrier Strike Group) against submarine, mine or air threats.

3. LCS Acquisition and Deployment in the Fleet

As with all new combat systems, the acquisition process can be quite lengthy—with many milestones. Networks, linear programming and non-linear programming

models can help the U.S. Navy acquire LCS in an efficient manner. CPM (Critical Path Management) models show tasks that can delay acquisition if these tasks are not completed on time. Also, CPM helps create a well-organized schedule. Networks, linear programming and non-linear programming models can also help the U.S. Navy deploy newly acquired LCSs to where they are needed and arrange deployment schedules so that fleet requirements are met while minimizing crew deployment time.

4. Logistics

Many agent-based models like EINSTein and its predecessor, ISAAC, focus purely on combat. Other agent-based models include logistical aspects that can be explored in future studies. Some of these studies could explore the viability of using LCSs to protect landing craft providing logistical support for troops ashore. Other studies could examine the logistical limits of operating LCS.

D. CONCLUDING REMARKS

As discussed, EINSTein is an abstraction of fleet tactical warfare and requires a fair amount of discussion to draw the connection between agent activity and shipboard operations. Nevertheless, its depiction of the effects of design considerations rings plausible for this scenario. A properly designed experimental study accounted for individual factors and interactions. It yielded results that enable analytical approaches, warfare designs and alternatives to be compared. This research provides a quantitative basis for further, higher resolution studies that should consider the measurable benefits of air capability and stealth and the relative ineffectiveness of tactical speed for this new littoral combatant ship.

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APPENDIX A. DATA

A. INTRODUCTION

This appendix displays all the raw data observations from the EINSTein simulation runs. The data is categorized by the ESG's ship disposition and particular run-set (group of factors) used. The initial numbers of amphibious ships, CRUDES ships, LCSs and helo (helo/UCAVs) are shown at the top. The table is then divided into (from left to right) a reference column explaining what information is displayed in the row of the reference; alive (undamaged) amphibious ships' column; injured (damaged) amphibious ships' column; total surviving (undamaged + damaged) amphibious ships' column; alive (undamaged) CRUDES ships' column; injured (damaged) CRUDES ships' column; total surviving (undamaged + damaged) CRUDES ships' column; alive (undamaged) LCSs' column; injured (damaged) LCSs' column; total surviving (undamaged + damaged) LCSs' column; alive (undamaged) helo/UCAVs' column; injured (damaged) helo/UCAVs' column; and total surviving (undamaged + damaged) helo/UCAVs' column. The exception to this is the sample mean (xbar), calculated for the number of injured platforms associated with that column, and the average, calculated for the total number of lost (destroyed) platforms associated with the particular column.

B. DATA

	Starting Values for the Run-set					
	amphibs	crudes	lcs	helo		
	3	3	0	0		
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes
min	0	0	0	0	0	0
xbar	1.28	0.56	1.84	0.1	0.3	0.4
max	3	3	3	3	3	3
sig	1.1959114	0.786623	1.33033677	0.46291005	0.646813	0.7824608
sigxb	0.16912741	0.111245	0.18813803	0.06546537	0.091473	0.11065667
		amphib inj	amphibs lost		crudes inj	crudes lost
xbar		0.56	1.16		0.3	2.6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes
1	2	1	3	1	0	1
2	0	0	0	0	0	0
3	1	2	3	0	0	0
4	3	0	3	0	2	2
5	0	3	3	0	0	0
6	0	0	0	0	0	0
7	0	1	1	0	0	0
8	1	2	3	0	1	1
9	0	0	0	0	0	0
10	3	0	3	3	0	3
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	1	1	2	0	0	0
14	3	0	3	0	0	0
15	1	1	2	0	0	0
16	0	1	1	0	0	0
17	0	0	0	0	0	0
18	3	0	3	0	1	1
19	3	0	3	0	0	0
20	1	2	3	0	0	0
21	2	1	3	0	0	0
22	2	0	2	0	0	0
23	0	0	0	0	0	0
24	3	0	3	0	1	1
25	3	0	3	0	1	1
26	0	0	0	0	0	0
27	2	0	2	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	2	1	3	0	0	0
31	2	1	3	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	1	2	3	0	0	0
35	2	1	3	0	0	0
36	1	0	1	0	0	0
37	1	2	3	0	3	3
38	1	1	2	0	1	1
39	3	0	3	0	2	2
40	0	0	0	0	0	0
41	0	2	2	0	1	1
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	3	0	3	0	1	1
45	2	1	3	1	1	2
46	3	0	3	0	0	0
47	2	1	3	0	0	0
48	2	1	3	0	0	0
49	3	0	3	0	0	0
50	2	0	2	0	0	0

Table 17 Baseline Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	3	0	3					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	helo alive	helo injured	total helo
min	1	0	3	0	0	0	0	0	0
xbar	2.94	0.06	3	1.86	0.56	2.42	0	0	0
max	3	2	3	3	3	3	0	0	0
sig	0.31363569	0.313636	0	1.10675108	0.704504	1.01196919	0	0	0
sigxb	0.04435478	0.044355	0	0.15651824	0.099632	0.14311405	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		helo injured	helo lost
xbar		0.06	0		0.56	0.58		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	helo alive	helo injured	total helo
1	3	0	3	0	1	1	0	0	0
2	3	0	3	2	1	3	0	0	0
3	3	0	3	2	1	3	0	0	0
4	3	0	3	3	0	3	0	0	0
5	3	0	3	3	0	3	0	0	0
6	2	1	3	0	0	0	0	0	0
7	3	0	3	3	0	3	0	0	0
8	3	0	3	3	0	3	0	0	0
9	3	0	3	1	2	3	0	0	0
10	3	0	3	3	0	3	0	0	0
11	3	0	3	3	0	3	0	0	0
12	3	0	3	1	0	1	0	0	0
13	3	0	3	1	1	2	0	0	0
14	3	0	3	1	0	1	0	0	0
15	3	0	3	3	0	3	0	0	0
16	3	0	3	2	1	3	0	0	0
17	3	0	3	3	0	3	0	0	0
18	3	0	3	1	1	2	0	0	0
19	3	0	3	1	1	2	0	0	0
20	3	0	3	3	0	3	0	0	0
21	3	0	3	2	1	3	0	0	0
22	3	0	3	1	1	2	0	0	0
23	3	0	3	3	0	3	0	0	0
24	3	0	3	2	1	3	0	0	0
25	3	0	3	1	2	3	0	0	0
26	3	0	3	3	0	3	0	0	0
27	3	0	3	2	0	2	0	0	0
28	3	0	3	0	3	3	0	0	0
29	3	0	3	3	0	3	0	0	0
30	3	0	3	2	1	3	0	0	0
31	3	0	3	2	1	3	0	0	0
32	3	0	3	3	0	3	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	1	1	2	0	0	0
35	3	0	3	2	1	3	0	0	0
36	3	0	3	3	0	3	0	0	0
37	3	0	3	2	1	3	0	0	0
38	3	0	3	3	0	3	0	0	0
39	3	0	3	1	2	3	0	0	0
40	3	0	3	2	1	3	0	0	0
41	3	0	3	3	0	3	0	0	0
42	3	0	3	3	0	3	0	0	0
43	3	0	3	0	0	0	0	0	0
44	3	0	3	2	1	3	0	0	0
45	3	0	3	0	0	0	0	0	0
46	3	0	3	2	1	3	0	0	0
47	3	0	3	3	0	3	0	0	0
48	1	2	3	0	1	1	0	0	0
49	3	0	3	3	0	3	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 18 3 CRUDES 0 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.84	0.56	1.4	0.02	0.14	0.16	0	0	0
max	3	3	3	1	2	2	0	0	0
sig	0.99713876	0.7329	1.34011879	0.14142136	0.404566	0.42185209	0	0	0
sigxb	0.01994278	0.014658	0.02680238	0.00282843	0.008091	0.00843704	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.56	1.6		0.14	1.84		0	1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	1	2	0	0	0	0	0	0
2	1	2	3	0	0	0	0	0	0
3	2	1	3	0	0	0	0	0	0
4	1	0	1	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0
6	3	0	3	0	2	2	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	1	1	2	0	1	1	0	0	0
12	1	1	2	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0
15	2	1	3	1	0	1	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	0	2	2	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	1	1	2	0	1	1	0	0	0
24	0	0	0	0	0	0	0	0	0
25	2	1	3	0	1	1	0	0	0
26	1	1	2	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	2	1	3	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	3	3	0	0	0	0	0	0
32	1	1	2	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	2	1	3	0	0	0	0	0	0
35	1	0	1	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	1	1	2	0	0	0	0	0	0
41	1	1	2	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	2	1	3	0	1	1	0	0	0
47	0	2	2	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	1	2	3	0	0	0	0	0	0

Table 19 2 CRUDES 1 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	3	0	0	0	0	0	0	0	0	0
xbar	2.9	0.1	3	1.04	0.32	1.36	0.08	0.22	0.3	0	0	0
max	3	2	3	2	2	2	1	1	1	0	0	0
sig	0.36421568	0.364216	0	0.8797031	0.512696	0.80203822	0.27405	0.418	0.463	0	0	0
sigxb	0.00728431	0.007284	0	0.01759406	0.010254	0.01604076	0.00548	0.008	0.009	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.1	0		0.32	0.64		0.22	0.7		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0	0	0	0
2	3	0	3	0	2	2	0	1	1	0	0	0
3	3	0	3	2	0	2	0	1	1	0	0	0
4	3	0	3	1	0	1	0	0	0	0	0	0
5	2	1	3	0	1	1	0	0	0	0	0	0
6	2	1	3	1	1	2	0	0	0	0	0	0
7	3	0	3	2	0	2	1	0	1	0	0	0
8	3	0	3	2	0	2	0	1	1	0	0	0
9	3	0	3	2	0	2	0	1	1	0	0	0
10	3	0	3	2	0	2	0	0	0	0	0	0
11	3	0	3	2	0	2	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	1	1	2	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0	0	0	0
15	3	0	3	1	1	2	0	0	0	0	0	0
16	1	2	3	0	0	0	0	0	0	0	0	0
17	3	0	3	0	1	1	0	1	1	0	0	0
18	3	0	3	2	0	2	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0	0	0	0
20	3	0	3	0	0	0	0	0	0	0	0	0
21	3	0	3	1	0	1	0	0	0	0	0	0
22	3	0	3	2	0	2	0	1	1	0	0	0
23	3	0	3	2	0	2	1	0	1	0	0	0
24	3	0	3	2	0	2	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0	0	0	0
27	2	1	3	0	1	1	0	0	0	0	0	0
28	3	0	3	0	1	1	0	1	1	0	0	0
29	3	0	3	2	0	2	0	0	0	0	0	0
30	3	0	3	2	0	2	0	1	1	0	0	0
31	3	0	3	0	1	1	0	0	0	0	0	0
32	3	0	3	1	1	2	0	1	1	0	0	0
33	3	0	3	2	0	2	1	0	1	0	0	0
34	3	0	3	1	1	2	0	0	0	0	0	0
35	3	0	3	2	0	2	0	0	0	0	0	0
36	3	0	3	1	1	2	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0	0	0	0
38	3	0	3	2	0	2	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0	0	0	0
40	3	0	3	2	0	2	1	0	1	0	0	0
41	3	0	3	1	0	1	0	0	0	0	0	0
42	3	0	3	1	0	1	0	0	0	0	0	0
43	3	0	3	0	1	1	0	0	0	0	0	0
44	3	0	3	1	1	2	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	2	0	2	0	1	1	0	0	0
49	3	0	3	2	0	2	0	1	1	0	0	0
50	3	0	3	2	0	2	0	0	0	0	0	0

Table 20 2 CRUDES 1 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.22	0.58	1.8	0.02	0.12	0.14	0.04	0.08	0.14
max	3	3	3	1	1	1	1	1	1
sig	1.14802403	0.730949	1.30930734	0.14142136	0.328261	0.35050983	0.19795	0.274	0.351
sigxb	0.02296048	0.014619	0.02618615	0.00282843	0.006565	0.0070102	0.00396	0.005	0.007
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.58	1.2		0.12	1.86		0.08	0.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	3	3	0	0	0	0	0	0
2	1	1	2	0	0	0	0	0	0
3	1	2	3	0	0	0	0	0	0
4	0	1	1	0	0	0	0	0	0
5	2	1	3	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0	0
7	1	0	1	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	2	0	2	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	1	0	1	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0
16	1	1	2	0	0	0	0	0	0
17	2	1	3	0	1	1	0	0	0
18	2	1	3	0	1	1	1	0	1
19	2	1	3	1	0	1	0	0	0
20	0	0	0	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	2	1	3	0	0	0	0	1	1
23	2	1	3	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	1	1	0	0	0	0	1	1
26	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	0	0	0	0	0	0	0	0	0
31	2	1	3	0	1	1	0	0	0
32	1	1	2	0	0	0	0	0	0
33	1	1	2	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0
35	2	0	2	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	1	2	3	0	0	0	0	1	1
39	2	1	3	0	0	0	0	0	0
40	2	1	3	0	0	0	1	0	1
41	3	0	3	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0
43	3	0	3	0	1	1	0	0	0
44	3	0	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	0	1	1	0	0	0	0	0	0
50	0	1	1	0	0	0	0	0	0

Table 21 2 CRUDES 1 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.84	0.08	2.92	0.76	0.5	1.26	0.44	0.18	0.6	0	0	0
max	3	1	3	2	2	2	1	1	1	0	0	0
sig	0.54809503	0.274048	0.44446712	0.84660185	0.646813	0.87621636	0.50143	0.388	0.495	0	0	0
sigxb	0.0109619	0.005481	0.00888934	0.01693204	0.012936	0.01752433	0.01003	0.008	0.01	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.08	0.08		0.5	0.74		0.18	0.4		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	0	0	0	0	0	0
2	3	0	3	1	1	2	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0	0	0	0
4	3	0	3	2	0	2	1	0	1	0	0	0
5	3	0	3	1	1	2	1	0	1	0	0	0
6	3	0	3	0	0	0	0	1	0	0	0	0
7	3	0	3	1	1	2	0	0	0	0	0	0
8	3	0	3	0	1	1	0	0	0	0	0	0
9	3	0	3	1	1	2	0	1	1	0	0	0
10	3	0	3	1	1	2	1	0	1	0	0	0
11	3	0	3	2	0	2	1	0	1	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	0	1	1	0	1	1	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	3	0	3	1	0	1	0	0	0	0	0	0
16	3	0	3	0	2	2	1	0	1	0	0	0
17	3	0	3	1	1	2	1	0	1	0	0	0
18	3	0	3	2	0	2	0	0	0	0	0	0
19	3	0	3	0	1	1	0	1	1	0	0	0
20	3	0	3	2	0	2	1	0	1	0	0	0
21	3	0	3	0	1	1	0	0	0	0	0	0
22	3	0	3	1	1	2	1	0	1	0	0	0
23	3	0	3	2	0	2	1	0	1	0	0	0
24	3	0	3	0	0	0	1	0	1	0	0	0
25	3	0	3	2	0	2	0	1	1	0	0	0
26	3	0	3	2	0	2	1	0	1	0	0	0
27	3	0	3	0	0	0	0	0	0	0	0	0
28	3	0	3	2	0	2	1	0	1	0	0	0
29	2	1	3	0	0	0	0	0	0	0	0	0
30	3	0	3	0	0	0	0	0	0	0	0	0
31	3	0	3	0	2	2	1	0	1	0	0	0
32	1	1	2	0	0	0	0	0	0	0	0	0
33	3	0	3	1	1	2	0	1	1	0	0	0
34	3	0	3	2	0	2	1	0	1	0	0	0
35	3	0	3	1	1	2	0	1	1	0	0	0
36	3	0	3	0	0	0	0	0	0	0	0	0
37	3	0	3	0	0	0	1	0	1	0	0	0
38	2	1	3	0	0	0	0	0	0	0	0	0
39	3	0	3	0	2	2	1	0	1	0	0	0
40	2	1	3	0	0	0	0	1	1	0	0	0
41	3	0	3	2	0	2	1	0	1	0	0	0
42	3	0	3	2	0	2	1	0	1	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0
44	3	0	3	0	1	1	0	0	0	0	0	0
45	3	0	3	2	0	2	1	0	1	0	0	0
46	3	0	3	0	1	1	0	0	0	0	0	0
47	3	0	3	1	0	1	1	0	1	0	0	0
48	3	0	3	2	0	2	1	0	1	0	0	0
49	3	0	3	1	1	2	1	0	1	0	0	0
50	3	0	3	0	2	2	0	1	1	0	0	0

Table 22 2 CRUDES 1 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.9	0.66	1.56	0.06	0.12	0.18	0	0	0
max	3	3	3	2	1	2	0	0	0
sig	1.07380688	0.871546	1.37261853	0.31363569	0.328261	0.43752551	0	0	0
sigxb	0.02147614	0.017431	0.02745237	0.00627271	0.006565	0.00875051	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.66	1.44		0.12	1.82		0	1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	0	1	1	0	0	0
3	2	1	3	0	1	1	0	0	0
4	0	0	0	0	0	0	0	0	0
5	3	0	3	0	0	0	0	0	0
6	1	1	2	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	1	2	3	0	0	0	0	0	0
10	1	1	2	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	1	2	3	0	0	0	0	0	0
15	1	1	2	0	1	1	0	0	0
16	0	1	1	0	0	0	0	0	0
17	0	2	2	0	1	1	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	2	2	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	1	2	3	0	0	0	0	0	0
24	1	1	2	0	0	0	0	0	0
25	1	2	3	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	3	0	3	1	0	1	0	0	0
28	0	3	3	0	0	0	0	0	0
29	1	2	3	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	3	0	3	0	1	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	2	3	0	1	1	0	0	0
39	2	0	2	0	0	0	0	0	0
40	1	2	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	1	0	1	0	0	0	0	0	0
46	1	2	3	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	3	0	3	2	0	2	0	0	0
49	1	1	2	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 23 2 CRUDES 1 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.92	0.06	2.98	1.26	0.32	1.58	0.12	0.24	0.36	0	0.02	0.02
max	3	1	3	2	2	2	1	1	1	0	1	1
sig	0.34046787	0.239898	0.14142136	0.80330948	0.512696	0.67279496	0.32826	0.431	0.485	0	0.1414214	0.141421
sigxb	0.00680936	0.004798	0.00282843	0.01606619	0.010254	0.0134559	0.00657	0.009	0.01	0	0.0028284	0.002828
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.06	0.02		0.32	0.42		0.24	0.64		0.02	2.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	1	1	0	0	0
2	3	0	3	2	0	2	0	1	1	0	0	0
3	3	0	3	1	0	1	0	1	1	0	0	0
4	3	0	3	0	0	0	0	0	0	0	0	0
5	3	0	3	2	0	2	0	1	1	0	0	0
6	3	0	3	1	1	2	0	0	0	0	0	0
7	3	0	3	2	0	2	0	1	1	0	0	0
8	3	0	3	2	0	2	0	0	0	0	0	0
9	3	0	3	2	0	2	0	1	1	0	0	0
10	3	0	3	2	0	2	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	1	0	1	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0	0	0	0
15	3	0	3	2	0	2	0	0	0	0	0	0
16	3	0	3	0	2	2	0	0	0	0	0	0
17	3	0	3	2	0	2	0	0	0	0	0	0
18	3	0	3	1	1	2	0	0	0	0	0	0
19	3	0	3	1	1	2	0	0	0	0	0	0
20	3	0	3	2	0	2	1	0	1	0	0	0
21	3	0	3	1	0	1	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	1	1	2	0	0	0	0	0	0
24	3	0	3	2	0	2	0	0	0	0	0	0
25	3	0	3	1	1	2	0	0	0	0	0	0
26	3	0	3	2	0	2	1	0	1	0	0	0
27	3	0	3	2	0	2	1	0	1	0	0	0
28	3	0	3	2	0	2	1	0	1	0	1	1
29	3	0	3	2	0	2	0	1	1	0	0	0
30	3	0	3	0	1	1	0	0	0	0	0	0
31	3	0	3	0	1	1	0	0	0	0	0	0
32	3	0	3	2	0	2	0	1	1	0	0	0
33	2	1	3	0	0	0	0	0	0	0	0	0
34	3	0	3	2	0	2	1	0	1	0	0	0
35	3	0	3	1	1	2	0	1	1	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	1	1	2	0	0	0	0	0	0
38	3	0	3	0	1	1	0	0	0	0	0	0
39	3	0	3	2	0	2	1	0	1	0	0	0
40	3	0	3	2	0	2	0	0	0	0	0	0
41	2	1	3	0	0	0	0	0	0	0	0	0
42	3	0	3	1	1	2	0	0	0	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	1	0	1	0	0	0	0	0	0
45	1	1	2	0	0	0	0	0	0	0	0	0
46	3	0	3	2	0	2	0	1	1	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	1	1	2	0	0	0	0	0	0
49	3	0	3	2	0	2	0	1	1	0	0	0
50	3	0	3	2	0	2	0	1	1	0	0	0

Table 24 2 CRUDES 1 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.98	0.58	2.56	0.1	0.28	0.38	0.1	0.2	0.3
max	3	3	3	1	2	2	1	1	1
sig	1.18648856	0.835195	0.95104668	0.30304576	0.496518	0.5674864	0.30305	0.404	0.463
sigxb	0.02372977	0.016704	0.01902093	0.00606092	0.00993	0.01134973	0.00606	0.008	0.009
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.58	0.44		0.28	1.62		0.2	0.7
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	2	3	0	0	0	0	0	0
2	1	2	3	0	0	0	0	0	0
3	2	1	3	0	1	1	0	0	0
4	0	0	0	0	0	0	0	0	0
5	3	0	3	0	1	1	0	0	0
6	3	0	3	0	0	0	0	0	0
7	3	0	3	1	1	2	1	0	1
8	3	0	3	0	1	1	0	1	1
9	0	2	2	0	0	0	0	0	0
10	3	0	3	0	0	0	0	0	0
11	3	0	3	0	0	0	1	0	1
12	3	0	3	0	0	0	0	1	1
13	1	0	1	0	0	0	0	0	0
14	3	0	3	0	0	0	0	1	1
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	1	1	1	0	1
17	3	0	3	0	0	0	0	1	1
18	3	0	3	0	2	2	0	0	0
19	1	2	3	0	0	0	0	0	0
20	1	1	2	0	0	0	0	0	0
21	3	0	3	1	0	1	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	2	2	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	1	0	1	0	1	1
26	2	1	3	1	0	1	0	0	0
27	3	0	3	0	1	1	1	0	1
28	3	0	3	0	1	1	0	0	0
29	0	3	3	0	1	1	0	1	1
30	2	1	3	0	0	0	0	0	0
31	3	0	3	0	1	1	0	0	0
32	3	0	3	0	0	0	0	0	0
33	1	2	3	0	0	0	0	1	1
34	2	1	3	0	0	0	0	0	0
35	1	1	2	0	0	0	0	1	1
36	1	2	3	0	0	0	0	0	0
37	3	0	3	1	0	1	0	1	1
38	0	2	2	0	0	0	0	0	0
39	3	0	3	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0
44	2	1	3	0	0	0	0	0	0
45	3	0	3	0	0	0	1	0	1
46	3	0	3	0	0	0	0	0	0
47	2	1	3	0	1	1	0	1	1
48	3	0	3	0	1	1	0	0	0
49	0	0	0	0	0	0	0	0	0
50	2	1	3	0	1	1	0	0	0

Table 25 2 CRUDES 1 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.98	0.02	3	1.4	0.32	1.72	0.6	0.24	0.84	0	0	0
max	3	1	3	2	2	2	1	1	1	0	0	0
sig	0.14142136	0.141421	0	0.80812204	0.551066	0.57285536	0.49487	0.431	0.37	0	0	0
sigxb	0.00282843	0.002828	0	0.01616244	0.011021	0.01145711	0.0099	0.009	0.007	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0		0.32	0.28		0.24	0.16		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	1	0	1	0	0	0
2	3	0	3	2	0	2	1	0	1	0	0	0
3	3	0	3	1	1	2	0	1	1	0	0	0
4	3	0	3	0	0	0	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0	0	0	0
6	3	0	3	1	1	2	1	0	1	0	0	0
7	3	0	3	2	0	2	1	0	1	0	0	0
8	3	0	3	2	0	2	0	1	1	0	0	0
9	3	0	3	2	0	2	0	1	1	0	0	0
10	3	0	3	1	1	2	1	0	1	0	0	0
11	3	0	3	1	1	2	1	0	1	0	0	0
12	3	0	3	0	1	1	0	0	0	0	0	0
13	3	0	3	1	1	2	0	0	0	0	0	0
14	3	0	3	2	0	2	1	0	1	0	0	0
15	3	0	3	2	0	2	1	0	1	0	0	0
16	3	0	3	2	0	2	0	1	1	0	0	0
17	3	0	3	2	0	2	1	0	1	0	0	0
18	3	0	3	2	0	2	1	0	1	0	0	0
19	3	0	3	0	2	2	0	1	1	0	0	0
20	3	0	3	2	0	2	1	0	1	0	0	0
21	3	0	3	2	0	2	0	1	1	0	0	0
22	3	0	3	2	0	2	0	1	1	0	0	0
23	3	0	3	2	0	2	1	0	1	0	0	0
24	3	0	3	2	0	2	1	0	1	0	0	0
25	3	0	3	0	1	1	1	0	1	0	0	0
26	3	0	3	1	0	1	0	1	1	0	0	0
27	3	0	3	2	0	2	1	0	1	0	0	0
28	3	0	3	0	2	2	0	0	0	0	0	0
29	3	0	3	2	0	2	1	0	1	0	0	0
30	3	0	3	2	0	2	1	0	1	0	0	0
31	3	0	3	1	1	2	0	1	1	0	0	0
32	3	0	3	0	1	1	0	1	1	0	0	0
33	3	0	3	2	0	2	1	0	1	0	0	0
34	3	0	3	2	0	2	1	0	1	0	0	0
35	3	0	3	0	0	0	0	1	1	0	0	0
36	3	0	3	1	1	2	1	0	1	0	0	0
37	3	0	3	2	0	2	1	0	1	0	0	0
38	3	0	3	1	0	1	0	1	1	0	0	0
39	3	0	3	1	0	1	0	0	0	0	0	0
40	3	0	3	2	0	2	1	0	1	0	0	0
41	3	0	3	2	0	2	1	0	1	0	0	0
42	3	0	3	0	1	1	0	0	0	0	0	0
43	3	0	3	2	0	2	1	0	1	0	0	0
44	3	0	3	2	0	2	1	0	1	0	0	0
45	3	0	3	2	0	2	1	0	1	0	0	0
46	3	0	3	2	0	2	1	0	1	0	0	0
47	3	0	3	0	1	1	0	0	0	0	0	0
48	3	0	3	2	0	2	1	0	1	0	0	0
49	3	0	3	2	0	2	1	0	1	0	0	0
50	3	0	3	2	0	2	1	0	1	0	0	0

Table 26 2 CRUDES 1 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.46	0.54	1	0.04	0.04	0.08	0	0	0
max	3	3	3	1	1	1	0	0	0
sig	0.76157731	0.813408	1.30930734	0.19794866	0.197949	0.27404752	0	0	0
sigxb	0.01523155	0.016268	0.02618615	0.00395897	0.003959	0.00548095	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.54	2		0.04	1.92		0	1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	1	1	2	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	0	3	3	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	1	1	2	0	0	0	0	0	0
15	1	2	3	0	0	0	0	0	0
16	0	1	1	0	0	0	0	0	0
17	1	2	3	0	0	0	0	0	0
18	2	1	3	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	2	1	3	0	1	1	0	0	0
22	2	0	2	0	0	0	0	0	0
23	1	2	3	1	0	1	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	1	2	3	1	0	1	0	0	0
27	0	1	1	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	1	1	2	0	1	1	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	2	2	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0
39	3	0	3	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	1	2	3	0	0	0	0	0	0
44	2	1	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 27 2 CRUDES 1 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	0	0	2	0	0	0	0	0	0	0	0	0
xbar	2.58	0.4	2.98	0.64	0.6	1.24	0.02	0.04	0.06	0.02	0.06	0.08
max	3	3	3	2	2	2	1	1	1	1	2	2
sig	0.78480467	0.755929	0.14142136	0.80203822	0.699854	0.89351404	0.14142	0.198	0.24	0.141421	0.3136357	0.395897
sigxb	0.01569609	0.015119	0.00282843	0.01604076	0.013997	0.01787028	0.00283	0.004	0.005	0.002828	0.0062727	0.007918
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.4	0.02		0.6	0.76		0.04	0.94		0.06	2.92
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0	0	0	0
2	3	0	3	0	2	2	0	0	0	0	0	0
3	2	1	3	1	0	1	0	0	0	0	0	0
4	3	0	3	0	2	2	0	0	0	0	0	0
5	3	0	3	0	0	0	0	0	0	0	0	0
6	3	0	3	1	1	2	0	0	0	0	0	0
7	3	0	3	2	0	2	0	0	0	0	0	0
8	3	0	3	0	2	2	0	0	0	0	0	0
9	3	0	3	1	1	2	0	0	0	0	0	0
10	3	0	3	1	1	2	0	0	0	0	0	0
11	3	0	3	1	1	2	0	0	0	0	0	0
12	3	0	3	2	0	2	0	1	1	0	0	0
13	3	0	3	1	1	2	0	0	0	0	0	0
14	3	0	3	2	0	2	0	0	0	0	0	0
15	2	1	3	0	0	0	0	0	0	0	0	0
16	1	1	2	0	0	0	0	0	0	0	0	0
17	3	0	3	0	1	1	0	0	0	0	0	0
18	3	0	3	1	1	2	0	0	0	0	0	0
19	3	0	3	2	0	2	0	1	1	0	2	2
20	3	0	3	1	1	2	0	0	0	0	0	0
21	2	1	3	0	0	0	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	1	1	2	0	0	0	0	0	0
24	0	3	3	0	1	1	0	0	0	0	0	0
25	1	2	3	0	0	0	0	0	0	0	0	0
26	2	1	3	0	1	1	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0	0	0	0
28	3	0	3	1	1	2	0	0	0	0	0	0
29	3	0	3	0	2	2	0	0	0	0	0	0
30	3	0	3	0	2	2	0	0	0	0	0	0
31	3	0	3	1	1	2	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0	0	0	0
34	0	3	3	0	0	0	0	0	0	0	0	0
35	3	0	3	0	2	2	0	0	0	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	2	1	3	0	1	1	0	0	0	0	0	0
38	3	0	3	0	1	1	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0	0	0	0
41	2	1	3	0	1	1	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0	0	0	0
43	3	0	3	1	1	2	0	0	0	0	0	0
44	3	0	3	2	0	2	1	0	1	1	1	2
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	2	0	2	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0	0	0	0
49	2	1	3	0	1	1	0	0	0	0	0	0
50	1	2	3	0	0	0	0	0	0	0	0	0

Table 28 2 CRUDES 1 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.92	0.66	1.58	0.08	0.2	0.28	0	0	0
max	3	2	3	2	2	2	0	0	0
sig	1.13999642	0.847806	1.34148866	0.34046787	0.494872	0.6074369	0	0	0
sigxb	0.02279993	0.016956	0.02682977	0.00680936	0.009897	0.01214874	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.66	1.42		0.2	1.72		0	1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	2	0	2	0	0	0
4	3	0	3	0	1	1	0	0	0
5	2	1	3	0	0	0	0	0	0
6	0	2	2	0	0	0	0	0	0
7	1	2	3	0	0	0	0	0	0
8	3	0	3	0	1	1	0	0	0
9	0	0	0	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	1	1	2	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	0	2	2	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	0	2	2	0	0	0
18	3	0	3	1	1	2	0	0	0
19	2	0	2	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	0	2	2	0	0	0	0	0	0
22	0	1	1	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	1	2	3	0	0	0	0	0	0
26	1	1	2	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	1	1	2	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	1	2	3	0	0	0	0	0	0
33	0	2	2	0	0	0	0	0	0
34	1	2	3	0	1	1	0	0	0
35	1	2	3	0	0	0	0	0	0
36	0	2	2	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	2	3	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	2	1	3	0	1	1	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	0	1	1	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	3	0	3	0	1	1	0	0	0
47	1	2	3	0	2	2	0	0	0
48	2	0	2	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	3	0	3	1	0	1	0	0	0

Table 29 2 CRUDES 1 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	3	0	0	0	0	0	0	0	0	0
xbar	2.92	0.08	3	1.38	0.32	1.7	0.04	0.08	0.12	0.04	0.04	0.08
max	3	2	3	2	2	2	1	1	1	1	1	1
sig	0.39589733	0.395897	0	0.77958649	0.551066	0.64681322	0.19795	0.274	0.328	0.197949	0.1979487	0.274048
sigxb	0.00791795	0.007918	0	0.01559173	0.011021	0.01293626	0.00396	0.005	0.007	0.003959	0.003959	0.005481
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.08	0		0.32	0.3		0.08	0.88		0.04	2.92
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	1	2	0	0	0	0	0	0
2	3	0	3	2	0	2	0	0	0	0	0	0
3	3	0	3	2	0	2	0	0	0	0	0	0
4	3	0	3	2	0	2	0	0	0	0	0	0
5	3	0	3	2	0	2	0	0	0	0	0	0
6	3	0	3	2	0	2	0	0	0	0	0	0
7	3	0	3	1	1	2	0	0	0	0	0	0
8	3	0	3	2	0	2	0	0	0	0	0	0
9	3	0	3	2	0	2	0	0	0	0	0	0
10	3	0	3	1	1	2	0	0	0	0	0	0
11	3	0	3	1	1	2	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	1	0	1	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0	0	0	0
15	3	0	3	1	1	2	0	0	0	0	0	0
16	1	2	3	0	0	0	0	0	0	0	0	0
17	3	0	3	2	0	2	0	0	0	0	0	0
18	3	0	3	2	0	2	0	0	0	0	0	0
19	3	0	3	0	1	1	0	0	0	0	0	0
20	3	0	3	0	0	0	0	0	0	0	0	0
21	3	0	3	0	0	0	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	2	0	2	0	0	0	0	0	0
24	3	0	3	1	0	1	0	0	0	0	0	0
25	3	0	3	2	0	2	0	0	0	0	0	0
26	3	0	3	2	0	2	0	0	0	0	0	0
27	3	0	3	2	0	2	0	0	0	1	0	1
28	3	0	3	2	0	2	0	1	1	0	0	0
29	3	0	3	1	1	2	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0	0	0	0
31	3	0	3	1	1	2	0	0	0	0	0	0
32	3	0	3	1	1	2	0	0	0	0	0	0
33	3	0	3	2	0	2	0	0	0	0	0	0
34	3	0	3	2	0	2	0	1	1	0	1	1
35	3	0	3	2	0	2	0	1	1	0	0	0
36	3	0	3	1	0	1	0	0	0	0	0	0
37	3	0	3	2	0	2	0	0	0	0	0	0
38	3	0	3	0	2	2	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0	0	0	0
40	3	0	3	1	1	2	0	0	0	0	0	0
41	3	0	3	2	0	2	0	0	0	0	0	0
42	3	0	3	2	0	2	0	1	1	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	2	0	2	0	0	0	0	0	0
45	3	0	3	2	0	2	1	0	1	0	0	0
46	1	2	3	0	0	0	0	0	0	0	0	0
47	3	0	3	2	0	2	1	0	1	0	1	1
48	3	0	3	2	0	2	0	0	0	1	0	1
49	3	0	3	1	1	2	0	0	0	0	0	0
50	3	0	3	0	2	2	0	0	0	0	0	0

Table 30 2 CRUDES 1 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.56	0.88	1.44	0.04	0.02	0.06	0	0	0
max	3	3	3	1	1	2	0	0	0
sig	0.90711474	1.002853	1.35766907	0.19794866	0.141421	0.31363569	0	0	0
sigxb	0.01814229	0.020057	0.02715338	0.00395897	0.002828	0.00627271	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.88	1.56		0.02	1.94		0	1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	1	2	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	1	2	3	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	2	1	3	0	0	0	0	0	0
7	0	2	2	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	1	1	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	1	2	3	0	0	0	0	0	0
13	1	1	2	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	2	2	0	0	0	0	0	0
17	3	0	3	1	0	1	0	0	0
18	0	3	3	0	0	0	0	0	0
19	0	3	3	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	3	0	3	1	1	2	0	0	0
22	1	1	2	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	1	1	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0
26	2	1	3	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	2	2	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	0	2	2	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	0	3	3	0	0	0	0	0	0
44	0	1	1	0	0	0	0	0	0
45	1	2	3	0	0	0	0	0	0
46	0	3	3	0	0	0	0	0	0
47	1	2	3	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	1	2	3	0	0	0	0	0	0
50	0	1	1	0	0	0	0	0	0

Table 31 2 CRUDES 1 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.8	0.16	2.96	0.72	0.4	1.12	0	0.02	0.02	0	0	0
max	3	2	3	2	2	2	0	1	1	0	0	0
sig	0.53452248	0.509502	0.19794866	0.85809471	0.606092	0.89533941	0	0.141	0.141	0	0	0
sigxb	0.01069045	0.01019	0.00395897	0.01716189	0.012122	0.01790679	0	0.003	0.003	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.16	0.04		0.4	0.88		0.02	0.98		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	0	0	0	0	0	0
2	3	0	3	2	0	2	0	0	0	0	0	0
3	3	0	3	0	2	2	0	0	0	0	0	0
4	3	0	3	2	0	2	0	0	0	0	0	0
5	1	2	3	0	0	0	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0	0	0	0
7	3	0	3	1	1	2	0	0	0	0	0	0
8	2	0	2	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0	0	0	0
10	3	0	3	2	0	2	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0	0	0	0
12	3	0	3	0	1	1	0	0	0	0	0	0
13	3	0	3	0	1	1	0	0	0	0	0	0
14	3	0	3	2	0	2	0	0	0	0	0	0
15	3	0	3	2	0	2	0	0	0	0	0	0
16	3	0	3	2	0	2	0	0	0	0	0	0
17	3	0	3	0	1	1	0	0	0	0	0	0
18	3	0	3	0	1	1	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0	0	0	0
20	3	0	3	0	0	0	0	0	0	0	0	0
21	3	0	3	2	0	2	0	0	0	0	0	0
22	3	0	3	1	1	2	0	0	0	0	0	0
23	3	0	3	1	1	2	0	0	0	0	0	0
24	3	0	3	0	2	2	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0	0	0	0
27	2	0	2	0	0	0	0	0	0	0	0	0
28	3	0	3	1	0	1	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0	0	0	0
31	3	0	3	1	1	2	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0	0	0	0
33	3	0	3	0	0	0	0	0	0	0	0	0
34	3	0	3	2	0	2	0	0	0	0	0	0
35	3	0	3	0	1	1	0	0	0	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0	0	0	0
38	3	0	3	2	0	2	0	0	0	0	0	0
39	1	2	3	0	0	0	0	0	0	0	0	0
40	3	0	3	0	2	2	0	0	0	0	0	0
41	3	0	3	1	1	2	0	0	0	0	0	0
42	3	0	3	2	0	2	0	1	1	0	0	0
43	3	0	3	0	0	0	0	0	0	0	0	0
44	3	0	3	2	0	2	0	0	0	0	0	0
45	3	0	3	1	1	2	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0	0	0	0
47	3	0	3	0	1	1	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0	0	0	0
50	3	0	3	1	1	2	0	0	0	0	0	0

Table 32 2 CRUDES 1 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	1	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.56	0.72	2.28	0.3	0.42	0.72	0	0.02	0.02
max	3	3	3	2	2	2	0	1	1
sig	1.23155783	0.881557	1.17872293	0.58028846	0.641745	0.80913156	0	0.141	0.141
sigxb	0.02463116	0.017631	0.02357446	0.01160577	0.012835	0.01618263	0	0.003	0.003
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.72	0.72		0.42	1.28		0.02	0.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	1	0	1	0	0	0
4	2	1	3	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	3	0	3	2	0	2	0	0	0
7	3	0	3	0	0	0	0	0	0
8	1	1	2	0	0	0	0	0	0
9	1	2	3	0	0	0	0	0	0
10	1	1	2	0	0	0	0	0	0
11	1	2	3	1	1	2	0	0	0
12	3	0	3	1	1	2	0	0	0
13	1	2	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	2	0	2	0	1	1
16	0	3	3	0	0	0	0	0	0
17	1	2	3	0	0	0	0	0	0
18	1	2	3	0	1	1	0	0	0
19	1	1	2	0	1	1	0	0	0
20	0	0	0	0	0	0	0	0	0
21	3	0	3	0	1	1	0	0	0
22	1	2	3	0	0	0	0	0	0
23	3	0	3	1	1	2	0	0	0
24	2	1	3	0	2	2	0	0	0
25	3	0	3	1	1	2	0	0	0
26	0	3	3	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	2	2	0	0	0	0	0	0
30	2	1	3	0	2	2	0	0	0
31	0	0	0	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0
33	3	0	3	0	2	2	0	0	0
34	1	1	2	0	1	1	0	0	0
35	0	0	0	0	0	0	0	0	0
36	3	0	3	0	2	2	0	0	0
37	3	0	3	1	0	1	0	0	0
38	3	0	3	2	0	2	0	0	0
39	2	1	3	0	0	0	0	0	0
40	3	0	3	1	0	1	0	0	0
41	0	1	1	0	1	1	0	0	0
42	0	1	1	0	0	0	0	0	0
43	2	1	3	0	0	0	0	0	0
44	2	1	3	0	1	1	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	1	1	0	0	0
47	3	0	3	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	3	0	3	0	1	1	0	0	0
50	2	1	3	0	1	1	0	0	0

Table 33 2 CRUDES 1 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	1	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	3	0	0	0	0	0	0	0	0	0
xbar	2.92	0.08	3	1.4	0.28	1.68	0.04	0.08	0.12	0	0.06	0.06
max	3	2	3	2	2	2	1	1	1	0	2	2
sig	0.34046787	0.340468	0	0.7824608	0.496518	0.65278055	0.19795	0.274	0.328	0	0.3136357	0.313636
sigxb	0.00680936	0.006809	0	0.01564922	0.00993	0.01305561	0.00396	0.005	0.007	0	0.0062727	0.006273
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.08	0		0.28	0.32		0.08	0.88		0.06	2.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	0	0	0	0	0	0
2	3	0	3	2	0	2	0	0	0	0	2	2
3	3	0	3	2	0	2	1	0	1	0	0	0
4	3	0	3	2	0	2	0	0	0	0	0	0
5	3	0	3	2	0	2	0	0	0	0	0	0
6	3	0	3	2	0	2	0	0	0	0	0	0
7	2	1	3	1	0	1	0	0	0	0	0	0
8	3	0	3	2	0	2	1	0	1	0	1	1
9	3	0	3	1	1	2	0	0	0	0	0	0
10	3	0	3	1	1	2	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0	0	0	0
12	3	0	3	2	0	2	0	0	0	0	0	0
13	3	0	3	0	0	0	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	3	0	3	2	0	2	0	0	0	0	0	0
16	3	0	3	1	1	2	0	0	0	0	0	0
17	3	0	3	1	1	2	0	0	0	0	0	0
18	3	0	3	2	0	2	0	0	0	0	0	0
19	3	0	3	1	1	2	0	0	0	0	0	0
20	3	0	3	0	1	1	0	0	0	0	0	0
21	3	0	3	2	0	2	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	2	0	2	0	0	0	0	0	0
24	3	0	3	0	2	2	0	0	0	0	0	0
25	3	0	3	2	0	2	0	1	1	0	0	0
26	3	0	3	1	1	2	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0	0	0	0
28	3	0	3	1	1	2	0	0	0	0	0	0
29	3	0	3	2	0	2	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0	0	0	0
31	3	0	3	2	0	2	0	0	0	0	0	0
32	1	2	3	0	0	0	0	0	0	0	0	0
33	3	0	3	2	0	2	0	0	0	0	0	0
34	3	0	3	2	0	2	0	1	1	0	0	0
35	3	0	3	2	0	2	0	0	0	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0	0	0	0
38	3	0	3	1	0	1	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0	0	0	0
40	3	0	3	2	0	2	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0	0	0	0
42	3	0	3	2	0	2	0	1	1	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	2	0	2	0	1	1	0	0	0
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	1	1	2	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	2	0	2	0	0	0	0	0	0
49	3	0	3	1	1	2	0	0	0	0	0	0
50	3	0	3	2	0	2	0	0	0	0	0	0

Table 34 2 CRUDES 1 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.32	0.56	1.88	0.1	0.26	0.36	0	0	0
max	3	3	3	1	1	2	0	0	0
sig	1.26877733	0.812153	1.3192453	0.30304576	0.443087	0.5979557	0	0	0
sigxb	0.02537555	0.016243	0.02638491	0.00606092	0.008862	0.01195911	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.56	1.12		0.26	1.64		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	1	1	2	0	0	0	0	0	0
4	3	0	3	0	1	1	0	0	0
5	0	0	0	0	0	0	0	0	0
6	3	0	3	0	1	1	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	1	1	2	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	0	0	0	0	0	0
15	0	2	2	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	2	1	3	0	0	0	0	0	0
18	3	0	3	1	1	2	0	0	0
19	1	2	3	1	0	1	0	0	0
20	0	0	0	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	2	1	3	0	1	1	0	0	0
24	1	1	2	0	1	1	0	0	0
25	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	1	0	1	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	1	1	2	0	0	0	0	0	0
35	0	3	3	0	0	0	0	0	0
36	0	2	2	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	1	1	2	0	0	0
39	3	0	3	1	0	1	0	0	0
40	0	0	0	0	0	0	0	0	0
41	1	1	2	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	2	1	3	0	1	1	0	0	0
44	2	0	2	0	0	0	0	0	0
45	1	2	3	0	1	1	0	0	0
46	2	1	3	0	0	0	0	0	0
47	0	2	2	0	1	1	0	0	0
48	0	2	2	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	3	0	3	0	1	1	0	0	0

Table 35 2 CRUDES 2 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.9	0.08	2.98	1.32	0.32	1.64	0.62	0.3	0.92	0.06	0.04	0.1
max	3	1	3	2	2	2	2	1	2	1	2	3
sig	0.36421568	0.274048	0.14142136	0.8675558	0.62073	0.74942155	0.80534	0.463	0.9	0.239898	0.2828427	0.46291
sigxb	0.00728431	0.005481	0.00282843	0.01735112	0.012415	0.01498843	0.01611	0.009	0.018	0.004798	0.0056569	0.009258
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.08	0.02		0.32	0.36		0.3	1.08		0.04	3.9
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	1	1	2	0	0	0
2	1	1	2	0	0	0	0	0	0	0	0	0
3	3	0	3	1	1	2	0	0	0	0	0	0
4	3	0	3	2	0	2	1	1	2	0	0	0
5	3	0	3	2	0	2	2	0	2	0	0	0
6	3	0	3	2	0	2	1	0	1	0	0	0
7	3	0	3	0	1	1	0	0	0	0	0	0
8	3	0	3	1	1	2	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0	0	0	0
10	3	0	3	0	2	2	0	1	1	0	0	0
11	3	0	3	2	0	2	1	1	2	0	0	0
12	3	0	3	2	0	2	0	0	0	0	0	0
13	3	0	3	2	0	2	0	0	0	0	0	0
14	3	0	3	2	0	2	2	0	2	0	0	0
15	3	0	3	2	0	2	2	0	2	0	0	0
16	3	0	3	1	1	2	0	0	0	0	0	0
17	3	0	3	2	0	2	2	0	2	1	2	3
18	3	0	3	1	1	2	0	0	0	0	0	0
19	3	0	3	2	0	2	0	1	1	0	0	0
20	3	0	3	2	0	2	2	0	2	0	0	0
21	3	0	3	2	0	2	1	1	2	0	0	0
22	3	0	3	1	0	1	0	0	0	0	0	0
23	3	0	3	2	0	2	1	1	2	0	0	0
24	3	0	3	0	0	0	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0	0	0	0
26	3	0	3	2	0	2	0	1	1	0	0	0
27	3	0	3	2	0	2	0	0	0	0	0	0
28	3	0	3	2	0	2	1	1	2	0	0	0
29	3	0	3	0	2	2	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0	0	0	0
31	3	0	3	2	0	2	2	0	2	1	0	1
32	3	0	3	1	1	2	0	1	1	0	0	0
33	3	0	3	2	0	2	1	1	2	0	0	0
34	3	0	3	2	0	2	2	0	2	0	0	0
35	3	0	3	0	2	2	0	0	0	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	2	0	2	2	0	2	1	0	1
38	3	0	3	2	0	2	0	1	1	0	0	0
39	3	0	3	2	0	2	1	1	2	0	0	0
40	3	0	3	1	1	2	1	0	1	0	0	0
41	3	0	3	2	0	2	0	1	1	0	0	0
42	3	0	3	2	0	2	2	0	2	0	0	0
43	3	0	3	0	0	0	0	0	0	0	0	0
44	3	0	3	2	0	2	2	0	2	0	0	0
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	2	0	2	0	0	0	0	0	0
47	3	0	3	1	1	2	0	1	1	0	0	0
48	2	1	3	0	0	0	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0	0	0	0
50	3	0	3	0	2	2	1	0	1	0	0	0

Table 36 2 CRUDES 2 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.22	0.6	2.82	0.18	0.36	0.54	0.06	0.26	0.32
max	3	3	3	1	2	2	1	2	2
sig	1.03588669	0.832993	0.59556182	0.38808793	0.562792	0.76157731	0.2399	0.527	0.551
sigxb	0.02071773	0.01666	0.01191124	0.00776176	0.011256	0.01523155	0.0048	0.011	0.011
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.6	0.18		0.36	1.46		0.26	1.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	1	1	0	0	0	0	0	0
2	3	0	3	0	1	1	0	0	0
3	0	2	2	0	0	0	0	0	0
4	3	0	3	0	0	0	0	1	1
5	2	1	3	1	0	1	0	0	0
6	1	2	3	0	0	0	0	0	0
7	1	2	3	0	1	1	0	1	1
8	3	0	3	0	1	1	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	1	1	2	0	0	0
11	0	3	3	0	0	0	0	0	0
12	2	1	3	0	1	1	0	0	0
13	2	1	3	0	0	0	0	0	0
14	1	2	3	0	0	0	0	0	0
15	3	0	3	0	1	1	0	1	1
16	2	1	3	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	3	0	3	0	2	2	0	0	0
19	3	0	3	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	3	0	3	0	0	0	1	0	1
23	3	0	3	1	0	1	0	1	1
24	2	1	3	0	1	1	0	0	0
25	2	0	2	0	0	0	1	0	1
26	3	0	3	1	1	2	0	2	2
27	0	1	1	0	0	0	0	0	0
28	1	2	3	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	3	0	3	0	2	2	0	1	1
31	3	0	3	1	0	1	0	1	1
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	0	0	0	2	2
34	3	0	3	1	1	2	0	1	1
35	0	0	0	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0
38	3	0	3	1	1	2	0	0	0
39	1	2	3	0	0	0	0	0	0
40	3	0	3	1	1	2	0	0	0
41	3	0	3	0	0	0	1	0	1
42	3	0	3	0	0	0	0	0	0
43	2	1	3	0	0	0	0	1	1
44	3	0	3	0	0	0	0	1	1
45	2	1	3	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0
47	3	0	3	0	0	0	0	0	0
48	1	2	3	0	0	0	0	0	0
49	2	1	3	0	0	0	0	0	0
50	3	0	3	1	1	2	0	0	0

Table 37 2 CRUDES 2 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.98	0.02	3	1.56	0.24	1.8	1.42	0.32	1.74	0.04	0.08	0.12
max	3	1	3	2	2	2	2	2	2	1	2	2
sig	0.14142136	0.141421	0	0.70450446	0.476381	0.45175395	0.7848	0.551	0.527	0.197949	0.3404679	0.435187
sigxb	0.00282843	0.002828	0	0.01409009	0.009528	0.00903508	0.0157	0.011	0.011	0.003959	0.0068094	0.008704
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0		0.24	0.2		0.32	0.26		0.08	3.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	0	2	0	0	0
2	3	0	3	2	0	2	1	1	2	0	0	0
3	3	0	3	1	1	2	2	0	2	0	0	0
4	3	0	3	2	0	2	2	0	2	0	0	0
5	3	0	3	2	0	2	2	0	2	0	0	0
6	3	0	3	2	0	2	2	0	2	0	0	0
7	3	0	3	2	0	2	2	0	2	0	0	0
8	3	0	3	0	1	1	0	1	1	0	0	0
9	3	0	3	2	0	2	1	1	2	0	0	0
10	3	0	3	2	0	2	2	0	2	0	2	2
11	3	0	3	1	1	2	2	0	2	0	0	0
12	3	0	3	0	2	2	1	0	1	0	0	0
13	3	0	3	2	0	2	2	0	2	0	0	0
14	3	0	3	2	0	2	2	0	2	0	0	0
15	3	0	3	1	0	1	1	1	2	0	0	0
16	3	0	3	0	1	1	0	1	1	0	0	0
17	3	0	3	1	0	1	1	0	1	0	0	0
18	3	0	3	2	0	2	2	0	2	1	1	2
19	3	0	3	2	0	2	2	0	2	0	0	0
20	3	0	3	2	0	2	2	0	2	0	0	0
21	3	0	3	2	0	2	2	0	2	0	0	0
22	3	0	3	2	0	2	2	0	2	0	0	0
23	3	0	3	2	0	2	1	0	1	0	0	0
24	3	0	3	0	1	1	0	1	1	0	0	0
25	3	0	3	2	0	2	0	2	2	0	0	0
26	3	0	3	2	0	2	2	0	2	0	0	0
27	3	0	3	2	0	2	2	0	2	0	1	1
28	3	0	3	2	0	2	2	0	2	0	0	0
29	3	0	3	2	0	2	1	1	2	0	0	0
30	3	0	3	2	0	2	2	0	2	0	0	0
31	2	1	3	0	0	0	0	0	0	0	0	0
32	3	0	3	2	0	2	2	0	2	0	0	0
33	3	0	3	2	0	2	1	0	1	0	0	0
34	3	0	3	2	0	2	2	0	2	0	0	0
35	3	0	3	2	0	2	1	1	2	0	0	0
36	3	0	3	1	1	2	0	0	0	0	0	0
37	3	0	3	2	0	2	2	0	2	0	0	0
38	3	0	3	2	0	2	2	0	2	0	0	0
39	3	0	3	2	0	2	2	0	2	0	0	0
40	3	0	3	1	0	1	0	1	1	0	0	0
41	3	0	3	2	0	2	2	0	2	0	0	0
42	3	0	3	2	0	2	2	0	2	1	0	1
43	3	0	3	1	1	2	2	0	2	0	0	0
44	3	0	3	1	0	1	0	2	2	0	0	0
45	3	0	3	2	0	2	1	1	2	0	0	0
46	3	0	3	1	1	2	2	0	2	0	0	0
47	3	0	3	0	1	1	0	1	1	0	0	0
48	3	0	3	2	0	2	2	0	2	0	0	0
49	3	0	3	1	1	2	1	1	2	0	0	0
50	3	0	3	2	0	2	2	0	2	0	0	0

Table 38 2 CRUDES 2 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.64	0.44	2.08	0.1	0.38	0.48	0	0.1	0.1
max	3	2	3	2	2	2	0	2	2
sig	1.3055611	0.674915	1.30681104	0.36421568	0.602376	0.67732969	0	0.364	0.364
sigxb	0.02611122	0.013498	0.02613622	0.00728431	0.012048	0.01354659	0	0.007	0.007
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.44	0.92		0.38	1.52		0.1	1.9
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	1	1	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	2	1	3	0	1	1	0	0	0
5	1	2	3	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	1	2	3	0	0	0	0	0	0
11	0	2	2	0	0	0	0	0	0
12	2	1	3	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	3	0	3	0	2	2	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	3	0	3	0	1	1	0	0	0
19	3	0	3	0	1	1	0	0	0
20	0	0	0	0	0	0	0	0	0
21	2	1	3	0	1	1	0	0	0
22	3	0	3	0	1	1	0	0	0
23	3	0	3	0	1	1	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	1	2	3	0	0	0	0	0	0
27	2	1	3	0	2	2	0	0	0
28	3	0	3	0	2	2	0	0	0
29	3	0	3	0	1	1	0	1	1
30	1	0	1	0	1	1	0	0	0
31	0	1	1	0	0	0	0	0	0
32	3	0	3	0	1	1	0	0	0
33	1	1	2	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0
36	3	0	3	0	1	1	0	0	0
37	3	0	3	1	0	1	0	0	0
38	2	1	3	0	1	1	0	0	0
39	3	0	3	2	0	2	0	0	0
40	0	1	1	0	0	0	0	0	0
41	3	0	3	1	1	2	0	2	2
42	0	0	0	0	0	0	0	0	0
43	3	0	3	0	1	1	0	1	1
44	0	0	0	0	0	0	0	0	0
45	3	0	3	1	0	1	0	0	0
46	2	1	3	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	1	2	3	0	0	0	0	0	0
50	3	0	3	0	0	0	0	1	1

Table 39 2 CRUDES 2 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	0	0	0	0	0	0
xbar	3	0	3	1.78	0.16	1.94	0.86	0.54	1.4	0.06	0.08	0.14
max	3	0	3	2	1	2	2	2	2	2	1	3
sig	0	0	0	0.46467017	0.370328	0.23989794	0.80837	0.646	0.728	0.313636	0.2740475	0.534904
sigxb	0	0	0	0.0092934	0.007407	0.00479796	0.01617	0.013	0.015	0.006273	0.005481	0.010698
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.16	0.06		0.54	0.6		0.08	3.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	1	1	2	0	0	0
2	3	0	3	1	1	2	0	1	1	0	0	0
3	3	0	3	2	0	2	2	0	2	0	0	0
4	3	0	3	2	0	2	1	1	2	0	0	0
5	3	0	3	2	0	2	1	1	2	0	0	0
6	3	0	3	1	1	2	0	0	0	0	0	0
7	3	0	3	1	1	2	0	0	0	0	0	0
8	3	0	3	2	0	2	1	1	2	0	0	0
9	3	0	3	1	1	2	0	1	1	0	0	0
10	3	0	3	2	0	2	0	1	1	0	0	0
11	3	0	3	2	0	2	0	2	2	0	0	0
12	3	0	3	2	0	2	1	1	2	0	0	0
13	3	0	3	2	0	2	2	0	2	0	0	0
14	3	0	3	2	0	2	2	0	2	0	0	0
15	3	0	3	2	0	2	0	1	1	0	0	0
16	3	0	3	2	0	2	1	1	2	0	0	0
17	3	0	3	2	0	2	0	1	1	0	0	0
18	3	0	3	0	1	1	0	0	0	0	0	0
19	3	0	3	2	0	2	1	1	2	0	0	0
20	3	0	3	2	0	2	1	1	2	0	0	0
21	3	0	3	2	0	2	1	0	1	0	0	0
22	3	0	3	2	0	2	2	0	2	0	0	0
23	3	0	3	2	0	2	0	1	1	0	0	0
24	3	0	3	2	0	2	0	0	0	0	0	0
25	3	0	3	2	0	2	2	0	2	2	1	3
26	3	0	3	2	0	2	0	1	1	0	0	0
27	3	0	3	2	0	2	1	0	1	0	0	0
28	3	0	3	2	0	2	2	0	2	0	1	1
29	3	0	3	2	0	2	0	2	2	0	0	0
30	3	0	3	2	0	2	1	0	1	0	0	0
31	3	0	3	2	0	2	2	0	2	0	0	0
32	3	0	3	2	0	2	2	0	2	0	0	0
33	3	0	3	1	0	1	1	0	1	0	0	0
34	3	0	3	2	0	2	2	0	2	0	0	0
35	3	0	3	1	1	2	1	1	2	0	0	0
36	3	0	3	1	1	2	1	0	1	0	0	0
37	3	0	3	2	0	2	1	1	2	0	0	0
38	3	0	3	2	0	2	1	0	1	0	0	0
39	3	0	3	2	0	2	0	2	2	0	0	0
40	3	0	3	1	0	1	0	0	0	0	0	0
41	3	0	3	2	0	2	0	1	1	0	0	0
42	3	0	3	2	0	2	1	0	1	0	0	0
43	3	0	3	2	0	2	2	0	2	0	1	1
44	3	0	3	2	0	2	2	0	2	0	0	0
45	3	0	3	2	0	2	0	1	1	0	0	0
46	3	0	3	1	1	2	0	0	0	0	0	0
47	3	0	3	2	0	2	0	0	0	0	0	0
48	3	0	3	2	0	2	0	2	2	0	0	0
49	3	0	3	2	0	2	2	0	2	0	0	0
50	3	0	3	2	0	2	2	0	2	1	1	2

Table 40 2 CRUDES 2 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.68	0.2	2.88	0.64	0.56	1.2	0.58	0.44	1.02
max	3	3	3	2	2	2	2	2	2
sig	0.79385394	0.571429	0.59384599	0.72167605	0.674915	0.88063057	0.64175	0.611	0.82
sigxb	0.01587708	0.011429	0.01187692	0.01443352	0.013498	0.01761261	0.01283	0.012	0.016
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.2	0.12		0.56	0.8		0.44	0.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	3	0	3	0	0	0	0	1	1
5	3	0	3	2	0	2	1	0	1
6	3	0	3	1	1	2	0	2	2
7	3	0	3	0	1	1	0	0	0
8	3	0	3	1	0	1	1	0	1
9	3	0	3	0	2	2	1	1	2
10	3	0	3	2	0	2	1	1	2
11	3	0	3	0	2	2	1	0	1
12	3	0	3	1	1	2	1	0	1
13	3	0	3	1	1	2	1	0	1
14	2	1	3	0	0	0	0	0	0
15	3	0	3	0	1	1	0	1	1
16	2	1	3	1	0	1	1	0	1
17	3	0	3	0	0	0	0	0	0
18	3	0	3	2	0	2	0	1	1
19	3	0	3	2	0	2	2	0	2
20	3	0	3	0	0	0	0	0	0
21	3	0	3	0	1	1	0	1	1
22	3	0	3	0	1	1	0	2	2
23	3	0	3	1	1	2	1	1	2
24	3	0	3	0	2	2	1	1	2
25	3	0	3	0	0	0	1	0	1
26	3	0	3	1	1	2	1	1	2
27	3	0	3	0	0	0	0	1	1
28	3	0	3	1	1	2	1	0	1
29	3	0	3	0	2	2	2	0	2
30	0	3	3	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	1	1	1	0	1
34	3	0	3	1	1	2	0	0	0
35	3	0	3	0	0	0	0	0	0
36	3	0	3	1	1	2	1	1	2
37	3	0	3	2	0	2	1	1	2
38	3	0	3	1	1	2	1	0	1
39	3	0	3	1	1	2	1	1	2
40	2	1	3	0	0	0	0	0	0
41	3	0	3	2	0	2	1	1	2
42	2	1	3	1	0	1	0	0	0
43	3	0	3	1	1	2	1	0	1
44	3	0	3	0	2	2	0	1	1
45	3	0	3	1	1	2	2	0	2
46	3	0	3	1	0	1	0	0	0
47	1	2	3	0	0	0	0	0	0
48	3	0	3	1	0	1	0	2	2
49	3	0	3	2	0	2	2	0	2
50	3	0	3	1	1	2	1	1	2

Table 41 2 CRUDES 2 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	2	0	0	0	0	0	0
xbar	3	0	3	1.86	0.14	2	1.74	0.18	1.92	0.06	0.04	0.1
max	3	0	3	2	1	2	2	2	2	2	1	2
sig	0	0	0	0.35050983	0.35051	0	0.5646	0.482	0.34	0.313636	0.1979487	0.364216
sigxb	0	0	0	0.0070102	0.00701	0	0.01129	0.01	0.007	0.006273	0.003959	0.007284
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.14	0		0.18	0.08		0.04	3.9
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	0	2	0	0	0
2	3	0	3	1	1	2	1	0	1	0	0	0
3	3	0	3	2	0	2	1	1	2	0	0	0
4	3	0	3	2	0	2	2	0	2	0	0	0
5	3	0	3	2	0	2	2	0	2	0	0	0
6	3	0	3	2	0	2	2	0	2	0	0	0
7	3	0	3	2	0	2	2	0	2	0	0	0
8	3	0	3	2	0	2	2	0	2	0	0	0
9	3	0	3	2	0	2	2	0	2	0	0	0
10	3	0	3	2	0	2	2	0	2	0	0	0
11	3	0	3	2	0	2	2	0	2	0	0	0
12	3	0	3	2	0	2	2	0	2	0	0	0
13	3	0	3	2	0	2	2	0	2	0	0	0
14	3	0	3	2	0	2	2	0	2	2	0	2
15	3	0	3	2	0	2	1	0	1	0	0	0
16	3	0	3	2	0	2	1	1	2	0	0	0
17	3	0	3	2	0	2	2	0	2	0	0	0
18	3	0	3	2	0	2	2	0	2	0	1	1
19	3	0	3	2	0	2	2	0	2	0	0	0
20	3	0	3	2	0	2	2	0	2	0	0	0
21	3	0	3	2	0	2	2	0	2	0	0	0
22	3	0	3	2	0	2	2	0	2	0	0	0
23	3	0	3	2	0	2	2	0	2	0	0	0
24	3	0	3	1	1	2	0	0	0	0	0	0
25	3	0	3	2	0	2	2	0	2	0	0	0
26	3	0	3	2	0	2	1	1	2	0	0	0
27	3	0	3	2	0	2	2	0	2	0	0	0
28	3	0	3	2	0	2	2	0	2	0	0	0
29	3	0	3	2	0	2	2	0	2	0	0	0
30	3	0	3	2	0	2	0	2	2	0	0	0
31	3	0	3	2	0	2	2	0	2	0	1	1
32	3	0	3	2	0	2	2	0	2	0	0	0
33	3	0	3	2	0	2	2	0	2	0	0	0
34	3	0	3	2	0	2	1	1	2	0	0	0
35	3	0	3	2	0	2	2	0	2	0	0	0
36	3	0	3	1	1	2	2	0	2	0	0	0
37	3	0	3	1	1	2	1	1	2	0	0	0
38	3	0	3	2	0	2	2	0	2	0	0	0
39	3	0	3	1	1	2	0	2	2	0	0	0
40	3	0	3	2	0	2	2	0	2	0	0	0
41	3	0	3	2	0	2	2	0	2	0	0	0
42	3	0	3	2	0	2	2	0	2	0	0	0
43	3	0	3	2	0	2	2	0	2	0	0	0
44	3	0	3	2	0	2	2	0	2	0	0	0
45	3	0	3	1	1	2	2	0	2	0	0	0
46	3	0	3	2	0	2	2	0	2	0	0	0
47	3	0	3	2	0	2	2	0	2	0	0	0
48	3	0	3	1	1	2	2	0	2	0	0	0
49	3	0	3	2	0	2	2	0	2	1	0	1
50	3	0	3	2	0	2	2	0	2	0	0	0

Table 42 2 CRUDES 2 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.12	0.66	1.78	0.06	0.22	0.28	0	0	0
max	3	3	3	1	2	2	0	0	0
sig	1.15422914	0.847806	1.38931785	0.23989794	0.50669	0.6074369	0	0	0
sigxb	0.02308458	0.016956	0.02778636	0.00479796	0.010134	0.01214874	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.66	1.22		0.22	1.72		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	2	2	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0
6	2	1	3	0	0	0	0	0	0
7	0	1	1	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	2	1	3	1	1	2	0	0	0
13	1	2	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	1	1	2	0	0	0	0	0	0
18	3	0	3	0	1	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	2	1	3	0	1	1	0	0	0
21	1	1	2	0	0	0	0	0	0
22	0	3	3	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	1	0	1	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	1	2	3	0	0	0	0	0	0
28	2	1	3	1	1	2	0	0	0
29	2	1	3	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	2	0	2	0	1	1	0	0	0
32	1	2	3	0	0	0	0	0	0
33	1	2	3	0	0	0	0	0	0
34	2	1	3	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	0	1	1	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	3	0	3	0	2	2	0	0	0
40	2	1	3	0	2	2	0	0	0
41	2	1	3	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0
43	0	3	3	1	0	1	0	0	0
44	2	1	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	1	1	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	3	0	3	0	1	1	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 43 2 CRUDES 2 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.9	0.04	2.94	1.36	0.24	1.6	0.08	0.2	0.28	0.18	0.14	0.32
max	3	1	3	2	2	2	1	2	2	4	2	4
sig	0.46291005	0.197949	0.42426407	0.9205145	0.555492	0.75592895	0.27405	0.495	0.607	0.66055	0.4045658	0.819158
sigxb	0.0092582	0.003959	0.00848528	0.01841029	0.01111	0.01511858	0.00548	0.01	0.012	0.013211	0.0080913	0.016383
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.04	0.06		0.24	0.4		0.2	1.72		0.14	3.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	2	2	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0	0	0	0
3	3	0	3	1	1	2	0	0	0	0	0	0
4	3	0	3	2	0	2	0	0	0	0	0	0
5	3	0	3	2	0	2	0	0	0	0	0	0
6	3	0	3	2	0	2	0	1	1	0	0	0
7	3	0	3	1	1	2	0	0	0	0	0	0
8	3	0	3	2	0	2	0	0	0	0	0	0
9	3	0	3	2	0	2	0	0	0	0	0	0
10	3	0	3	2	0	2	0	2	2	4	0	4
11	3	0	3	2	0	2	0	0	0	0	1	1
12	3	0	3	0	2	2	0	0	0	0	0	0
13	3	0	3	2	0	2	0	0	0	0	0	0
14	3	0	3	2	0	2	1	1	2	0	0	0
15	3	0	3	0	1	1	0	0	0	0	0	0
16	3	0	3	2	0	2	0	1	1	0	0	0
17	3	0	3	2	0	2	0	0	0	0	0	0
18	3	0	3	2	0	2	0	1	1	2	1	3
19	3	0	3	2	0	2	0	0	0	0	0	0
20	3	0	3	2	0	2	0	0	0	0	0	0
21	3	0	3	0	0	0	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0	0	0	0
24	3	0	3	2	0	2	1	0	1	0	1	1
25	3	0	3	2	0	2	0	0	0	1	0	1
26	3	0	3	0	0	0	0	0	0	0	0	0
27	3	0	3	2	0	2	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	3	0	3	2	0	2	0	0	0	0	0	0
30	3	0	3	0	1	1	0	0	0	0	0	0
31	3	0	3	2	0	2	0	1	1	0	0	0
32	2	1	3	0	0	0	0	0	0	0	0	0
33	3	0	3	2	0	2	0	0	0	0	0	0
34	3	0	3	2	0	2	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0	0	0	0
36	3	0	3	0	1	1	0	0	0	0	0	0
37	3	0	3	2	0	2	1	1	2	1	1	2
38	3	0	3	2	0	2	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0	0	0	0
40	3	0	3	2	0	2	0	0	0	0	0	0
41	3	0	3	0	1	1	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	2	0	2	1	0	1	0	2	2
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	0	2	2	0	0	0	0	0	0
47	3	0	3	2	0	2	0	2	2	0	1	1
48	3	0	3	2	0	2	0	0	0	0	0	0
49	3	0	3	2	0	2	0	0	0	1	0	1
50	3	0	3	2	0	2	0	0	0	0	0	0

Table 44 2 CRUDES 2 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.22	0.54	2.76	0.24	0.48	0.72	0.02	0.04	0.06
max	3	3	3	2	2	2	1	1	1
sig	1.05540398	0.813408	0.68690373	0.55549206	0.646498	0.83397254	0.14142	0.198	0.24
sigxb	0.02110808	0.016268	0.01373807	0.01110984	0.01293	0.01667945	0.00283	0.004	0.005
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.54	0.24		0.48	1.28		0.04	1.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	0	0	0
2	2	1	3	0	0	0	0	0	0
3	2	1	3	0	0	0	0	0	0
4	2	1	3	0	0	0	0	0	0
5	3	0	3	0	2	2	0	0	0
6	3	0	3	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	2	0	2	0	0	0
10	3	0	3	0	1	1	0	0	0
11	1	2	3	0	0	0	0	0	0
12	3	0	3	1	1	2	0	1	1
13	3	0	3	1	1	2	0	0	0
14	3	0	3	0	2	2	0	0	0
15	2	1	3	0	1	1	0	0	0
16	3	0	3	0	1	1	0	0	0
17	3	0	3	1	1	2	0	0	0
18	2	1	3	0	0	0	0	0	0
19	2	1	3	0	0	0	0	0	0
20	3	0	3	0	1	1	0	0	0
21	3	0	3	0	0	0	0	0	0
22	3	0	3	0	2	2	0	0	0
23	1	1	2	0	1	1	0	0	0
24	3	0	3	1	0	1	0	0	0
25	2	0	2	0	0	0	0	0	0
26	0	3	3	0	0	0	0	0	0
27	3	0	3	1	1	2	1	0	1
28	1	2	3	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0
31	3	0	3	0	1	1	0	0	0
32	3	0	3	0	2	2	0	1	1
33	0	0	0	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0
35	0	1	1	0	0	0	0	0	0
36	2	1	3	0	1	1	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	1	2	3	0	0	0	0	0	0
40	0	3	3	0	0	0	0	0	0
41	3	0	3	0	1	1	0	0	0
42	3	0	3	0	1	1	0	0	0
43	3	0	3	2	0	2	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	2	2	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0
47	3	0	3	1	1	2	0	0	0
48	2	1	3	0	1	1	0	0	0
49	1	1	2	0	1	1	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 45 2 CRUDES 2 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	1.94	0.02	1.96	0.62	0.54	1.16	0.02	0.12	0.14
max	3	0	3	2	1	2	2	2	2	1	2	2
sig	0	0	0	0.31363569	0.141421	0.28284271	0.77959	0.734	0.889	0.141421	0.3854496	0.404566
sigxb	0	0	0	0.00627271	0.002828	0.00565685	0.01559	0.015	0.018	0.002828	0.007709	0.008091
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.02	0.04		0.54	0.84		0.12	3.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	0	0	0	0	0	0
2	3	0	3	2	0	2	1	1	2	0	0	0
3	3	0	3	2	0	2	1	1	2	0	0	0
4	3	0	3	2	0	2	2	0	2	0	0	0
5	3	0	3	2	0	2	0	2	2	0	0	0
6	3	0	3	2	0	2	2	0	2	0	0	0
7	3	0	3	2	0	2	0	1	1	0	0	0
8	3	0	3	2	0	2	1	0	1	0	1	1
9	3	0	3	2	0	2	1	0	1	0	0	0
10	3	0	3	2	0	2	2	0	2	0	0	0
11	3	0	3	2	0	2	1	1	2	0	0	0
12	3	0	3	2	0	2	0	1	1	0	0	0
13	3	0	3	2	0	2	0	0	0	0	0	0
14	3	0	3	2	0	2	1	1	2	0	1	1
15	3	0	3	2	0	2	1	0	1	0	0	0
16	3	0	3	2	0	2	1	0	1	0	0	0
17	3	0	3	2	0	2	0	2	2	0	0	0
18	3	0	3	2	0	2	0	1	1	0	0	0
19	3	0	3	2	0	2	2	0	2	0	0	0
20	3	0	3	2	0	2	0	2	2	0	0	0
21	3	0	3	2	0	2	0	0	0	0	0	0
22	3	0	3	2	0	2	1	1	2	0	0	0
23	3	0	3	2	0	2	0	0	0	0	0	0
24	3	0	3	2	0	2	0	0	0	0	0	0
25	3	0	3	2	0	2	0	2	2	0	0	0
26	3	0	3	2	0	2	2	0	2	1	0	1
27	3	0	3	2	0	2	0	0	0	0	0	0
28	3	0	3	2	0	2	0	0	0	0	0	0
29	3	0	3	2	0	2	1	1	2	0	0	0
30	3	0	3	2	0	2	0	2	2	0	0	0
31	3	0	3	2	0	2	0	0	0	0	0	0
32	3	0	3	2	0	2	2	0	2	0	1	1
33	3	0	3	2	0	2	1	1	2	0	0	0
34	3	0	3	2	0	2	2	0	2	0	1	1
35	3	0	3	1	1	2	0	0	0	0	0	0
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	2	0	2	1	1	2	0	0	0
38	3	0	3	2	0	2	0	1	1	0	0	0
39	3	0	3	2	0	2	1	0	1	0	0	0
40	3	0	3	2	0	2	0	0	0	0	0	0
41	3	0	3	2	0	2	0	0	0	0	0	0
42	3	0	3	2	0	2	2	0	2	0	2	2
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0	0	0	0
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	2	0	2	2	0	2	0	0	0
47	3	0	3	2	0	2	0	1	1	0	0	0
48	3	0	3	2	0	2	0	2	2	0	0	0
49	3	0	3	2	0	2	0	0	0	0	0	0
50	3	0	3	2	0	2	0	2	2	0	0	0

Table 46 2 CRUDES 2 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.04	0.64	1.68	0.16	0.2	0.36	0	0.04	0.04
max	3	3	3	2	2	2	0	2	2
sig	1.15987332	0.875051	1.30054933	0.50950156	0.451754	0.69282032	0	0.283	0.283
sigxb	0.02319747	0.017501	0.02601099	0.01019003	0.009035	0.01385641	0	0.006	0.006
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.64	1.32		0.2	1.64		0.04	1.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	1	1	0	0	0
2	0	2	2	0	0	0	0	0	0
3	1	1	2	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	1	2	0	0	0	0	0	0
7	1	2	3	0	0	0	0	0	0
8	0	1	1	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	3	0	3	2	0	2	0	0	0
12	0	1	1	0	0	0	0	0	0
13	1	0	1	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	2	0	2	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	1	1	0	1	1	0	0	0
18	3	0	3	0	1	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	3	3	0	0	0	0	0	0
21	0	1	1	0	0	0	0	0	0
22	3	0	3	0	1	1	0	0	0
23	1	0	1	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	1	1	2	0	0	0
26	3	0	3	2	0	2	0	2	2
27	1	0	1	0	0	0	0	0	0
28	0	2	2	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	1	3	0	1	1	0	0	0
33	2	1	3	0	1	1	0	0	0
34	0	3	3	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	2	0	2	0	0	0	0	0	0
40	1	2	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	1	2	3	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	3	0	3	1	1	2	0	0	0
45	1	2	3	0	0	0	0	0	0
46	1	1	2	0	0	0	0	0	0
47	3	0	3	0	0	0	0	0	0
48	1	2	3	0	0	0	0	0	0
49	3	0	3	2	0	2	0	0	0
50	2	1	3	0	2	2	0	0	0

Table 47 2 CRUDES 2 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	0	0	3	0	0	0	0	0	0	0	0	0
xbar	2.9	0.1	3	1.72	0.14	1.86	0.3	0.3	0.6	0.26	0.24	0.5
max	3	3	3	2	1	2	2	2	2	2	3	4
sig	0.50507627	0.505076	0	0.6074369	0.35051	0.45220548	0.58029	0.505	0.808	0.527218	0.6246632	0.952976
sigxb	0.01010153	0.010102	0	0.01214874	0.00701	0.00904411	0.01161	0.01	0.016	0.010544	0.0124933	0.01906
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.1	0		0.14	0.14		0.3	1.4		0.24	3.5
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	1	2	3	0	0	0	0	0	0	0	0	0
2	3	0	3	2	0	2	0	0	0	0	0	0
3	3	0	3	2	0	2	0	0	0	0	0	0
4	3	0	3	2	0	2	2	0	2	1	0	1
5	3	0	3	2	0	2	0	0	0	0	0	0
6	3	0	3	2	0	2	0	0	0	0	0	0
7	3	0	3	2	0	2	0	0	0	1	0	1
8	3	0	3	2	0	2	1	1	2	0	2	2
9	3	0	3	2	0	2	0	1	1	0	0	0
10	3	0	3	2	0	2	1	1	2	0	0	0
11	3	0	3	2	0	2	0	0	0	0	0	0
12	3	0	3	2	0	2	0	1	1	0	0	0
13	3	0	3	2	0	2	0	0	0	0	1	1
14	3	0	3	2	0	2	0	0	0	0	0	0
15	3	0	3	1	1	2	0	0	0	0	0	0
16	3	0	3	2	0	2	0	0	0	0	0	0
17	3	0	3	2	0	2	1	0	1	0	0	0
18	3	0	3	2	0	2	0	1	1	0	0	0
19	3	0	3	2	0	2	0	0	0	0	0	0
20	3	0	3	2	0	2	0	0	0	0	0	0
21	3	0	3	2	0	2	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0	0	0	0
23	3	0	3	2	0	2	2	0	2	1	2	3
24	0	3	3	0	0	0	0	0	0	0	0	0
25	3	0	3	2	0	2	1	0	1	0	0	0
26	3	0	3	2	0	2	0	0	0	0	0	0
27	3	0	3	1	1	2	0	0	0	0	0	0
28	3	0	3	0	1	1	0	0	0	0	0	0
29	3	0	3	2	0	2	0	0	0	0	0	0
30	3	0	3	2	0	2	0	1	1	0	1	1
31	3	0	3	2	0	2	0	0	0	0	0	0
32	3	0	3	2	0	2	2	0	2	0	0	0
33	3	0	3	1	1	2	0	0	0	0	0	0
34	3	0	3	2	0	2	0	2	2	1	3	4
35	3	0	3	1	1	2	0	0	0	0	0	0
36	3	0	3	0	1	1	0	0	0	0	0	0
37	3	0	3	2	0	2	0	1	1	0	0	0
38	3	0	3	2	0	2	0	0	0	0	0	0
39	3	0	3	1	0	1	0	0	0	0	0	0
40	3	0	3	2	0	2	1	1	2	0	0	0
41	3	0	3	2	0	2	0	0	0	1	1	2
42	3	0	3	2	0	2	1	1	2	1	0	1
43	3	0	3	2	0	2	1	0	1	2	0	2
44	3	0	3	2	0	2	0	1	1	1	0	1
45	3	0	3	1	1	2	0	0	0	0	0	0
46	3	0	3	2	0	2	1	1	2	2	1	3
47	3	0	3	2	0	2	1	1	2	1	0	1
48	3	0	3	2	0	2	0	0	0	0	0	0
49	3	0	3	2	0	2	0	1	1	1	1	2
50	3	0	3	2	0	2	0	0	0	0	0	0

Table 48 2 CRUDES 2 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	2	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.38	0.42	2.8	0.78	0.38	1.16	0.1	0.22	0.32
max	3	3	3	2	2	2	2	2	2
sig	1.02797602	0.730949	0.57142857	0.86402003	0.567486	0.84176685	0.36422	0.465	0.587
sigxb	0.02055952	0.014619	0.01142857	0.0172804	0.01135	0.01683534	0.00728	0.009	0.012
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	0.2		0.38	0.84		0.22	1.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	0	1	1
2	3	0	3	2	0	2	1	1	2
3	3	0	3	2	0	2	0	1	1
4	3	0	3	0	0	0	0	0	0
5	3	0	3	1	1	2	0	1	1
6	3	0	3	2	0	2	0	0	0
7	3	0	3	1	0	1	0	0	0
8	3	0	3	2	0	2	1	0	1
9	3	0	3	1	1	2	1	0	1
10	2	1	3	0	1	1	0	0	0
11	2	1	3	1	0	1	0	0	0
12	0	2	2	0	0	0	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	0	1	1	0	0	0
15	3	0	3	2	0	2	0	0	0
16	3	0	3	2	0	2	0	0	0
17	0	3	3	0	0	0	0	0	0
18	1	1	2	0	0	0	0	0	0
19	3	0	3	0	1	1	0	0	0
20	3	0	3	2	0	2	0	1	1
21	3	0	3	1	0	1	0	1	1
22	3	0	3	1	1	2	0	0	0
23	3	0	3	1	1	2	0	1	1
24	3	0	3	2	0	2	0	0	0
25	2	1	3	0	1	1	0	0	0
26	3	0	3	2	0	2	0	2	2
27	3	0	3	1	1	2	0	0	0
28	0	2	2	0	0	0	0	0	0
29	3	0	3	2	0	2	0	1	1
30	3	0	3	1	0	1	0	0	0
31	3	0	3	2	0	2	0	0	0
32	3	0	3	0	1	1	0	0	0
33	3	0	3	1	0	1	0	0	0
34	1	1	2	0	0	0	0	0	0
35	3	0	3	0	0	0	0	0	0
36	2	1	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	1	1	2	0	0	0
39	3	0	3	2	0	2	0	1	1
40	0	0	0	0	0	0	0	0	0
41	1	2	3	0	0	0	0	0	0
42	2	1	3	0	1	1	0	0	0
43	3	0	3	0	2	2	0	0	0
44	3	0	3	0	1	1	0	0	0
45	3	0	3	0	1	1	0	0	0
46	1	1	2	0	0	0	0	0	0
47	2	1	3	0	2	2	0	0	0
48	1	2	3	0	0	0	0	0	0
49	3	0	3	2	0	2	2	0	2
50	0	1	1	0	0	0	0	0	0

Table 49 2 CRUDES 2 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	2	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	1.4	0.38	1.78	0.18	0.44	0.62
max	3	0	3	2	0	2	2	2	2	2	2	3
sig	0	0	0	0	0	0	0.75593	0.567	0.507	0.481918	0.7329003	1.027976
sigxb	0	0	0	0	0	0	0.01512	0.011	0.01	0.009638	0.014658	0.02056
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.38	0.22		0.44	3.38
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	1	1	2	0	0	0
2	3	0	3	2	0	2	0	0	0	0	0	0
3	3	0	3	2	0	2	1	0	1	0	0	0
4	3	0	3	2	0	2	2	0	2	1	1	2
5	3	0	3	2	0	2	2	0	2	2	1	3
6	3	0	3	2	0	2	2	0	2	0	2	2
7	3	0	3	2	0	2	1	1	2	0	0	0
8	3	0	3	2	0	2	1	1	2	0	0	0
9	3	0	3	2	0	2	1	0	1	0	0	0
10	3	0	3	2	0	2	2	0	2	0	0	0
11	3	0	3	2	0	2	2	0	2	0	0	0
12	3	0	3	2	0	2	0	2	2	0	0	0
13	3	0	3	2	0	2	1	1	2	0	0	0
14	3	0	3	2	0	2	2	0	2	1	0	1
15	3	0	3	2	0	2	2	0	2	0	0	0
16	3	0	3	2	0	2	2	0	2	2	1	3
17	3	0	3	2	0	2	2	0	2	0	1	1
18	3	0	3	2	0	2	2	0	2	0	0	0
19	3	0	3	2	0	2	0	0	0	0	0	0
20	3	0	3	2	0	2	2	0	2	1	2	3
21	3	0	3	2	0	2	0	1	1	0	0	0
22	3	0	3	2	0	2	2	0	2	1	2	3
23	3	0	3	2	0	2	0	1	1	0	0	0
24	3	0	3	2	0	2	2	0	2	0	0	0
25	3	0	3	2	0	2	2	0	2	0	0	0
26	3	0	3	2	0	2	2	0	2	0	0	0
27	3	0	3	2	0	2	1	1	2	0	1	1
28	3	0	3	2	0	2	1	1	2	0	0	0
29	3	0	3	2	0	2	2	0	2	0	2	2
30	3	0	3	2	0	2	2	0	2	0	1	1
31	3	0	3	2	0	2	2	0	2	0	0	0
32	3	0	3	2	0	2	1	1	2	0	0	0
33	3	0	3	2	0	2	2	0	2	0	0	0
34	3	0	3	2	0	2	2	0	2	0	0	0
35	3	0	3	2	0	2	1	1	2	0	0	0
36	3	0	3	2	0	2	2	0	2	0	1	1
37	3	0	3	2	0	2	1	0	1	0	0	0
38	3	0	3	2	0	2	1	1	2	0	0	0
39	3	0	3	2	0	2	1	1	2	0	0	0
40	3	0	3	2	0	2	2	0	2	0	2	2
41	3	0	3	2	0	2	1	1	2	0	0	0
42	3	0	3	2	0	2	2	0	2	0	2	2
43	3	0	3	2	0	2	2	0	2	1	2	3
44	3	0	3	2	0	2	0	2	2	0	0	0
45	3	0	3	2	0	2	0	1	1	0	0	0
46	3	0	3	2	0	2	2	0	2	0	0	0
47	3	0	3	2	0	2	0	1	1	0	0	0
48	3	0	3	2	0	2	2	0	2	0	0	0
49	3	0	3	2	0	2	2	0	2	0	0	0
50	3	0	3	2	0	2	2	0	2	0	1	1

Table 50 2 CRUDES 2 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.44	0.84	2.28	0.06	0.22	0.28	0.02	0.02	0.04
max	3	3	3	1	2	2	1	1	1
sig	1.09096475	0.817163	1.17872293	0.23989794	0.50669	0.53604752	0.14142	0.141	0.198
sigxb	0.02181929	0.016343	0.02357446	0.00479796	0.010134	0.01072095	0.00283	0.003	0.004
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.84	0.72		0.22	1.72		0.02	2.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	0	2	2	0	0	0
3	1	2	3	1	0	1	0	0	0
4	2	1	3	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	1	2	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	2	1	3	1	0	1	0	1	1
13	0	1	1	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	2	1	3	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	0	3	3	0	0	0	0	0	0
19	0	2	2	0	0	0	0	0	0
20	1	1	2	0	0	0	0	0	0
21	2	1	3	0	0	0	0	0	0
22	2	1	3	0	0	0	0	0	0
23	2	1	3	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	1	1	2	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	1	2	3	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	2	1	3	0	2	2	0	0	0
34	0	1	1	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	2	1	3	0	1	1	1	0	1
38	1	2	3	0	0	0	0	0	0
39	2	0	2	0	0	0	0	0	0
40	1	1	2	0	1	1	0	0	0
41	2	1	3	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	2	1	3	0	1	1	0	0	0
44	1	2	3	0	1	1	0	0	0
45	1	2	3	0	0	0	0	0	0
46	2	1	3	0	1	1	0	0	0
47	3	0	3	1	0	1	0	0	0
48	0	0	0	0	0	0	0	0	0
49	3	0	3	0	1	1	0	0	0
50	0	3	3	0	0	0	0	0	0

Table 51 2 CRUDES 3 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	0	0	0	0	0	0
xbar	3	0	3	1.84	0.12	1.96	1.78	0.64	2.42	0.1	0.08	0.18
max	3	0	3	2	1	2	3	3	3	3	2	3
sig	0	0	0	0.37032804	0.328261	0.19794866	1.16567	0.776	0.906	0.46291	0.3404679	0.595562
sigxb	0	0	0	0.00740656	0.006565	0.00395897	0.02331	0.016	0.018	0.009258	0.0068094	0.011911
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.12	0.04		0.64	0.58		0.08	4.82
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	1	2	3	0	0	0
2	3	0	3	2	0	2	1	2	3	0	0	0
3	3	0	3	1	1	2	1	1	2	0	0	0
4	3	0	3	1	0	1	0	0	0	0	0	0
5	3	0	3	2	0	2	3	0	3	0	0	0
6	3	0	3	2	0	2	0	1	1	0	0	0
7	3	0	3	1	1	2	1	1	2	0	0	0
8	3	0	3	2	0	2	2	1	3	0	0	0
9	3	0	3	2	0	2	1	2	3	0	0	0
10	3	0	3	2	0	2	3	0	3	0	0	0
11	3	0	3	2	0	2	3	0	3	3	0	3
12	3	0	3	1	1	2	1	0	1	0	0	0
13	3	0	3	2	0	2	3	0	3	1	1	2
14	3	0	3	2	0	2	3	0	3	0	0	0
15	3	0	3	2	0	2	3	0	3	0	0	0
16	3	0	3	2	0	2	3	0	3	0	0	0
17	3	0	3	2	0	2	2	1	3	0	0	0
18	3	0	3	2	0	2	3	0	3	1	0	1
19	3	0	3	2	0	2	2	1	3	0	0	0
20	3	0	3	2	0	2	3	0	3	0	0	0
21	3	0	3	2	0	2	3	0	3	0	0	0
22	3	0	3	2	0	2	1	0	1	0	0	0
23	3	0	3	2	0	2	2	0	2	0	0	0
24	3	0	3	2	0	2	3	0	3	0	0	0
25	3	0	3	2	0	2	1	0	1	0	0	0
26	3	0	3	2	0	2	3	0	3	0	0	0
27	3	0	3	1	1	2	0	1	1	0	0	0
28	3	0	3	2	0	2	1	1	2	0	0	0
29	3	0	3	2	0	2	0	2	2	0	0	0
30	3	0	3	1	0	1	0	0	0	0	0	0
31	3	0	3	2	0	2	2	1	3	0	0	0
32	3	0	3	2	0	2	2	1	3	0	0	0
33	3	0	3	2	0	2	1	2	3	0	0	0
34	3	0	3	2	0	2	1	1	2	0	0	0
35	3	0	3	2	0	2	3	0	3	0	2	2
36	3	0	3	2	0	2	2	1	3	0	0	0
37	3	0	3	2	0	2	3	0	3	0	0	0
38	3	0	3	1	1	2	2	1	3	0	0	0
39	3	0	3	2	0	2	0	3	3	0	0	0
40	3	0	3	2	0	2	3	0	3	0	0	0
41	3	0	3	2	0	2	0	1	1	0	0	0
42	3	0	3	2	0	2	3	0	3	0	0	0
43	3	0	3	2	0	2	3	0	3	0	0	0
44	3	0	3	2	0	2	1	2	3	0	0	0
45	3	0	3	2	0	2	3	0	3	0	0	0
46	3	0	3	2	0	2	1	1	2	0	0	0
47	3	0	3	2	0	2	3	0	3	0	0	0
48	3	0	3	2	0	2	3	0	3	0	1	1
49	3	0	3	1	1	2	0	1	1	0	0	0
50	3	0	3	2	0	2	0	1	1	0	0	0

Table 52 2 CRUDES 3 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	1	0	1	0	0	0	0	0	0
xbar	2.78	0.16	2.94	0.24	0.56	0.8	0.5	0.6	1.1
max	3	2	3	1	2	2	2	3	3
sig	0.58169352	0.467734	0.31363569	0.43141911	0.704504	0.83299313	0.67763	0.782	1.093
sigxb	0.01163387	0.009355	0.00627271	0.00862838	0.01409	0.01665986	0.01355	0.016	0.022
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.16	0.06		0.56	1.2		0.6	1.9
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	2	3	0	0	0	0	0	0
2	3	0	3	1	1	2	2	0	2
3	3	0	3	0	2	2	1	1	2
4	3	0	3	0	0	0	0	0	0
5	3	0	3	1	1	2	2	1	3
6	3	0	3	1	1	2	1	2	3
7	3	0	3	0	0	0	1	2	3
8	3	0	3	1	1	2	0	2	2
9	2	1	3	0	0	0	0	0	0
10	3	0	3	0	1	1	0	1	1
11	3	0	3	1	0	1	1	0	1
12	3	0	3	0	1	1	0	1	1
13	3	0	3	0	0	0	0	2	2
14	3	0	3	0	0	0	1	0	1
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	3	0	3	0	1	1	1	1	2
19	3	0	3	0	0	0	0	1	1
20	3	0	3	1	1	2	1	0	1
21	3	0	3	0	1	1	1	0	1
22	2	1	3	0	1	1	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	0	2	2	1	2	3
26	3	0	3	1	0	1	1	1	2
27	3	0	3	0	1	1	0	0	0
28	3	0	3	0	2	2	2	0	2
29	3	0	3	0	0	0	2	1	3
30	3	0	3	0	0	0	0	0	0
31	2	1	3	0	0	0	0	0	0
32	3	0	3	1	0	1	1	0	1
33	3	0	3	1	0	1	1	1	2
34	3	0	3	0	0	0	0	0	0
35	1	1	2	0	0	0	0	0	0
36	3	0	3	0	2	2	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	0	1	1	1	1	2
39	1	2	3	0	0	0	0	0	0
40	3	0	3	0	2	2	0	3	3
41	3	0	3	0	1	1	0	1	1
42	1	0	1	0	0	0	0	0	0
43	3	0	3	0	2	2	1	1	2
44	3	0	3	1	1	2	1	2	3
45	3	0	3	0	0	0	0	1	1
46	3	0	3	0	0	0	0	0	0
47	3	0	3	1	1	2	2	0	2
48	3	0	3	1	0	1	0	1	1
49	3	0	3	0	0	0	0	1	1
50	3	0	3	0	1	1	0	0	0

Table 53 2 CRUDES 3 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	2	0	0	2	0	0	0
xbar	3	0	3	1.92	0.08	2	2.72	0.24	2.96	0.18	0.36	0.54
max	3	0	3	2	1	2	3	3	3	2	2	3
sig	0	0	0	0.27404752	0.274048	0	0.67128	0.625	0.198	0.522553	0.6928203	0.952119
sigxb	0	0	0	0.00548095	0.005481	0	0.01343	0.012	0.004	0.010451	0.0138564	0.019042
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.08	0		0.24	0.04		0.36	4.46
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	3	0	3	0	0	0
2	3	0	3	2	0	2	3	0	3	0	0	0
3	3	0	3	1	1	2	3	0	3	0	0	0
4	3	0	3	2	0	2	3	0	3	0	2	2
5	3	0	3	2	0	2	3	0	3	0	1	1
6	3	0	3	2	0	2	3	0	3	0	0	0
7	3	0	3	2	0	2	3	0	3	0	0	0
8	3	0	3	2	0	2	3	0	3	0	2	2
9	3	0	3	2	0	2	2	0	2	0	0	0
10	3	0	3	1	1	2	3	0	3	0	0	0
11	3	0	3	2	0	2	0	3	3	0	0	0
12	3	0	3	2	0	2	3	0	3	0	0	0
13	3	0	3	2	0	2	3	0	3	0	0	0
14	3	0	3	1	1	2	1	2	3	0	0	0
15	3	0	3	1	1	2	3	0	3	0	0	0
16	3	0	3	2	0	2	2	1	3	0	0	0
17	3	0	3	2	0	2	3	0	3	0	1	1
18	3	0	3	2	0	2	2	1	3	0	0	0
19	3	0	3	2	0	2	1	1	2	0	0	0
20	3	0	3	2	0	2	3	0	3	0	1	1
21	3	0	3	2	0	2	3	0	3	0	0	0
22	3	0	3	2	0	2	3	0	3	0	0	0
23	3	0	3	2	0	2	3	0	3	0	0	0
24	3	0	3	2	0	2	3	0	3	0	0	0
25	3	0	3	2	0	2	3	0	3	0	0	0
26	3	0	3	2	0	2	3	0	3	0	0	0
27	3	0	3	2	0	2	3	0	3	1	2	3
28	3	0	3	2	0	2	3	0	3	0	0	0
29	3	0	3	2	0	2	3	0	3	0	0	0
30	3	0	3	2	0	2	3	0	3	0	0	0
31	3	0	3	2	0	2	3	0	3	0	0	0
32	3	0	3	2	0	2	3	0	3	0	0	0
33	3	0	3	2	0	2	3	0	3	0	0	0
34	3	0	3	2	0	2	3	0	3	2	1	3
35	3	0	3	2	0	2	3	0	3	0	0	0
36	3	0	3	2	0	2	3	0	3	2	0	2
37	3	0	3	2	0	2	3	0	3	1	1	2
38	3	0	3	2	0	2	3	0	3	0	0	0
39	3	0	3	2	0	2	3	0	3	0	2	2
40	3	0	3	2	0	2	3	0	3	0	0	0
41	3	0	3	2	0	2	2	1	3	0	0	0
42	3	0	3	2	0	2	3	0	3	0	2	2
43	3	0	3	2	0	2	3	0	3	0	0	0
44	3	0	3	2	0	2	3	0	3	0	0	0
45	3	0	3	2	0	2	3	0	3	0	0	0
46	3	0	3	2	0	2	3	0	3	0	2	2
47	3	0	3	2	0	2	2	1	3	0	0	0
48	3	0	3	2	0	2	1	2	3	0	0	0
49	3	0	3	2	0	2	3	0	3	1	0	1
50	3	0	3	2	0	2	3	0	3	2	1	3

Table 54 2 CRUDES 3 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.18	0.42	2.6	0.34	0.56	0.9	0.18	0.2	0.38
max	3	3	3	2	2	2	2	2	2
sig	1.15511286	0.758355	0.9035079	0.62629458	0.674915	0.88640526	0.48192	0.495	0.697
sigxb	0.02310226	0.015167	0.01807016	0.01252589	0.013498	0.01772811	0.00964	0.01	0.014
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	0.4		0.56	1.1		0.2	2.62
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	1	2	0	2	2
2	3	0	3	1	1	2	0	1	1
3	3	0	3	2	0	2	1	0	1
4	3	0	3	1	1	2	1	0	1
5	3	0	3	0	1	1	0	0	0
6	3	0	3	2	0	2	1	0	1
7	3	0	3	1	1	2	2	0	2
8	3	0	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	1	2	3	0	1	1	0	0	0
11	0	1	1	0	0	0	0	0	0
12	3	0	3	0	2	2	0	1	1
13	2	1	3	0	1	1	0	0	0
14	1	2	3	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0
17	0	0	0	0	0	0	0	0	0
18	2	0	2	0	0	0	0	0	0
19	1	2	3	0	0	0	0	0	0
20	3	0	3	1	0	1	2	0	2
21	0	0	0	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0
23	1	1	2	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	1	1	2	0	0	0
26	2	1	3	0	0	0	0	0	0
27	3	0	3	0	1	1	0	0	0
28	3	0	3	0	1	1	0	0	0
29	0	0	0	0	0	0	0	0	0
30	3	0	3	0	1	1	0	0	0
31	2	1	3	1	1	2	0	0	0
32	3	0	3	2	0	2	0	2	2
33	3	0	3	0	2	2	0	0	0
34	0	0	0	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0
36	3	0	3	2	0	2	1	1	2
37	0	2	2	0	2	2	0	0	0
38	3	0	3	0	1	1	0	0	0
39	3	0	3	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0
41	3	0	3	0	1	1	0	0	0
42	3	0	3	0	2	2	0	0	0
43	3	0	3	1	1	2	0	1	1
44	1	0	1	0	0	0	0	0	0
45	0	2	2	0	0	0	0	0	0
46	0	3	3	0	0	0	0	0	0
47	3	0	3	1	1	2	1	1	2
48	3	0	3	0	0	0	0	0	0
49	3	0	3	0	2	2	0	0	0
50	3	0	3	0	1	1	0	1	1

Table 55 2 CRUDES 3 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	2.34	0.44	2.78	0.16	0.3	0.46
max	3	0	3	2	0	2	3	3	3	2	2	4
sig	0	0	0	0	0	0	1.0224	0.787	0.648	0.421852	0.6776309	1.014386
sigxb	0	0	0	0	0	0	0.02045	0.016	0.013	0.008437	0.0135526	0.020288
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.44	0.22		0.3	4.54
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	3	0	3	0	0	0
2	3	0	3	2	0	2	3	0	3	0	0	0
3	3	0	3	2	0	2	3	0	3	0	0	0
4	3	0	3	2	0	2	3	0	3	0	0	0
5	3	0	3	2	0	2	3	0	3	0	0	0
6	3	0	3	2	0	2	3	0	3	0	0	0
7	3	0	3	2	0	2	2	1	3	0	0	0
8	3	0	3	2	0	2	3	0	3	1	2	3
9	3	0	3	2	0	2	1	2	3	0	0	0
10	3	0	3	2	0	2	1	2	3	0	0	0
11	3	0	3	2	0	2	3	0	3	0	0	0
12	3	0	3	2	0	2	2	0	2	0	0	0
13	3	0	3	2	0	2	3	0	3	1	2	3
14	3	0	3	2	0	2	3	0	3	0	0	0
15	3	0	3	2	0	2	1	2	3	0	0	0
16	3	0	3	2	0	2	3	0	3	1	2	3
17	3	0	3	2	0	2	3	0	3	1	0	1
18	3	0	3	2	0	2	0	2	2	0	0	0
19	3	0	3	2	0	2	3	0	3	0	2	2
20	3	0	3	2	0	2	3	0	3	0	0	0
21	3	0	3	2	0	2	3	0	3	0	0	0
22	3	0	3	2	0	2	3	0	3	0	0	0
23	3	0	3	2	0	2	3	0	3	0	0	0
24	3	0	3	2	0	2	3	0	3	0	0	0
25	3	0	3	2	0	2	3	0	3	0	0	0
26	3	0	3	2	0	2	3	0	3	0	0	0
27	3	0	3	2	0	2	3	0	3	0	1	1
28	3	0	3	2	0	2	2	1	3	0	0	0
29	3	0	3	2	0	2	3	0	3	0	2	2
30	3	0	3	2	0	2	2	0	2	0	0	0
31	3	0	3	2	0	2	2	1	3	0	0	0
32	3	0	3	2	0	2	2	1	3	0	0	0
33	3	0	3	2	0	2	3	0	3	0	0	0
34	3	0	3	2	0	2	3	0	3	0	0	0
35	3	0	3	2	0	2	2	1	3	0	0	0
36	3	0	3	2	0	2	3	0	3	1	1	2
37	3	0	3	2	0	2	1	2	3	0	0	0
38	3	0	3	2	0	2	3	0	3	0	0	0
39	3	0	3	2	0	2	0	3	3	0	0	0
40	3	0	3	2	0	2	3	0	3	0	0	0
41	3	0	3	2	0	2	0	0	0	0	0	0
42	3	0	3	2	0	2	3	0	3	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	2	0	2	2	1	3	0	0	0
45	3	0	3	2	0	2	3	0	3	0	0	0
46	3	0	3	2	0	2	0	2	2	0	0	0
47	3	0	3	2	0	2	3	0	3	2	2	4
48	3	0	3	2	0	2	1	1	2	0	0	0
49	3	0	3	2	0	2	3	0	3	0	0	0
50	3	0	3	2	0	2	3	0	3	1	1	2

Table 56 2 CRUDES 3 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.94	0	2.94	1.2	0.62	1.82	1.18	1.1	2.28
max	3	0	3	2	2	2	3	3	3
sig	0.42426407	0	0.42426407	0.75592895	0.666701	0.43752551	0.96235	0.814	0.904
sigxb	0.00848528	0	0.00848528	0.01511858	0.013334	0.00875051	0.01925	0.016	0.018
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0.06		0.62	0.18		1.1	0.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	2	2
2	3	0	3	1	1	2	3	0	3
3	3	0	3	2	0	2	1	1	2
4	3	0	3	1	1	2	1	1	2
5	3	0	3	2	0	2	2	1	3
6	3	0	3	2	0	2	1	1	2
7	3	0	3	0	1	1	0	0	0
8	3	0	3	0	1	1	2	1	3
9	3	0	3	1	0	1	1	1	2
10	3	0	3	0	2	2	0	0	0
11	3	0	3	1	1	2	1	1	2
12	3	0	3	2	0	2	1	1	2
13	3	0	3	1	1	2	1	2	3
14	3	0	3	2	0	2	2	0	2
15	3	0	3	0	2	2	1	0	1
16	3	0	3	2	0	2	0	3	3
17	3	0	3	1	0	1	0	1	1
18	3	0	3	1	1	2	0	2	2
19	3	0	3	2	0	2	1	2	3
20	3	0	3	1	1	2	1	2	3
21	3	0	3	0	1	1	0	0	0
22	3	0	3	2	0	2	1	1	2
23	3	0	3	0	2	2	0	2	2
24	3	0	3	2	0	2	2	1	3
25	3	0	3	1	1	2	2	0	2
26	3	0	3	1	1	2	1	1	2
27	3	0	3	1	1	2	3	0	3
28	3	0	3	2	0	2	3	0	3
29	3	0	3	1	1	2	0	2	2
30	3	0	3	2	0	2	1	2	3
31	3	0	3	2	0	2	2	1	3
32	3	0	3	1	1	2	2	1	3
33	0	0	0	0	0	0	0	0	0
34	3	0	3	0	2	2	0	1	1
35	3	0	3	0	2	2	2	1	3
36	3	0	3	2	0	2	2	1	3
37	3	0	3	2	0	2	0	2	2
38	3	0	3	1	1	2	1	2	3
39	3	0	3	2	0	2	1	2	3
40	3	0	3	1	1	2	2	1	3
41	3	0	3	2	0	2	3	0	3
42	3	0	3	1	1	2	2	1	3
43	3	0	3	1	0	1	0	3	3
44	3	0	3	2	0	2	3	0	3
45	3	0	3	2	0	2	0	2	2
46	3	0	3	1	1	2	1	1	2
47	3	0	3	2	0	2	1	2	3
48	3	0	3	1	1	2	1	1	2
49	3	0	3	2	0	2	2	1	3
50	3	0	3	1	1	2	2	1	3

Table 57 2 CRUDES 3 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	1	0	3	0	0	0
xbar	3	0	3	2	0	2	2.94	0.06	3	0.22	0.12	0.34
max	3	0	3	2	0	2	3	2	3	3	3	3
sig	0	0	0	0	0	0	0.31364	0.314	0	0.648074	0.5205962	0.847806
sigxb	0	0	0	0	0	0	0.00627	0.006	0	0.012961	0.0104119	0.016956
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.06	0		0.12	4.66
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	3	0	3	0	0	0
2	3	0	3	2	0	2	3	0	3	0	0	0
3	3	0	3	2	0	2	3	0	3	0	0	0
4	3	0	3	2	0	2	3	0	3	0	0	0
5	3	0	3	2	0	2	3	0	3	0	0	0
6	3	0	3	2	0	2	3	0	3	0	0	0
7	3	0	3	2	0	2	3	0	3	0	0	0
8	3	0	3	2	0	2	3	0	3	1	0	1
9	3	0	3	2	0	2	3	0	3	0	0	0
10	3	0	3	2	0	2	3	0	3	0	0	0
11	3	0	3	2	0	2	3	0	3	0	0	0
12	3	0	3	2	0	2	3	0	3	0	0	0
13	3	0	3	2	0	2	3	0	3	2	1	3
14	3	0	3	2	0	2	3	0	3	0	0	0
15	3	0	3	2	0	2	3	0	3	0	0	0
16	3	0	3	2	0	2	3	0	3	0	0	0
17	3	0	3	2	0	2	3	0	3	2	0	2
18	3	0	3	2	0	2	3	0	3	0	0	0
19	3	0	3	2	0	2	3	0	3	0	0	0
20	3	0	3	2	0	2	3	0	3	0	0	0
21	3	0	3	2	0	2	3	0	3	0	0	0
22	3	0	3	2	0	2	3	0	3	0	0	0
23	3	0	3	2	0	2	1	2	3	0	0	0
24	3	0	3	2	0	2	3	0	3	0	2	2
25	3	0	3	2	0	2	3	0	3	0	0	0
26	3	0	3	2	0	2	3	0	3	1	0	1
27	3	0	3	2	0	2	3	0	3	0	0	0
28	3	0	3	2	0	2	3	0	3	2	0	2
29	3	0	3	2	0	2	3	0	3	0	0	0
30	3	0	3	2	0	2	3	0	3	0	0	0
31	3	0	3	2	0	2	2	1	3	0	0	0
32	3	0	3	2	0	2	3	0	3	3	0	3
33	3	0	3	2	0	2	3	0	3	0	0	0
34	3	0	3	2	0	2	3	0	3	0	0	0
35	3	0	3	2	0	2	3	0	3	0	0	0
36	3	0	3	2	0	2	3	0	3	0	0	0
37	3	0	3	2	0	2	3	0	3	0	0	0
38	3	0	3	2	0	2	3	0	3	0	0	0
39	3	0	3	2	0	2	3	0	3	0	0	0
40	3	0	3	2	0	2	3	0	3	0	0	0
41	3	0	3	2	0	2	3	0	3	0	0	0
42	3	0	3	2	0	2	3	0	3	0	0	0
43	3	0	3	2	0	2	3	0	3	0	0	0
44	3	0	3	2	0	2	3	0	3	0	0	0
45	3	0	3	2	0	2	3	0	3	0	3	3
46	3	0	3	2	0	2	3	0	3	0	0	0
47	3	0	3	2	0	2	3	0	3	0	0	0
48	3	0	3	2	0	2	3	0	3	0	0	0
49	3	0	3	2	0	2	3	0	3	0	0	0
50	3	0	3	2	0	2	3	0	3	0	0	0

Table 58 2 CRUDES 3 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.1	0.62	1.72	0.14	0.2	0.34	0	0.02	0.02
max	3	2	3	2	2	2	0	1	1
sig	1.1111678	0.779586	1.35586406	0.40456578	0.494872	0.65807387	0	0.141	0.141
sigxb	0.02222336	0.015592	0.02711728	0.00809132	0.009897	0.01316148	0	0.003	0.003
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.62	1.28		0.2	1.66		0.02	2.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	1	2	1	0	1	0	0	0
2	1	2	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	3	0	3	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	3	0	3	2	0	2	0	1	1
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	1	1	2	1	0	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	1	1	2	0	0	0	0	0	0
14	3	0	3	1	1	2	0	0	0
15	2	1	3	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	1	2	3	0	0	0	0	0	0
18	0	2	2	0	0	0	0	0	0
19	3	0	3	1	0	1	0	0	0
20	2	1	3	0	1	1	0	0	0
21	0	0	0	0	0	0	0	0	0
22	1	1	2	0	0	0	0	0	0
23	1	2	3	0	0	0	0	0	0
24	1	2	3	0	0	0	0	0	0
25	2	0	2	0	2	2	0	0	0
26	2	1	3	0	2	2	0	0	0
27	3	0	3	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	1	2	3	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	1	2	3	0	0	0	0	0	0
35	3	0	3	0	1	1	0	0	0
36	0	0	0	0	0	0	0	0	0
37	1	2	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	1	1	2	0	0	0	0	0	0
43	2	1	3	1	1	2	0	0	0
44	3	0	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	2	2	0	0	0	0	0	0
47	2	1	3	0	1	1	0	0	0
48	1	1	2	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	2	0	2	0	1	1	0	0	0

Table 59 2 CRUDES 3 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	2	0	0	0	0	0	0
xbar	3	0	3	1.88	0.12	2	0.5	0.52	1.02	0.34	0.36	0.7
max	3	0	3	2	1	2	2	3	3	2	2	3
sig	0	0	0	0.32826072	0.328261	0	0.70711	0.789	1.169	0.592814	0.6311635	0.974156
sigxb	0	0	0	0.00656521	0.006565	0	0.01414	0.016	0.023	0.011856	0.0126233	0.019483
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.12	0		0.52	1.98		0.36	4.3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	0	0	0	2	0	2
2	3	0	3	2	0	2	1	0	1	0	1	1
3	3	0	3	2	0	2	2	1	3	0	1	1
4	3	0	3	2	0	2	0	3	3	2	1	3
5	3	0	3	2	0	2	1	1	2	0	1	1
6	3	0	3	2	0	2	2	1	3	1	2	3
7	3	0	3	2	0	2	0	0	0	0	0	0
8	3	0	3	2	0	2	0	1	1	0	0	0
9	3	0	3	2	0	2	1	1	2	1	2	3
10	3	0	3	1	1	2	0	0	0	0	0	0
11	3	0	3	2	0	2	0	1	1	2	1	3
12	3	0	3	2	0	2	0	0	0	0	0	0
13	3	0	3	1	1	2	0	0	0	0	0	0
14	3	0	3	1	1	2	0	0	0	0	0	0
15	3	0	3	2	0	2	0	0	0	0	0	0
16	3	0	3	2	0	2	0	2	2	1	0	1
17	3	0	3	2	0	2	0	0	0	0	0	0
18	3	0	3	2	0	2	0	3	3	0	0	0
19	3	0	3	1	1	2	0	0	0	0	0	0
20	3	0	3	2	0	2	1	2	3	1	0	1
21	3	0	3	2	0	2	1	1	2	1	1	2
22	3	0	3	2	0	2	2	1	3	1	1	2
23	3	0	3	2	0	2	2	1	3	0	1	1
24	3	0	3	2	0	2	1	0	1	1	0	1
25	3	0	3	2	0	2	0	0	0	0	0	0
26	3	0	3	2	0	2	0	1	1	0	2	2
27	3	0	3	2	0	2	0	1	1	0	1	1
28	3	0	3	2	0	2	1	1	2	0	0	0
29	3	0	3	2	0	2	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0	0	0	0
31	3	0	3	2	0	2	0	0	0	0	0	0
32	3	0	3	2	0	2	1	0	1	1	0	1
33	3	0	3	2	0	2	1	0	1	0	0	0
34	3	0	3	2	0	2	1	0	1	0	0	0
35	3	0	3	2	0	2	1	2	3	1	0	1
36	3	0	3	2	0	2	0	0	0	0	0	0
37	3	0	3	2	0	2	1	0	1	1	1	2
38	3	0	3	2	0	2	0	0	0	0	0	0
39	3	0	3	2	0	2	2	1	3	0	0	0
40	3	0	3	2	0	2	0	0	0	0	0	0
41	3	0	3	2	0	2	0	0	0	0	0	0
42	3	0	3	2	0	2	0	0	0	0	0	0
43	3	0	3	2	0	2	0	0	0	0	0	0
44	3	0	3	2	0	2	0	0	0	1	0	1
45	3	0	3	2	0	2	0	0	0	0	0	0
46	3	0	3	2	0	2	2	0	2	0	2	2
47	3	0	3	2	0	2	0	0	0	0	0	0
48	3	0	3	1	1	2	0	0	0	0	0	0
49	3	0	3	2	0	2	1	1	2	0	0	0
50	3	0	3	1	1	2	0	0	0	0	0	0

Table 60 2 CRUDES 3 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	1	0	0	0	0	0	0
xbar	2.7	0.18	2.88	0.68	0.5	1.18	0.04	0.24	0.28
max	3	2	3	2	2	2	1	3	3
sig	0.76264845	0.481918	0.38544964	0.76771593	0.580288	0.87341694	0.19795	0.687	0.73
sigxb	0.01525297	0.009638	0.00770899	0.01535432	0.011606	0.01746834	0.00396	0.014	0.015
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.18	0.12		0.5	0.82		0.24	2.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	0	0
2	3	0	3	2	0	2	0	3	3
3	3	0	3	0	1	1	0	0	0
4	3	0	3	1	1	2	0	1	1
5	3	0	3	1	1	2	0	0	0
6	3	0	3	1	0	1	0	0	0
7	3	0	3	0	1	1	0	0	0
8	3	0	3	1	1	2	0	0	0
9	3	0	3	2	0	2	0	0	0
10	1	1	2	0	0	0	0	0	0
11	3	0	3	1	1	2	0	1	1
12	3	0	3	1	0	1	0	0	0
13	3	0	3	1	1	2	0	0	0
14	3	0	3	0	1	1	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	1	1	2	0	0	0
17	3	0	3	1	1	2	0	0	0
18	3	0	3	0	0	0	0	0	0
19	3	0	3	1	1	2	0	0	0
20	3	0	3	2	0	2	0	0	0
21	3	0	3	2	0	2	0	0	0
22	0	2	2	0	0	0	0	0	0
23	3	0	3	2	0	2	0	0	0
24	1	1	2	0	0	0	0	0	0
25	3	0	3	1	1	2	0	0	0
26	3	0	3	0	1	1	0	0	0
27	3	0	3	0	0	0	0	0	0
28	3	0	3	2	0	2	0	0	0
29	3	0	3	0	0	0	0	0	0
30	3	0	3	1	1	2	0	0	0
31	2	1	3	0	2	2	0	0	0
32	2	0	2	0	0	0	0	0	0
33	3	0	3	1	1	2	1	0	1
34	3	0	3	1	1	2	1	1	2
35	3	0	3	1	0	1	0	0	0
36	3	0	3	0	0	0	0	0	0
37	0	1	1	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	0	2	2	0	0	0
40	3	0	3	2	0	2	0	3	3
41	2	1	3	0	0	0	0	0	0
42	3	0	3	0	1	1	0	0	0
43	3	0	3	1	1	2	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	2	0	2	0	2	2
46	3	0	3	0	1	1	0	0	0
47	3	0	3	0	0	0	0	0	0
48	1	2	3	0	0	0	0	0	0
49	3	0	3	2	0	2	0	1	1
50	3	0	3	0	1	1	0	0	0

Table 61 2 CRUDES 3 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	1.66	0.82	2.48	0.34	0.44	0.78
max	3	0	3	2	0	2	3	3	3	2	2	3
sig	0	0	0	0	0	0	1.1537	0.8	0.839	0.658074	0.5771146	0.974993
sigxb	0	0	0	0	0	0	0.02307	0.016	0.017	0.013161	0.0115423	0.0195
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.82	0.52		0.44	4.22
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	0	0	0	0	1	1
2	3	0	3	2	0	2	0	1	1	0	0	0
3	3	0	3	2	0	2	0	1	1	0	0	0
4	3	0	3	2	0	2	3	0	3	1	2	3
5	3	0	3	2	0	2	2	1	3	0	0	0
6	3	0	3	2	0	2	2	1	3	0	1	1
7	3	0	3	2	0	2	1	1	2	0	0	0
8	3	0	3	2	0	2	2	1	3	0	1	1
9	3	0	3	2	0	2	2	1	3	0	0	0
10	3	0	3	2	0	2	2	1	3	0	0	0
11	3	0	3	2	0	2	3	0	3	0	1	1
12	3	0	3	2	0	2	1	1	2	0	0	0
13	3	0	3	2	0	2	3	0	3	1	0	1
14	3	0	3	2	0	2	3	0	3	0	1	1
15	3	0	3	2	0	2	0	2	2	0	1	1
16	3	0	3	2	0	2	0	1	1	0	0	0
17	3	0	3	2	0	2	1	2	3	0	1	1
18	3	0	3	2	0	2	1	2	3	0	0	0
19	3	0	3	2	0	2	3	0	3	0	0	0
20	3	0	3	2	0	2	1	2	3	0	0	0
21	3	0	3	2	0	2	3	0	3	0	1	1
22	3	0	3	2	0	2	1	0	1	0	0	0
23	3	0	3	2	0	2	3	0	3	0	0	0
24	3	0	3	2	0	2	2	1	3	0	1	1
25	3	0	3	2	0	2	2	1	3	1	0	1
26	3	0	3	2	0	2	0	2	2	0	0	0
27	3	0	3	2	0	2	3	0	3	2	1	3
28	3	0	3	2	0	2	3	0	3	2	0	2
29	3	0	3	2	0	2	1	2	3	0	0	0
30	3	0	3	2	0	2	3	0	3	2	1	3
31	3	0	3	2	0	2	0	0	0	0	1	1
32	3	0	3	2	0	2	2	1	3	0	0	0
33	3	0	3	2	0	2	2	0	2	2	1	3
34	3	0	3	2	0	2	0	2	2	0	0	0
35	3	0	3	2	0	2	2	1	3	0	0	0
36	3	0	3	2	0	2	3	0	3	1	1	2
37	3	0	3	2	0	2	2	1	3	0	0	0
38	3	0	3	2	0	2	0	2	2	0	0	0
39	3	0	3	2	0	2	0	2	2	0	0	0
40	3	0	3	2	0	2	3	0	3	2	0	2
41	3	0	3	2	0	2	3	0	3	0	1	1
42	3	0	3	2	0	2	2	1	3	0	1	1
43	3	0	3	2	0	2	3	0	3	1	2	3
44	3	0	3	2	0	2	2	1	3	1	1	2
45	3	0	3	2	0	2	1	1	2	0	0	0
46	3	0	3	2	0	2	3	0	3	1	0	1
47	3	0	3	2	0	2	2	0	2	0	1	1
48	3	0	3	2	0	2	0	1	1	0	0	0
49	3	0	3	2	0	2	2	1	3	0	0	0
50	3	0	3	2	0	2	0	3	3	0	0	0

Table 62 2 CRUDES 3 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.82	0.7	2.52	0.3	0.28	0.58	0	0.02	0.02
max	3	3	3	2	1	2	0	1	1
sig	1.11921984	0.909137	0.90891278	0.6144518	0.453557	0.75835483	0	0.141	0.141
sigxb	0.0223844	0.018183	0.01817826	0.01228904	0.009071	0.0151671	0	0.003	0.003
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.7	0.48		0.28	1.42		0.02	2.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	0	0
2	3	0	3	1	1	2	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	0	1	1	0	0	0
5	2	0	2	0	0	0	0	0	0
6	1	1	2	0	0	0	0	0	0
7	3	0	3	2	0	2	0	0	0
8	2	1	3	0	1	1	0	0	0
9	2	1	3	0	0	0	0	0	0
10	1	0	1	0	0	0	0	0	0
11	2	1	3	0	0	0	0	0	0
12	3	0	3	2	0	2	0	0	0
13	2	1	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	1	1	2	0	0	0
16	2	1	3	0	0	0	0	0	0
17	2	1	3	0	0	0	0	0	0
18	3	0	3	0	1	1	0	0	0
19	1	2	3	0	1	1	0	0	0
20	0	1	1	0	0	0	0	0	0
21	3	0	3	2	0	2	0	0	0
22	1	2	3	0	1	1	0	0	0
23	3	0	3	1	1	2	0	0	0
24	3	0	3	0	1	1	0	0	0
25	2	1	3	0	0	0	0	0	0
26	2	1	3	0	1	1	0	0	0
27	0	3	3	0	0	0	0	0	0
28	2	0	2	0	0	0	0	0	0
29	2	1	3	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	0	2	2	0	0	0	0	0	0
32	2	1	3	0	1	1	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	1	1	2	0	0	0
35	2	0	2	0	1	1	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	3	3	0	0	0	0	0	0
38	3	0	3	1	0	1	0	0	0
39	2	0	2	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	2	1	3	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	3	0	3	1	0	1	0	0	0
44	1	2	3	0	0	0	0	0	0
45	0	2	2	0	0	0	0	0	0
46	2	0	2	0	0	0	0	0	0
47	0	3	3	0	1	1	0	0	0
48	3	0	3	2	0	2	0	1	1
49	1	2	3	0	0	0	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 63 2 CRUDES 3 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	1.44	0.78	2.22	0.82	0.62	1.44
max	3	0	3	2	0	2	3	2	3	3	3	5
sig	0	0	0	0	0	0	0.97227	0.737	0.954	0.962353	0.7795865	1.264266
sigxb	0	0	0	0	0	0	0.01945	0.015	0.019	0.019247	0.0155917	0.025285
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.78	0.78		0.62	3.56
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	1	3	2	0	2
2	3	0	3	2	0	2	3	0	3	1	1	2
3	3	0	3	2	0	2	2	1	3	1	1	2
4	3	0	3	2	0	2	3	0	3	2	1	3
5	3	0	3	2	0	2	1	2	3	0	0	0
6	3	0	3	2	0	2	1	1	2	0	0	0
7	3	0	3	2	0	2	3	0	3	0	1	1
8	3	0	3	2	0	2	0	0	0	0	0	0
9	3	0	3	2	0	2	0	0	0	0	0	0
10	3	0	3	2	0	2	0	0	0	0	0	0
11	3	0	3	2	0	2	0	1	1	0	2	2
12	3	0	3	2	0	2	1	2	3	1	1	2
13	3	0	3	2	0	2	1	2	3	0	0	0
14	3	0	3	2	0	2	1	1	2	0	0	0
15	3	0	3	2	0	2	0	0	0	0	0	0
16	3	0	3	2	0	2	2	1	3	2	1	3
17	3	0	3	2	0	2	2	1	3	1	1	2
18	3	0	3	2	0	2	2	0	2	1	1	2
19	3	0	3	2	0	2	1	1	2	3	0	3
20	3	0	3	2	0	2	1	2	3	1	0	1
21	3	0	3	2	0	2	3	0	3	1	1	2
22	3	0	3	2	0	2	2	1	3	3	0	3
23	3	0	3	2	0	2	1	2	3	0	1	1
24	3	0	3	2	0	2	2	0	2	0	3	3
25	3	0	3	2	0	2	0	0	0	0	0	0
26	3	0	3	2	0	2	0	1	1	0	0	0
27	3	0	3	2	0	2	2	0	2	0	1	1
28	3	0	3	2	0	2	1	0	1	0	0	0
29	3	0	3	2	0	2	2	0	2	1	0	1
30	3	0	3	2	0	2	1	2	3	0	0	0
31	3	0	3	2	0	2	2	1	3	0	1	1
32	3	0	3	2	0	2	1	1	2	0	2	2
33	3	0	3	2	0	2	3	0	3	2	0	2
34	3	0	3	2	0	2	2	0	2	2	0	2
35	3	0	3	2	0	2	2	0	2	1	0	1
36	3	0	3	2	0	2	2	1	3	1	0	1
37	3	0	3	2	0	2	1	1	2	3	1	4
38	3	0	3	2	0	2	1	1	2	0	0	0
39	3	0	3	2	0	2	1	1	2	0	1	1
40	3	0	3	2	0	2	1	2	3	3	2	5
41	3	0	3	2	0	2	0	2	2	0	1	1
42	3	0	3	2	0	2	3	0	3	1	2	3
43	3	0	3	2	0	2	3	0	3	1	0	1
44	3	0	3	2	0	2	3	0	3	2	2	4
45	3	0	3	2	0	2	2	1	3	2	0	2
46	3	0	3	2	0	2	1	1	2	1	2	3
47	3	0	3	2	0	2	2	1	3	0	1	1
48	3	0	3	2	0	2	0	2	2	0	0	0
49	3	0	3	2	0	2	1	1	2	1	0	1
50	3	0	3	2	0	2	1	1	2	1	0	1

Table 64 2 CRUDES 3 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	3	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	1	0	1	0	0	0	0	0	0
xbar	2.9	0.06	2.96	1.68	0.1	1.78	0.4	0.96	1.36
max	3	2	3	2	1	2	2	3	3
sig	0.41649656	0.313636	0.28284271	0.68332919	0.303046	0.61577892	0.60609	0.925	1.083
sigxb	0.00832993	0.006273	0.00565685	0.01366658	0.006061	0.01231558	0.01212	0.018	0.022
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.06	0.04		0.1	0.22		0.96	1.64
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	0	3	3
2	3	0	3	2	0	2	2	0	2
3	3	0	3	1	1	2	0	0	0
4	3	0	3	2	0	2	0	2	2
5	1	0	1	0	0	0	0	0	0
6	3	0	3	2	0	2	0	0	0
7	2	1	3	0	0	0	0	0	0
8	3	0	3	1	1	2	0	1	1
9	3	0	3	2	0	2	1	2	3
10	3	0	3	2	0	2	0	2	2
11	3	0	3	2	0	2	0	1	1
12	3	0	3	2	0	2	0	1	1
13	3	0	3	2	0	2	0	2	2
14	3	0	3	1	1	2	0	0	0
15	3	0	3	2	0	2	0	2	2
16	3	0	3	2	0	2	0	0	0
17	3	0	3	2	0	2	0	1	1
18	3	0	3	2	0	2	2	1	3
19	3	0	3	2	0	2	0	0	0
20	3	0	3	2	0	2	1	2	3
21	3	0	3	2	0	2	1	0	1
22	1	2	3	0	0	0	0	0	0
23	3	0	3	2	0	2	1	2	3
24	3	0	3	2	0	2	1	1	2
25	3	0	3	2	0	2	1	1	2
26	3	0	3	2	0	2	0	0	0
27	3	0	3	2	0	2	1	0	1
28	3	0	3	1	1	2	0	2	2
29	3	0	3	0	0	0	0	0	0
30	3	0	3	2	0	2	0	3	3
31	3	0	3	0	1	1	0	0	0
32	3	0	3	2	0	2	1	2	3
33	3	0	3	2	0	2	1	1	2
34	3	0	3	2	0	2	0	2	2
35	3	0	3	2	0	2	0	2	2
36	3	0	3	2	0	2	0	1	1
37	3	0	3	2	0	2	1	0	1
38	3	0	3	2	0	2	1	1	2
39	3	0	3	2	0	2	0	1	1
40	3	0	3	2	0	2	0	1	1
41	3	0	3	2	0	2	2	1	3
42	3	0	3	2	0	2	0	1	1
43	3	0	3	2	0	2	1	1	2
44	3	0	3	2	0	2	1	0	1
45	3	0	3	2	0	2	1	1	2
46	3	0	3	2	0	2	0	0	0
47	3	0	3	0	0	0	0	0	0
48	3	0	3	2	0	2	0	3	3
49	3	0	3	2	0	2	0	0	0
50	3	0	3	2	0	2	0	1	1

Table 65 2 CRUDES 3 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	3	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	1	0	2	0	0	0
xbar	3	0	3	2	0	2	2.82	0.16	2.98	0.8	0.56	1.36
max	3	0	3	2	0	2	3	2	3	4	3	4
sig	0	0	0	0	0	0	0.43753	0.422	0.141	0.968904	0.9071147	1.366658
sigxb	0	0	0	0	0	0	0.00875	0.008	0.003	0.019378	0.0181423	0.027333
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.16	0.02		0.56	3.64
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	3	0	3	2	0	2
2	3	0	3	2	0	2	3	0	3	0	1	1
3	3	0	3	2	0	2	3	0	3	1	2	3
4	3	0	3	2	0	2	1	2	3	0	0	0
5	3	0	3	2	0	2	2	1	3	0	0	0
6	3	0	3	2	0	2	3	0	3	1	1	2
7	3	0	3	2	0	2	3	0	3	1	2	3
8	3	0	3	2	0	2	3	0	3	2	1	3
9	3	0	3	2	0	2	3	0	3	1	2	3
10	3	0	3	2	0	2	3	0	3	2	0	2
11	3	0	3	2	0	2	2	1	3	2	1	3
12	3	0	3	2	0	2	3	0	3	2	1	3
13	3	0	3	2	0	2	3	0	3	0	0	0
14	3	0	3	2	0	2	3	0	3	0	0	0
15	3	0	3	2	0	2	3	0	3	0	0	0
16	3	0	3	2	0	2	3	0	3	1	3	4
17	3	0	3	2	0	2	3	0	3	0	0	0
18	3	0	3	2	0	2	3	0	3	1	0	1
19	3	0	3	2	0	2	3	0	3	2	0	2
20	3	0	3	2	0	2	3	0	3	0	0	0
21	3	0	3	2	0	2	3	0	3	1	0	1
22	3	0	3	2	0	2	3	0	3	0	0	0
23	3	0	3	2	0	2	3	0	3	0	0	0
24	3	0	3	2	0	2	3	0	3	1	0	1
25	3	0	3	2	0	2	2	1	3	0	0	0
26	3	0	3	2	0	2	3	0	3	0	2	2
27	3	0	3	2	0	2	3	0	3	4	0	4
28	3	0	3	2	0	2	3	0	3	0	3	3
29	3	0	3	2	0	2	3	0	3	0	0	0
30	3	0	3	2	0	2	2	1	3	0	1	1
31	3	0	3	2	0	2	2	1	3	0	0	0
32	3	0	3	2	0	2	3	0	3	2	2	4
33	3	0	3	2	0	2	3	0	3	0	1	1
34	3	0	3	2	0	2	3	0	3	2	1	3
35	3	0	3	2	0	2	3	0	3	2	0	2
36	3	0	3	2	0	2	3	0	3	1	0	1
37	3	0	3	2	0	2	3	0	3	1	0	1
38	3	0	3	2	0	2	2	0	2	0	0	0
39	3	0	3	2	0	2	3	0	3	0	0	0
40	3	0	3	2	0	2	3	0	3	2	0	2
41	3	0	3	2	0	2	3	0	3	0	1	1
42	3	0	3	2	0	2	3	0	3	0	0	0
43	3	0	3	2	0	2	3	0	3	1	3	4
44	3	0	3	2	0	2	3	0	3	0	0	0
45	3	0	3	2	0	2	3	0	3	1	0	1
46	3	0	3	2	0	2	3	0	3	1	0	1
47	3	0	3	2	0	2	3	0	3	0	0	0
48	3	0	3	2	0	2	3	0	3	3	0	3
49	3	0	3	2	0	2	2	1	3	0	0	0
50	3	0	3	2	0	2	3	0	3	0	0	0

Table 66 2 CRUDES 3 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.72	0.74	2.46	0.24	0.32	0.56	0	0.12	0.12
max	3	3	3	2	2	2	0	1	1
sig	1.1959114	0.921622	1.1104329	0.55549206	0.586933	0.76023627	0	0.328	0.328
sigxb	0.02391823	0.018432	0.02220866	0.01110984	0.011739	0.01520473	0	0.007	0.007
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.74	0.54		0.32	1.44		0.12	3.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	2	3	0	0	0	0	0	0
2	2	0	2	0	1	1	0	0	0
3	2	1	3	0	0	0	0	0	0
4	2	1	3	0	1	1	0	0	0
5	3	0	3	0	1	1	0	1	1
6	3	0	3	0	0	0	0	0	0
7	1	2	3	0	0	0	0	1	1
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	3	0	3	1	1	2	0	0	0
12	3	0	3	0	1	1	0	0	0
13	0	2	2	0	0	0	0	0	0
14	3	0	3	1	0	1	0	0	0
15	3	0	3	2	0	2	0	1	1
16	2	1	3	0	0	0	0	0	0
17	0	2	2	0	0	0	0	0	0
18	3	0	3	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	3	0	3	1	1	2	0	0	0
23	2	1	3	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0
26	2	1	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	3	3	0	0	0	0	0	0
31	3	0	3	0	2	2	0	0	0
32	2	1	3	1	0	1	0	0	0
33	0	3	3	0	0	0	0	0	0
34	1	2	3	0	0	0	0	0	0
35	1	2	3	2	0	2	0	0	0
36	3	0	3	0	1	1	0	0	0
37	0	0	0	0	0	0	0	0	0
38	2	1	3	0	1	1	0	0	0
39	3	0	3	0	2	2	0	0	0
40	1	2	3	0	0	0	0	0	0
41	3	0	3	1	0	1	0	1	1
42	1	2	3	0	1	1	0	0	0
43	2	1	3	0	1	1	0	0	0
44	3	0	3	2	0	2	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	0	0	0	0	0
47	1	2	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	3	0	3	0	2	2	0	1	1
50	3	0	3	1	0	1	0	1	1

Table 67 2 CRUDES 4 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	1	0	0	0
xbar	3	0	3	2	0	2	3.12	0.58	3.7	0.64	0.44	1.08
max	3	0	3	2	0	2	4	3	4	4	3	5
sig	0	0	0	0	0	0	1.20611	0.835	0.647	1.005292	0.7866229	1.482414
sigxb	0	0	0	0	0	0	0.02412	0.017	0.013	0.020106	0.0157325	0.029648
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.58	0.3		0.44	4.92
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	2	2	4
2	3	0	3	2	0	2	4	0	4	0	0	0
3	3	0	3	2	0	2	4	0	4	1	0	1
4	3	0	3	2	0	2	4	0	4	0	0	0
5	3	0	3	2	0	2	4	0	4	2	1	3
6	3	0	3	2	0	2	4	0	4	0	0	0
7	3	0	3	2	0	2	1	1	2	0	0	0
8	3	0	3	2	0	2	4	0	4	0	3	3
9	3	0	3	2	0	2	3	1	4	0	0	0
10	3	0	3	2	0	2	0	1	1	0	0	0
11	3	0	3	2	0	2	4	0	4	1	2	3
12	3	0	3	2	0	2	4	0	4	1	1	2
13	3	0	3	2	0	2	1	2	3	0	0	0
14	3	0	3	2	0	2	4	0	4	2	3	5
15	3	0	3	2	0	2	4	0	4	0	0	0
16	3	0	3	2	0	2	1	3	4	0	0	0
17	3	0	3	2	0	2	4	0	4	4	0	4
18	3	0	3	2	0	2	3	1	4	0	0	0
19	3	0	3	2	0	2	4	0	4	0	1	1
20	3	0	3	2	0	2	3	1	4	0	0	0
21	3	0	3	2	0	2	2	1	3	0	0	0
22	3	0	3	2	0	2	2	1	3	0	0	0
23	3	0	3	2	0	2	4	0	4	2	1	3
24	3	0	3	2	0	2	2	2	4	0	0	0
25	3	0	3	2	0	2	4	0	4	1	1	2
26	3	0	3	2	0	2	4	0	4	0	1	1
27	3	0	3	2	0	2	3	0	3	0	0	0
28	3	0	3	2	0	2	4	0	4	0	0	0
29	3	0	3	2	0	2	1	2	3	0	0	0
30	3	0	3	2	0	2	2	2	4	0	0	0
31	3	0	3	2	0	2	4	0	4	0	0	0
32	3	0	3	2	0	2	4	0	4	0	0	0
33	3	0	3	2	0	2	3	1	4	0	0	0
34	3	0	3	2	0	2	4	0	4	2	0	2
35	3	0	3	2	0	2	3	1	4	0	0	0
36	3	0	3	2	0	2	4	0	4	3	0	3
37	3	0	3	2	0	2	4	0	4	2	2	4
38	3	0	3	2	0	2	2	2	4	0	0	0
39	3	0	3	2	0	2	3	1	4	0	0	0
40	3	0	3	2	0	2	4	0	4	3	1	4
41	3	0	3	2	0	2	4	0	4	1	1	2
42	3	0	3	2	0	2	2	1	3	0	0	0
43	3	0	3	2	0	2	4	0	4	2	0	2
44	3	0	3	2	0	2	3	1	4	0	0	0
45	3	0	3	2	0	2	4	0	4	1	0	1
46	3	0	3	2	0	2	3	0	3	0	0	0
47	3	0	3	2	0	2	0	3	3	0	0	0
48	3	0	3	2	0	2	4	0	4	1	1	2
49	3	0	3	2	0	2	4	0	4	1	1	2
50	3	0	3	2	0	2	1	1	2	0	0	0

Table 68 2 CRUDES 4 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	2	0	3	0	0	0	0	0	0
xbar	2.96	0.04	3	0.8	0.6	1.4	0.54	1.42	1.96
max	3	1	3	2	2	2	2	4	4
sig	0.19794866	0.197949	0	0.72843136	0.699854	0.75592895	0.73429	1.012	1.245
sigxb	0.00395897	0.003959	0	0.01456863	0.013997	0.01511858	0.01469	0.02	0.025
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.04	0		0.6	0.6		1.42	2.04
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	0	0
2	3	0	3	2	0	2	1	0	1
3	3	0	3	1	0	1	0	1	1
4	3	0	3	0	0	0	1	1	2
5	2	1	3	1	0	1	0	0	0
6	3	0	3	0	0	0	1	1	2
7	3	0	3	0	2	2	2	1	3
8	3	0	3	1	1	2	0	3	3
9	3	0	3	1	1	2	0	4	4
10	3	0	3	1	0	1	0	1	1
11	3	0	3	1	1	2	0	1	1
12	3	0	3	1	0	1	0	2	2
13	3	0	3	1	0	1	0	3	3
14	3	0	3	2	0	2	0	3	3
15	3	0	3	1	0	1	0	1	1
16	3	0	3	2	0	2	0	3	3
17	3	0	3	1	1	2	0	2	2
18	3	0	3	0	0	0	0	1	1
19	3	0	3	1	0	1	2	1	3
20	3	0	3	0	2	2	0	1	1
21	3	0	3	0	1	1	0	1	1
22	2	1	3	0	0	0	0	0	0
23	3	0	3	1	1	2	2	2	4
24	3	0	3	0	1	1	1	2	3
25	3	0	3	1	1	2	1	3	4
26	3	0	3	1	1	2	1	1	2
27	3	0	3	1	1	2	1	2	3
28	3	0	3	0	2	2	1	2	3
29	3	0	3	0	1	1	0	1	1
30	3	0	3	1	1	2	1	2	3
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	1	1	2	2	4
34	3	0	3	1	1	2	1	2	3
35	3	0	3	0	0	0	0	0	0
36	3	0	3	2	0	2	0	2	2
37	3	0	3	2	0	2	1	2	3
38	3	0	3	1	0	1	0	2	2
39	3	0	3	0	0	0	0	0	0
40	3	0	3	0	2	2	2	0	2
41	3	0	3	1	0	1	2	2	4
42	3	0	3	0	2	2	0	1	1
43	3	0	3	1	1	2	2	1	3
44	3	0	3	2	0	2	0	2	2
45	3	0	3	2	0	2	1	2	3
46	3	0	3	0	2	2	0	1	1
47	3	0	3	2	0	2	0	3	3
48	3	0	3	2	0	2	0	1	1
49	3	0	3	1	1	2	1	0	1
50	3	0	3	1	1	2	0	2	2

Table 69 2 CRUDES 4 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	3	0	4	0	0	0
xbar	3	0	3	2	0	2	3.98	0.02	4	0.64	0.64	1.28
max	3	0	3	2	0	2	4	1	4	4	4	6
sig	0	0	0	0	0	0	0.14142	0.141	0	1.025392	0.9424241	1.690791
sigxb	0	0	0	0	0	0	0.00283	0.003	0	0.020508	0.0188485	0.033816
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.02	0		0.64	4.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	2	2	4
2	3	0	3	2	0	2	4	0	4	0	0	0
3	3	0	3	2	0	2	4	0	4	1	0	1
4	3	0	3	2	0	2	4	0	4	0	0	0
5	3	0	3	2	0	2	4	0	4	2	1	3
6	3	0	3	2	0	2	4	0	4	0	0	0
7	3	0	3	2	0	2	4	0	4	0	0	0
8	3	0	3	2	0	2	4	0	4	0	0	0
9	3	0	3	2	0	2	4	0	4	0	0	0
10	3	0	3	2	0	2	4	0	4	0	0	0
11	3	0	3	2	0	2	4	0	4	0	1	1
12	3	0	3	2	0	2	4	0	4	0	1	1
13	3	0	3	2	0	2	4	0	4	3	0	3
14	3	0	3	2	0	2	4	0	4	0	0	0
15	3	0	3	2	0	2	3	1	4	0	0	0
16	3	0	3	2	0	2	4	0	4	0	0	0
17	3	0	3	2	0	2	4	0	4	2	2	4
18	3	0	3	2	0	2	4	0	4	2	1	3
19	3	0	3	2	0	2	4	0	4	0	0	0
20	3	0	3	2	0	2	4	0	4	2	2	4
21	3	0	3	2	0	2	4	0	4	0	0	0
22	3	0	3	2	0	2	4	0	4	0	0	0
23	3	0	3	2	0	2	4	0	4	0	0	0
24	3	0	3	2	0	2	4	0	4	1	2	3
25	3	0	3	2	0	2	4	0	4	0	0	0
26	3	0	3	2	0	2	4	0	4	0	1	1
27	3	0	3	2	0	2	4	0	4	1	2	3
28	3	0	3	2	0	2	4	0	4	2	4	6
29	3	0	3	2	0	2	4	0	4	1	0	1
30	3	0	3	2	0	2	4	0	4	0	0	0
31	3	0	3	2	0	2	4	0	4	0	0	0
32	3	0	3	2	0	2	4	0	4	0	0	0
33	3	0	3	2	0	2	4	0	4	0	0	0
34	3	0	3	2	0	2	4	0	4	0	2	2
35	3	0	3	2	0	2	4	0	4	0	0	0
36	3	0	3	2	0	2	4	0	4	0	0	0
37	3	0	3	2	0	2	4	0	4	1	2	3
38	3	0	3	2	0	2	4	0	4	0	0	0
39	3	0	3	2	0	2	4	0	4	0	0	0
40	3	0	3	2	0	2	4	0	4	0	0	0
41	3	0	3	2	0	2	4	0	4	2	2	4
42	3	0	3	2	0	2	4	0	4	3	2	5
43	3	0	3	2	0	2	4	0	4	0	0	0
44	3	0	3	2	0	2	4	0	4	0	2	2
45	3	0	3	2	0	2	4	0	4	0	0	0
46	3	0	3	2	0	2	4	0	4	2	1	3
47	3	0	3	2	0	2	4	0	4	0	1	1
48	3	0	3	2	0	2	4	0	4	1	1	2
49	3	0	3	2	0	2	4	0	4	4	0	4
50	3	0	3	2	0	2	4	0	4	0	0	0

Table 70 2 CRUDES 4 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.32	0.38	2.7	0.52	0.22	0.74	0.12	0.22	0.34
max	3	2	3	2	1	2	1	3	3
sig	0.99877476	0.602376	0.73540215	0.81416039	0.418452	0.87621636	0.32826	0.616	0.717
sigxb	0.0199755	0.012048	0.01470804	0.01628321	0.008369	0.01752433	0.00657	0.012	0.014
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.38	0.3		0.22	1.26		0.22	3.66
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	0	0
2	1	1	2	0	0	0	0	0	0
3	3	0	3	0	0	0	0	1	1
4	3	0	3	0	1	1	0	0	0
5	2	1	3	0	0	0	0	0	0
6	3	0	3	2	0	2	0	3	3
7	3	0	3	1	1	2	0	1	1
8	3	0	3	1	0	1	0	0	0
9	3	0	3	2	0	2	1	1	2
10	3	0	3	2	0	2	0	2	2
11	0	0	0	0	0	0	0	0	0
12	3	0	3	1	1	2	1	0	1
13	1	0	1	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	2	1	3	0	0	0	0	0	0
16	3	0	3	1	1	2	1	0	1
17	3	0	3	2	0	2	1	1	2
18	3	0	3	0	0	0	0	0	0
19	1	1	2	0	0	0	0	0	0
20	0	1	1	0	0	0	0	0	0
21	3	0	3	2	0	2	0	2	2
22	2	1	3	0	0	0	0	0	0
23	2	1	3	0	1	1	0	0	0
24	1	1	2	0	0	0	0	0	0
25	3	0	3	2	0	2	0	0	0
26	3	0	3	0	1	1	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	3	0	3	2	0	2	1	0	1
30	3	0	3	0	0	0	0	0	0
31	0	2	2	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	3	0	3	1	0	1	0	0	0
34	3	0	3	0	0	0	0	0	0
35	1	2	3	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	1	2	3	0	0	0	0	0	0
42	3	0	3	2	0	2	0	0	0
43	3	0	3	0	1	1	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	2	0	2	1	0	1
46	3	0	3	0	1	1	0	0	0
47	3	0	3	0	1	1	0	0	0
48	0	0	0	0	0	0	0	0	0
49	3	0	3	1	1	2	0	0	0
50	3	0	3	2	0	2	0	0	0

Table 71 2 CRUDES 4 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	1	0	3	0	0	0
xbar	3	0	3	2	0	2	3.5	0.4	3.9	0.84	0.48	1.32
max	3	0	3	2	0	2	4	2	4	5	3	5
sig	0	0	0	0	0	0	0.81441	0.639	0.303	1.330337	0.7623808	1.743091
sigxb	0	0	0	0	0	0	0.01629	0.013	0.006	0.026607	0.0152476	0.034862
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.4	0.1		0.48	4.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	2	2	4
2	3	0	3	2	0	2	4	0	4	0	0	0
3	3	0	3	2	0	2	4	0	4	1	0	1
4	3	0	3	2	0	2	3	1	4	0	0	0
5	3	0	3	2	0	2	3	1	4	0	0	0
6	3	0	3	2	0	2	2	2	4	0	0	0
7	3	0	3	2	0	2	2	2	4	0	0	0
8	3	0	3	2	0	2	4	0	4	0	1	1
9	3	0	3	2	0	2	4	0	4	0	0	0
10	3	0	3	2	0	2	3	1	4	0	0	0
11	3	0	3	2	0	2	4	0	4	0	0	0
12	3	0	3	2	0	2	4	0	4	0	2	2
13	3	0	3	2	0	2	2	1	3	0	0	0
14	3	0	3	2	0	2	4	0	4	1	0	1
15	3	0	3	2	0	2	4	0	4	0	1	1
16	3	0	3	2	0	2	3	1	4	0	0	0
17	3	0	3	2	0	2	4	0	4	0	0	0
18	3	0	3	2	0	2	4	0	4	5	0	5
19	3	0	3	2	0	2	4	0	4	0	0	0
20	3	0	3	2	0	2	3	1	4	0	0	0
21	3	0	3	2	0	2	4	0	4	0	0	0
22	3	0	3	2	0	2	4	0	4	1	1	2
23	3	0	3	2	0	2	4	0	4	3	1	4
24	3	0	3	2	0	2	4	0	4	2	0	2
25	3	0	3	2	0	2	4	0	4	0	0	0
26	3	0	3	2	0	2	2	1	3	0	0	0
27	3	0	3	2	0	2	4	0	4	1	1	2
28	3	0	3	2	0	2	2	2	4	0	0	0
29	3	0	3	2	0	2	2	1	3	0	0	0
30	3	0	3	2	0	2	4	0	4	3	2	5
31	3	0	3	2	0	2	4	0	4	3	1	4
32	3	0	3	2	0	2	3	1	4	0	0	0
33	3	0	3	2	0	2	4	0	4	2	0	2
34	3	0	3	2	0	2	4	0	4	0	0	0
35	3	0	3	2	0	2	4	0	4	1	3	4
36	3	0	3	2	0	2	4	0	4	3	1	4
37	3	0	3	2	0	2	3	1	4	0	0	0
38	3	0	3	2	0	2	4	0	4	5	0	5
39	3	0	3	2	0	2	4	0	4	0	0	0
40	3	0	3	2	0	2	2	1	3	0	0	0
41	3	0	3	2	0	2	4	0	4	0	0	0
42	3	0	3	2	0	2	4	0	4	2	1	3
43	3	0	3	2	0	2	4	0	4	0	1	1
44	3	0	3	2	0	2	3	1	4	1	1	2
45	3	0	3	2	0	2	4	0	4	3	2	5
46	3	0	3	2	0	2	1	2	3	0	0	0
47	3	0	3	2	0	2	4	0	4	2	1	3
48	3	0	3	2	0	2	4	0	4	0	0	0
49	3	0	3	2	0	2	4	0	4	0	0	0
50	3	0	3	2	0	2	4	0	4	1	2	3

Table 72 2 CRUDES 4 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	3	0	3	0	0	1	0	0	2
xbar	3	0	3	1.7	0.28	1.98	2.42	1	3.42
max	3	0	3	2	2	2	4	3	4
sig	0	0	0	0.58028846	0.572855	0.14142136	1.08965	0.904	0.673
sigxb	0	0	0	0.01160577	0.011457	0.00282843	0.02179	0.018	0.013
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.28	0.02		1	0.58
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	1	3	4
2	3	0	3	2	0	2	2	2	4
3	3	0	3	2	0	2	3	0	3
4	3	0	3	2	0	2	3	0	3
5	3	0	3	2	0	2	3	1	4
6	3	0	3	2	0	2	2	1	3
7	3	0	3	2	0	2	2	2	4
8	3	0	3	0	2	2	3	0	3
9	3	0	3	2	0	2	3	0	3
10	3	0	3	0	2	2	2	0	2
11	3	0	3	1	0	1	1	1	2
12	3	0	3	2	0	2	3	0	3
13	3	0	3	2	0	2	2	0	2
14	3	0	3	2	0	2	2	1	3
15	3	0	3	2	0	2	1	1	2
16	3	0	3	2	0	2	3	1	4
17	3	0	3	2	0	2	2	2	4
18	3	0	3	2	0	2	3	0	3
19	3	0	3	2	0	2	2	2	4
20	3	0	3	2	0	2	4	0	4
21	3	0	3	2	0	2	3	1	4
22	3	0	3	0	2	2	3	0	3
23	3	0	3	1	1	2	0	2	2
24	3	0	3	1	1	2	2	2	4
25	3	0	3	2	0	2	4	0	4
26	3	0	3	1	1	2	4	0	4
27	3	0	3	2	0	2	1	2	3
28	3	0	3	1	1	2	2	2	4
29	3	0	3	2	0	2	4	0	4
30	3	0	3	1	1	2	2	1	3
31	3	0	3	2	0	2	4	0	4
32	3	0	3	2	0	2	3	1	4
33	3	0	3	2	0	2	1	2	3
34	3	0	3	1	1	2	4	0	4
35	3	0	3	2	0	2	2	1	3
36	3	0	3	2	0	2	3	1	4
37	3	0	3	2	0	2	4	0	4
38	3	0	3	2	0	2	2	1	3
39	3	0	3	1	1	2	2	1	3
40	3	0	3	2	0	2	1	2	3
41	3	0	3	2	0	2	3	1	4
42	3	0	3	1	1	2	1	2	3
43	3	0	3	2	0	2	2	2	4
44	3	0	3	2	0	2	4	0	4
45	3	0	3	2	0	2	4	0	4
46	3	0	3	2	0	2	0	3	3
47	3	0	3	2	0	2	1	2	3
48	3	0	3	2	0	2	3	1	4
49	3	0	3	2	0	2	2	2	4
50	3	0	3	2	0	2	3	1	4

Table 73 2 CRUDES 4 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	3	0	4	0	0	0
xbar	3	0	3	2	0	2	3.98	0.02	4	0.54	0.62	1.16
max	3	0	3	2	0	2	4	1	4	5	3	6
sig	0	0	0	0	0	0	0.14142	0.141	0	1.0919	0.8545198	1.543386
sigxb	0	0	0	0	0	0	0.00283	0.003	0	0.021838	0.0170904	0.030868
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.02	0		0.62	4.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	2	2	4
2	3	0	3	2	0	2	4	0	4	0	0	0
3	3	0	3	2	0	2	4	0	4	1	0	1
4	3	0	3	2	0	2	4	0	4	0	0	0
5	3	0	3	2	0	2	4	0	4	0	0	0
6	3	0	3	2	0	2	4	0	4	0	0	0
7	3	0	3	2	0	2	4	0	4	0	0	0
8	3	0	3	2	0	2	4	0	4	0	2	2
9	3	0	3	2	0	2	4	0	4	0	0	0
10	3	0	3	2	0	2	4	0	4	1	1	2
11	3	0	3	2	0	2	4	0	4	0	1	1
12	3	0	3	2	0	2	4	0	4	0	1	1
13	3	0	3	2	0	2	4	0	4	0	0	0
14	3	0	3	2	0	2	4	0	4	0	0	0
15	3	0	3	2	0	2	4	0	4	0	0	0
16	3	0	3	2	0	2	4	0	4	0	0	0
17	3	0	3	2	0	2	4	0	4	0	0	0
18	3	0	3	2	0	2	4	0	4	0	2	2
19	3	0	3	2	0	2	4	0	4	0	0	0
20	3	0	3	2	0	2	4	0	4	3	1	4
21	3	0	3	2	0	2	4	0	4	0	0	0
22	3	0	3	2	0	2	4	0	4	0	0	0
23	3	0	3	2	0	2	4	0	4	0	1	1
24	3	0	3	2	0	2	4	0	4	5	1	6
25	3	0	3	2	0	2	4	0	4	0	0	0
26	3	0	3	2	0	2	4	0	4	1	0	1
27	3	0	3	2	0	2	4	0	4	0	1	1
28	3	0	3	2	0	2	4	0	4	2	1	3
29	3	0	3	2	0	2	4	0	4	0	1	1
30	3	0	3	2	0	2	4	0	4	0	2	2
31	3	0	3	2	0	2	4	0	4	0	0	0
32	3	0	3	2	0	2	4	0	4	0	0	0
33	3	0	3	2	0	2	4	0	4	4	1	5
34	3	0	3	2	0	2	4	0	4	0	1	1
35	3	0	3	2	0	2	4	0	4	0	0	0
36	3	0	3	2	0	2	4	0	4	1	0	1
37	3	0	3	2	0	2	4	0	4	0	0	0
38	3	0	3	2	0	2	4	0	4	0	3	3
39	3	0	3	2	0	2	4	0	4	1	1	2
40	3	0	3	2	0	2	4	0	4	2	0	2
41	3	0	3	2	0	2	4	0	4	0	0	0
42	3	0	3	2	0	2	4	0	4	1	1	2
43	3	0	3	2	0	2	4	0	4	2	2	4
44	3	0	3	2	0	2	4	0	4	1	3	4
45	3	0	3	2	0	2	4	0	4	0	0	0
46	3	0	3	2	0	2	4	0	4	0	2	2
47	3	0	3	2	0	2	3	1	4	0	0	0
48	3	0	3	2	0	2	4	0	4	0	0	0
49	3	0	3	2	0	2	4	0	4	0	0	0
50	3	0	3	2	0	2	4	0	4	0	0	0

Table 74 2 CRUDES 4 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.7	0.34	2.04	0.34	0.38	0.72	0	0.04	0.04
max	3	2	3	2	2	2	0	1	1
sig	1.32864823	0.592814	1.35465938	0.65807387	0.567486	0.88155706	0	0.198	0.198
sigxb	0.02657296	0.011856	0.02709319	0.01316148	0.01135	0.01763114	0	0.004	0.004
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.34	0.96		0.38	1.28		0.04	3.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0	0	0	0
2	3	0	3	1	1	2	0	0	0
3	3	0	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	2	1	3	0	1	1	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	1	1	2	0	0	0	0	0	0
13	1	2	3	0	1	1	0	0	0
14	1	2	3	0	1	1	0	0	0
15	2	1	3	0	1	1	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	2	1	3	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	3	0	3	1	1	2	0	0	0
21	3	0	3	2	0	2	0	0	0
22	0	1	1	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	1	1	2	0	0	0
27	3	0	3	1	1	2	0	0	0
28	3	0	3	1	1	2	0	0	0
29	0	0	0	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0
31	3	0	3	0	2	2	0	0	0
32	0	0	0	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	0	1	1	0	0	0	0	0	0
35	3	0	3	0	1	1	0	0	0
36	3	0	3	2	0	2	0	1	1
37	0	0	0	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	2	0	2	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	1	1	2	0	0	0
42	0	0	0	0	0	0	0	0	0
43	3	0	3	2	0	2	0	1	1
44	3	0	3	1	1	2	0	0	0
45	3	0	3	0	1	1	0	0	0
46	3	0	3	0	2	2	0	0	0
47	3	0	3	0	1	1	0	0	0
48	0	0	0	0	0	0	0	0	0
49	1	1	2	0	1	1	0	0	0
50	1	2	3	0	0	0	0	0	0

Table 75 2 CRUDES 4 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	1.48	1.2	2.68	1.04	0.9	1.94
max	3	0	3	2	0	2	4	4	4	4	3	5
sig	0	0	0	0	0	0	1.16479	1.03	1.236	0.902604	0.9091373	1.284285
sigxb	0	0	0	0	0	0	0.0233	0.021	0.025	0.018052	0.0181827	0.025686
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.2	1.32		0.9	4.06
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	2	4	2	1	3
2	3	0	3	2	0	2	2	2	4	2	0	2
3	3	0	3	2	0	2	0	4	4	2	1	3
4	3	0	3	2	0	2	2	2	4	2	1	3
5	3	0	3	2	0	2	1	2	3	2	0	2
6	3	0	3	2	0	2	4	0	4	1	0	1
7	3	0	3	2	0	2	1	1	2	0	2	2
8	3	0	3	2	0	2	3	1	4	2	1	3
9	3	0	3	2	0	2	1	1	2	2	1	3
10	3	0	3	2	0	2	2	2	4	2	2	4
11	3	0	3	2	0	2	1	0	1	1	0	1
12	3	0	3	2	0	2	3	0	3	1	1	2
13	3	0	3	2	0	2	3	1	4	1	1	2
14	3	0	3	2	0	2	2	1	3	3	1	4
15	3	0	3	2	0	2	1	3	4	0	3	3
16	3	0	3	2	0	2	0	0	0	0	0	0
17	3	0	3	2	0	2	1	2	3	1	0	1
18	3	0	3	2	0	2	2	0	2	2	0	2
19	3	0	3	2	0	2	2	2	4	2	2	4
20	3	0	3	2	0	2	0	1	1	0	0	0
21	3	0	3	2	0	2	1	2	3	2	1	3
22	3	0	3	2	0	2	4	0	4	4	1	5
23	3	0	3	2	0	2	1	0	1	1	0	1
24	3	0	3	2	0	2	1	1	2	0	2	2
25	3	0	3	2	0	2	1	2	3	1	0	1
26	3	0	3	2	0	2	4	0	4	1	2	3
27	3	0	3	2	0	2	0	0	0	0	0	0
28	3	0	3	2	0	2	0	1	1	0	0	0
29	3	0	3	2	0	2	3	0	3	1	2	3
30	3	0	3	2	0	2	2	0	2	0	2	2
31	3	0	3	2	0	2	2	2	4	1	3	4
32	3	0	3	2	0	2	0	0	0	0	0	0
33	3	0	3	2	0	2	1	2	3	1	2	3
34	3	0	3	2	0	2	0	2	2	1	0	1
35	3	0	3	2	0	2	2	1	3	1	0	1
36	3	0	3	2	0	2	1	2	3	0	2	2
37	3	0	3	2	0	2	2	0	2	1	2	3
38	3	0	3	2	0	2	1	1	2	1	0	1
39	3	0	3	2	0	2	2	1	3	0	1	1
40	3	0	3	2	0	2	0	1	1	0	0	0
41	3	0	3	2	0	2	2	1	3	1	1	2
42	3	0	3	2	0	2	2	1	3	1	0	1
43	3	0	3	2	0	2	1	3	4	1	1	2
44	3	0	3	2	0	2	0	3	3	0	0	0
45	3	0	3	2	0	2	0	1	1	1	0	1
46	3	0	3	2	0	2	1	3	4	1	2	3
47	3	0	3	2	0	2	1	0	1	0	0	0
48	3	0	3	2	0	2	4	0	4	2	1	3
49	3	0	3	2	0	2	2	1	3	1	1	2
50	3	0	3	2	0	2	0	2	2	0	2	2

Table 76 2 CRUDES 4 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	1	0	2	0	0	0	0	0	0
xbar	2.92	0.06	2.98	1.26	0.4	1.66	0.38	0.84	1.22
max	3	2	3	2	2	2	2	4	4
sig	0.34046787	0.313636	0.14142136	0.87621636	0.670059	0.65807387	0.6667	0.997	1.234
sigxb	0.00680936	0.006273	0.00282843	0.01752433	0.013401	0.01316148	0.01333	0.02	0.025
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.06	0.02		0.4	0.34		0.84	2.78
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	0	2	2
2	3	0	3	2	0	2	0	3	3
3	3	0	3	1	1	2	0	0	0
4	3	0	3	2	0	2	0	0	0
5	3	0	3	2	0	2	2	0	2
6	3	0	3	2	0	2	1	2	3
7	3	0	3	2	0	2	0	0	0
8	3	0	3	0	1	1	0	0	0
9	3	0	3	2	0	2	1	2	3
10	2	0	2	0	0	0	0	0	0
11	3	0	3	2	0	2	2	1	3
12	3	0	3	2	0	2	0	2	2
13	3	0	3	0	0	0	0	0	0
14	1	2	3	0	1	1	0	0	0
15	3	0	3	2	0	2	2	1	3
16	3	0	3	2	0	2	1	1	2
17	3	0	3	2	0	2	0	1	1
18	3	0	3	1	1	2	0	1	1
19	3	0	3	2	0	2	0	3	3
20	3	0	3	1	1	2	0	0	0
21	3	0	3	2	0	2	1	0	1
22	3	0	3	2	0	2	2	1	3
23	3	0	3	2	0	2	0	0	0
24	3	0	3	2	0	2	0	1	1
25	3	0	3	1	1	2	1	1	2
26	3	0	3	0	2	2	0	0	0
27	3	0	3	2	0	2	0	4	4
28	3	0	3	0	1	1	0	0	0
29	3	0	3	2	0	2	1	1	2
30	3	0	3	1	0	1	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	2	0	2	0	1	1
33	2	1	3	0	0	0	0	0	0
34	3	0	3	0	2	2	0	0	0
35	3	0	3	0	1	1	0	0	0
36	3	0	3	1	1	2	0	1	1
37	3	0	3	0	2	2	0	1	1
38	3	0	3	2	0	2	0	0	0
39	3	0	3	0	2	2	0	1	1
40	3	0	3	1	0	1	0	1	1
41	3	0	3	0	0	0	0	0	0
42	3	0	3	2	0	2	0	3	3
43	3	0	3	2	0	2	1	1	2
44	3	0	3	2	0	2	0	0	0
45	3	0	3	2	0	2	1	2	3
46	3	0	3	2	0	2	0	2	2
47	3	0	3	2	0	2	2	1	3
48	3	0	3	1	1	2	0	1	1
49	3	0	3	0	2	2	0	0	0
50	3	0	3	1	0	1	1	0	1

Table 77 2 CRUDES 4 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	1	0	0	0
xbar	3	0	3	2	0	2	3.54	0.34	3.88	0.96	0.92	1.88
max	3	0	3	2	0	2	4	2	4	6	4	6
sig	0	0	0	0	0	0	0.81341	0.593	0.48	1.324186	1.0069149	1.624305
sigxb	0	0	0	0	0	0	0.01627	0.012	0.01	0.026484	0.0201383	0.032486
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.34	0.12		0.92	4.12
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	2	1	3
2	3	0	3	2	0	2	4	0	4	2	1	3
3	3	0	3	2	0	2	3	1	4	1	2	3
4	3	0	3	2	0	2	4	0	4	3	0	3
5	3	0	3	2	0	2	4	0	4	0	0	0
6	3	0	3	2	0	2	4	0	4	0	2	2
7	3	0	3	2	0	2	3	0	3	0	1	1
8	3	0	3	2	0	2	4	0	4	6	0	6
9	3	0	3	2	0	2	4	0	4	0	0	0
10	3	0	3	2	0	2	4	0	4	0	1	1
11	3	0	3	2	0	2	4	0	4	0	0	0
12	3	0	3	2	0	2	2	2	4	0	1	1
13	3	0	3	2	0	2	4	0	4	0	0	0
14	3	0	3	2	0	2	4	0	4	2	0	2
15	3	0	3	2	0	2	4	0	4	2	1	3
16	3	0	3	2	0	2	2	1	3	0	0	0
17	3	0	3	2	0	2	4	0	4	1	3	4
18	3	0	3	2	0	2	4	0	4	2	0	2
19	3	0	3	2	0	2	4	0	4	0	4	4
20	3	0	3	2	0	2	4	0	4	1	1	2
21	3	0	3	2	0	2	3	1	4	0	0	0
22	3	0	3	2	0	2	3	1	4	0	0	0
23	3	0	3	2	0	2	4	0	4	1	1	2
24	3	0	3	2	0	2	4	0	4	1	1	2
25	3	0	3	2	0	2	4	0	4	5	1	6
26	3	0	3	2	0	2	2	2	4	0	1	1
27	3	0	3	2	0	2	4	0	4	0	0	0
28	3	0	3	2	0	2	3	1	4	2	0	2
29	3	0	3	2	0	2	4	0	4	1	2	3
30	3	0	3	2	0	2	2	2	4	0	0	0
31	3	0	3	2	0	2	3	1	4	2	0	2
32	3	0	3	2	0	2	3	1	4	0	1	1
33	3	0	3	2	0	2	4	0	4	0	2	2
34	3	0	3	2	0	2	3	1	4	0	0	0
35	3	0	3	2	0	2	3	1	4	0	2	2
36	3	0	3	2	0	2	0	1	1	0	1	1
37	3	0	3	2	0	2	4	0	4	0	1	1
38	3	0	3	2	0	2	3	1	4	0	0	0
39	3	0	3	2	0	2	4	0	4	3	1	4
40	3	0	3	2	0	2	4	0	4	2	1	3
41	3	0	3	2	0	2	4	0	4	1	0	1
42	3	0	3	2	0	2	4	0	4	0	3	3
43	3	0	3	2	0	2	3	0	3	0	0	0
44	3	0	3	2	0	2	4	0	4	2	3	5
45	3	0	3	2	0	2	4	0	4	0	2	2
46	3	0	3	2	0	2	4	0	4	1	1	2
47	3	0	3	2	0	2	4	0	4	1	0	1
48	3	0	3	2	0	2	4	0	4	2	2	4
49	3	0	3	2	0	2	4	0	4	0	0	0
50	3	0	3	2	0	2	4	0	4	2	2	4

Table 78 2 CRUDES 4 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.16	0.42	2.58	0.5	0.26	0.76	0.06	0.06	0.12
max	3	2	3	2	1	2	2	1	3
sig	1.13137085	0.702474	1.01196919	0.76264845	0.443087	0.91606969	0.31364	0.24	0.48
sigxb	0.02262742	0.014049	0.02023938	0.01525297	0.008862	0.01832139	0.00627	0.005	0.01
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	0.42		0.26	1.24		0.06	3.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	0	0	0
2	3	0	3	1	1	2	0	0	0
3	0	0	0	0	0	0	0	0	0
4	3	0	3	0	0	0	0	0	0
5	1	2	3	0	0	0	0	0	0
6	3	0	3	1	1	2	0	0	0
7	0	0	0	0	0	0	0	0	0
8	1	2	3	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	0	0	0	0	0	0
11	1	1	2	0	0	0	0	0	0
12	3	0	3	1	1	2	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	0	0	0	0	0	0
15	2	1	3	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0
17	3	0	3	2	0	2	0	0	0
18	2	1	3	0	0	0	0	0	0
19	3	0	3	2	0	2	2	1	3
20	3	0	3	2	0	2	0	0	0
21	1	2	3	0	1	1	0	0	0
22	3	0	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0
25	3	0	3	2	0	2	0	0	0
26	3	0	3	0	1	1	0	0	0
27	3	0	3	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	1	2	3	0	0	0	0	0	0
31	3	0	3	2	0	2	0	1	1
32	0	0	0	0	0	0	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	2	0	2	0	0	0
35	0	0	0	0	0	0	0	0	0
36	3	0	3	2	0	2	0	1	1
37	3	0	3	1	1	2	0	0	0
38	2	1	3	0	1	1	0	0	0
39	2	1	3	0	0	0	0	0	0
40	3	0	3	1	1	2	0	0	0
41	3	0	3	2	0	2	1	0	1
42	2	1	3	0	0	0	0	0	0
43	1	2	3	0	0	0	0	0	0
44	0	1	1	0	0	0	0	0	0
45	3	0	3	1	1	2	0	0	0
46	2	1	3	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0
48	1	2	3	0	0	0	0	0	0
49	3	0	3	1	1	2	0	0	0
50	3	0	3	1	1	2	0	0	0

Table 79 2 CRUDES 4 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	2	0	0	0
xbar	3	0	3	2	0	2	2.2	1.38	3.58	1.2	1	2.2
max	3	0	3	2	0	2	4	4	4	5	3	6
sig	0	0	0	0	0	0	1.17803	1.123	0.673	1.228904	0.8329931	1.456863
sigxb	0	0	0	0	0	0	0.02356	0.022	0.013	0.024578	0.0166599	0.029137
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.38	0.42		1	3.8
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	3	1	4	1	2	3
2	3	0	3	2	0	2	3	1	4	3	0	3
3	3	0	3	2	0	2	2	2	4	3	2	5
4	3	0	3	2	0	2	2	0	2	3	2	5
5	3	0	3	2	0	2	3	1	4	1	1	2
6	3	0	3	2	0	2	4	0	4	2	2	4
7	3	0	3	2	0	2	2	2	4	2	1	3
8	3	0	3	2	0	2	1	1	2	1	0	1
9	3	0	3	2	0	2	4	0	4	1	0	1
10	3	0	3	2	0	2	2	2	4	2	0	2
11	3	0	3	2	0	2	1	3	4	1	0	1
12	3	0	3	2	0	2	4	0	4	5	1	6
13	3	0	3	2	0	2	4	0	4	1	0	1
14	3	0	3	2	0	2	2	2	4	2	1	3
15	3	0	3	2	0	2	1	3	4	0	0	0
16	3	0	3	2	0	2	4	0	4	1	2	3
17	3	0	3	2	0	2	0	4	4	4	0	4
18	3	0	3	2	0	2	2	0	2	1	1	2
19	3	0	3	2	0	2	1	1	2	1	1	2
20	3	0	3	2	0	2	3	1	4	1	2	3
21	3	0	3	2	0	2	4	0	4	1	2	3
22	3	0	3	2	0	2	0	4	4	0	1	1
23	3	0	3	2	0	2	2	1	3	1	1	2
24	3	0	3	2	0	2	2	2	4	0	1	1
25	3	0	3	2	0	2	2	1	3	1	1	2
26	3	0	3	2	0	2	3	1	4	1	2	3
27	3	0	3	2	0	2	1	2	3	0	0	0
28	3	0	3	2	0	2	1	1	2	0	1	1
29	3	0	3	2	0	2	3	1	4	0	3	3
30	3	0	3	2	0	2	4	0	4	1	2	3
31	3	0	3	2	0	2	2	2	4	2	2	4
32	3	0	3	2	0	2	2	2	4	0	3	3
33	3	0	3	2	0	2	3	0	3	0	1	1
34	3	0	3	2	0	2	1	2	3	0	0	0
35	3	0	3	2	0	2	3	1	4	2	1	3
36	3	0	3	2	0	2	2	2	4	1	1	2
37	3	0	3	2	0	2	1	3	4	1	1	2
38	3	0	3	2	0	2	0	3	3	1	0	1
39	3	0	3	2	0	2	2	1	3	0	1	1
40	3	0	3	2	0	2	2	2	4	1	1	2
41	3	0	3	2	0	2	3	1	4	1	0	1
42	3	0	3	2	0	2	1	3	4	1	1	2
43	3	0	3	2	0	2	1	3	4	0	1	1
44	3	0	3	2	0	2	2	1	3	0	1	1
45	3	0	3	2	0	2	4	0	4	4	1	5
46	3	0	3	2	0	2	4	0	4	0	0	0
47	3	0	3	2	0	2	2	2	4	0	0	0
48	3	0	3	2	0	2	1	2	3	4	0	4
49	3	0	3	2	0	2	3	0	3	1	2	3
50	3	0	3	2	0	2	1	2	3	0	1	1

Table 80 2 CRUDES 4 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	4	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	1.94	0.02	1.96	1.58	1.16	2.74
max	3	0	3	2	1	2	4	3	4
sig	0	0	0	0.31363569	0.141421	0.28284271	1.14446	0.842	1.175
sigxb	0	0	0	0.00627271	0.002828	0.00565685	0.02289	0.017	0.023
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.02	0.04		1.16	1.26
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	4	0	4
2	3	0	3	2	0	2	3	0	3
3	3	0	3	2	0	2	0	3	3
4	3	0	3	2	0	2	3	1	4
5	3	0	3	2	0	2	1	2	3
6	3	0	3	2	0	2	2	2	4
7	3	0	3	2	0	2	2	1	3
8	3	0	3	2	0	2	3	1	4
9	3	0	3	2	0	2	2	1	3
10	3	0	3	2	0	2	1	1	2
11	3	0	3	2	0	2	1	2	3
12	3	0	3	2	0	2	2	1	3
13	3	0	3	2	0	2	0	1	1
14	3	0	3	2	0	2	1	0	1
15	3	0	3	2	0	2	3	0	3
16	3	0	3	2	0	2	0	1	1
17	3	0	3	2	0	2	3	1	4
18	3	0	3	2	0	2	2	2	4
19	3	0	3	2	0	2	2	2	4
20	3	0	3	2	0	2	1	2	3
21	3	0	3	2	0	2	2	1	3
22	3	0	3	2	0	2	0	2	2
23	3	0	3	2	0	2	2	0	2
24	3	0	3	2	0	2	1	1	2
25	3	0	3	2	0	2	0	0	0
26	3	0	3	2	0	2	1	2	3
27	3	0	3	2	0	2	0	1	1
28	3	0	3	2	0	2	4	0	4
29	3	0	3	2	0	2	3	1	4
30	3	0	3	2	0	2	3	1	4
31	3	0	3	2	0	2	1	1	2
32	3	0	3	2	0	2	2	1	3
33	3	0	3	2	0	2	0	2	2
34	3	0	3	2	0	2	1	1	2
35	3	0	3	2	0	2	1	2	3
36	3	0	3	2	0	2	1	2	3
37	3	0	3	2	0	2	0	1	1
38	3	0	3	2	0	2	1	1	2
39	3	0	3	2	0	2	3	1	4
40	3	0	3	0	0	0	0	0	0
41	3	0	3	2	0	2	2	1	3
42	3	0	3	2	0	2	3	1	4
43	3	0	3	2	0	2	3	0	3
44	3	0	3	2	0	2	1	2	3
45	3	0	3	2	0	2	2	2	4
46	3	0	3	2	0	2	2	0	2
47	3	0	3	2	0	2	1	3	4
48	3	0	3	1	1	2	0	0	0
49	3	0	3	2	0	2	1	3	4
50	3	0	3	2	0	2	2	1	3

Table 81 2 CRUDES 4 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	4	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	3	0	4	0	0	0
xbar	3	0	3	2	0	2	3.94	0.06	4	1.58	1.28	2.86
max	3	0	3	2	0	2	4	1	4	6	4	6
sig	0	0	0	0	0	0	0.2399	0.24	0	1.295046	0.9697464	1.457003
sigxb	0	0	0	0	0	0	0.0048	0.005	0	0.025901	0.0193949	0.02914
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.06	0		1.28	3.14
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	4	0	4	1	4	5
2	3	0	3	2	0	2	3	1	4	2	0	2
3	3	0	3	2	0	2	4	0	4	1	1	2
4	3	0	3	2	0	2	4	0	4	4	1	5
5	3	0	3	2	0	2	4	0	4	1	1	2
6	3	0	3	2	0	2	4	0	4	1	1	2
7	3	0	3	2	0	2	4	0	4	2	2	4
8	3	0	3	2	0	2	4	0	4	1	3	4
9	3	0	3	2	0	2	4	0	4	2	3	5
10	3	0	3	2	0	2	4	0	4	2	2	4
11	3	0	3	2	0	2	4	0	4	1	1	2
12	3	0	3	2	0	2	4	0	4	3	0	3
13	3	0	3	2	0	2	4	0	4	2	1	3
14	3	0	3	2	0	2	3	1	4	5	1	6
15	3	0	3	2	0	2	4	0	4	1	0	1
16	3	0	3	2	0	2	4	0	4	0	2	2
17	3	0	3	2	0	2	4	0	4	2	2	4
18	3	0	3	2	0	2	4	0	4	2	1	3
19	3	0	3	2	0	2	4	0	4	5	0	5
20	3	0	3	2	0	2	4	0	4	1	1	2
21	3	0	3	2	0	2	4	0	4	1	0	1
22	3	0	3	2	0	2	4	0	4	1	0	1
23	3	0	3	2	0	2	4	0	4	2	3	5
24	3	0	3	2	0	2	4	0	4	0	1	1
25	3	0	3	2	0	2	4	0	4	2	1	3
26	3	0	3	2	0	2	4	0	4	0	3	3
27	3	0	3	2	0	2	4	0	4	2	1	3
28	3	0	3	2	0	2	4	0	4	2	1	3
29	3	0	3	2	0	2	4	0	4	1	2	3
30	3	0	3	2	0	2	4	0	4	1	2	3
31	3	0	3	2	0	2	4	0	4	1	1	2
32	3	0	3	2	0	2	4	0	4	3	1	4
33	3	0	3	2	0	2	4	0	4	2	2	4
34	3	0	3	2	0	2	4	0	4	2	1	3
35	3	0	3	2	0	2	4	0	4	2	1	3
36	3	0	3	2	0	2	4	0	4	1	1	2
37	3	0	3	2	0	2	4	0	4	2	2	4
38	3	0	3	2	0	2	4	0	4	6	0	6
39	3	0	3	2	0	2	4	0	4	1	3	4
40	3	0	3	2	0	2	4	0	4	1	1	2
41	3	0	3	2	0	2	4	0	4	0	1	1
42	3	0	3	2	0	2	4	0	4	0	0	0
43	3	0	3	2	0	2	4	0	4	2	2	4
44	3	0	3	2	0	2	3	1	4	1	1	2
45	3	0	3	2	0	2	4	0	4	0	1	1
46	3	0	3	2	0	2	4	0	4	1	0	1
47	3	0	3	2	0	2	4	0	4	2	1	3
48	3	0	3	2	0	2	4	0	4	0	0	0
49	3	0	3	2	0	2	4	0	4	1	2	3
50	3	0	3	2	0	2	4	0	4	0	2	2

Table 82 2 CRUDES 4 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.9	0.48	2.38	0.22	0.42	0.64	0.06	0.06	0.12
max	3	3	3	2	2	2	2	1	2
sig	1.18235324	0.735125	1.04764069	0.50668994	0.537948	0.69282032	0.31364	0.24	0.385
sigxb	0.02364706	0.014702	0.02095281	0.0101338	0.010759	0.01385641	0.00627	0.005	0.008
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.48	0.62		0.42	1.36		0.06	4.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	1	1	0	0	0
2	3	0	3	0	0	0	0	0	0
3	3	0	3	2	0	2	0	0	0
4	3	0	3	0	0	0	0	0	0
5	0	3	3	0	0	0	0	0	0
6	3	0	3	1	0	1	2	0	2
7	3	0	3	0	1	1	0	0	0
8	2	1	3	0	1	1	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	1	1	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	3	0	3	0	1	1	0	0	0
14	2	1	3	0	0	0	0	0	0
15	3	0	3	1	1	2	0	0	0
16	3	0	3	0	1	1	0	0	0
17	2	0	2	0	1	1	0	0	0
18	2	1	3	0	1	1	0	0	0
19	2	1	3	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0
23	0	2	2	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	1	1	2	0	0	0
26	2	0	2	0	0	0	0	0	0
27	3	0	3	0	2	2	1	0	1
28	3	0	3	0	1	1	0	0	0
29	0	0	0	0	0	0	0	0	0
30	3	0	3	1	1	2	0	0	0
31	3	0	3	0	1	1	0	0	0
32	1	2	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	1	1	2	0	1	1	0	0	0
35	3	0	3	2	0	2	0	1	1
36	2	1	3	0	1	1	0	0	0
37	0	1	1	0	0	0	0	0	0
38	2	0	2	0	1	1	0	0	0
39	3	0	3	0	1	1	0	0	0
40	3	0	3	1	0	1	0	1	1
41	1	1	2	0	0	0	0	0	0
42	1	1	2	0	0	0	0	0	0
43	3	0	3	0	0	0	0	1	1
44	1	0	1	0	0	0	0	0	0
45	1	2	3	0	0	0	0	0	0
46	3	0	3	1	0	1	0	0	0
47	3	0	3	0	1	1	0	0	0
48	3	0	3	1	0	1	0	0	0
49	1	2	3	0	1	1	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 83 2 CRUDES 5 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	1	0	2	0	0	0
xbar	3	0	3	2	0	2	4.44	0.4	4.84	0.78	0.76	1.54
max	3	0	3	2	0	2	5	3	5	4	3	6
sig	0	0	0	0	0	0	0.97227	0.7	0.548	1.111902	1.0012237	1.631451
sigxb	0	0	0	0	0	0	0.01945	0.014	0.011	0.022238	0.0200245	0.032629
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.4	0.16		0.76	5.46
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	0	0	0
2	3	0	3	2	0	2	5	0	5	1	1	2
3	3	0	3	2	0	2	3	2	5	0	0	0
4	3	0	3	2	0	2	2	3	5	0	0	0
5	3	0	3	2	0	2	5	0	5	2	1	3
6	3	0	3	2	0	2	5	0	5	0	1	1
7	3	0	3	2	0	2	4	1	5	0	0	0
8	3	0	3	2	0	2	5	0	5	0	1	1
9	3	0	3	2	0	2	4	1	5	0	2	2
10	3	0	3	2	0	2	5	0	5	1	0	1
11	3	0	3	2	0	2	5	0	5	0	3	3
12	3	0	3	2	0	2	5	0	5	2	1	3
13	3	0	3	2	0	2	3	1	4	0	0	0
14	3	0	3	2	0	2	5	0	5	0	0	0
15	3	0	3	2	0	2	5	0	5	0	0	0
16	3	0	3	2	0	2	5	0	5	1	0	1
17	3	0	3	2	0	2	5	0	5	3	1	4
18	3	0	3	2	0	2	5	0	5	1	0	1
19	3	0	3	2	0	2	5	0	5	0	3	3
20	3	0	3	2	0	2	5	0	5	4	0	4
21	3	0	3	2	0	2	5	0	5	1	2	3
22	3	0	3	2	0	2	5	0	5	2	1	3
23	3	0	3	2	0	2	3	2	5	0	0	0
24	3	0	3	2	0	2	5	0	5	0	0	0
25	3	0	3	2	0	2	4	1	5	2	1	3
26	3	0	3	2	0	2	5	0	5	0	0	0
27	3	0	3	2	0	2	4	1	5	0	0	0
28	3	0	3	2	0	2	5	0	5	0	2	2
29	3	0	3	2	0	2	5	0	5	0	3	3
30	3	0	3	2	0	2	1	1	2	0	0	0
31	3	0	3	2	0	2	5	0	5	2	0	2
32	3	0	3	2	0	2	5	0	5	3	1	4
33	3	0	3	2	0	2	4	1	5	0	1	1
34	3	0	3	2	0	2	5	0	5	4	2	6
35	3	0	3	2	0	2	5	0	5	3	2	5
36	3	0	3	2	0	2	5	0	5	1	3	4
37	3	0	3	2	0	2	5	0	5	1	1	2
38	3	0	3	2	0	2	5	0	5	1	1	2
39	3	0	3	2	0	2	5	0	5	1	0	1
40	3	0	3	2	0	2	4	1	5	0	0	0
41	3	0	3	2	0	2	5	0	5	1	1	2
42	3	0	3	2	0	2	4	1	5	0	0	0
43	3	0	3	2	0	2	5	0	5	1	3	4
44	3	0	3	2	0	2	4	1	5	0	0	0
45	3	0	3	2	0	2	5	0	5	1	0	1
46	3	0	3	2	0	2	5	0	5	0	0	0
47	3	0	3	2	0	2	3	0	3	0	0	0
48	3	0	3	2	0	2	2	2	4	0	0	0
49	3	0	3	2	0	2	5	0	5	0	0	0
50	3	0	3	2	0	2	3	1	4	0	0	0

Table 84 2 CRUDES 5 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	2	0	3	0	0	0	0	0	0
xbar	2.98	0.02	3	0.94	0.6	1.54	1.48	1.68	3.16
max	3	1	3	2	2	2	4	4	5
sig	0.14142136	0.141421	0	0.76691803	0.670059	0.70595138	1.07362	1.285	1.448
sigxb	0.00282843	0.002828	0	0.01533836	0.013401	0.01411903	0.02147	0.026	0.029
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.02	0		0.6	0.46		1.68	1.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	1	2	2	2	4
2	3	0	3	2	0	2	2	0	2
3	3	0	3	2	0	2	3	2	5
4	3	0	3	1	1	2	2	1	3
5	3	0	3	2	0	2	1	0	1
6	3	0	3	1	1	2	2	1	3
7	3	0	3	1	1	2	0	4	4
8	3	0	3	0	0	0	0	2	2
9	3	0	3	2	0	2	2	0	2
10	3	0	3	1	0	1	3	2	5
11	3	0	3	0	2	2	1	4	5
12	3	0	3	0	1	1	2	2	4
13	3	0	3	2	0	2	0	0	0
14	3	0	3	0	0	0	1	2	3
15	3	0	3	1	1	2	1	4	5
16	3	0	3	1	1	2	2	1	3
17	3	0	3	2	0	2	4	0	4
18	3	0	3	2	0	2	1	3	4
19	3	0	3	0	2	2	2	1	3
20	3	0	3	2	0	2	2	0	2
21	3	0	3	2	0	2	3	1	4
22	3	0	3	1	1	2	0	4	4
23	3	0	3	1	1	2	2	2	4
24	2	1	3	0	0	0	0	0	0
25	3	0	3	0	2	2	1	3	4
26	3	0	3	1	1	2	0	4	4
27	3	0	3	1	1	2	1	2	3
28	3	0	3	1	1	2	3	2	5
29	3	0	3	1	0	1	2	2	4
30	3	0	3	0	2	2	1	2	3
31	3	0	3	1	1	2	2	1	3
32	3	0	3	0	1	1	1	2	3
33	3	0	3	2	0	2	2	3	5
34	3	0	3	0	2	2	2	1	3
35	3	0	3	1	1	2	2	3	5
36	3	0	3	0	0	0	0	1	1
37	3	0	3	1	0	1	0	1	1
38	3	0	3	2	0	2	3	0	3
39	3	0	3	1	0	1	2	0	2
40	3	0	3	1	0	1	2	2	4
41	3	0	3	1	0	1	4	1	5
42	3	0	3	1	1	2	2	1	3
43	3	0	3	0	1	1	1	3	4
44	3	0	3	2	0	2	2	2	4
45	3	0	3	0	0	0	0	3	3
46	3	0	3	0	1	1	0	0	0
47	3	0	3	2	0	2	1	4	5
48	3	0	3	0	1	1	1	1	2
49	3	0	3	1	1	2	1	2	3
50	3	0	3	0	0	0	0	0	0

Table 85 2 CRUDES 5 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	4	0	5	0	0	0
xbar	3	0	3	2	0	2	4.92	0.08	5	0.92	0.6	1.52
max	3	0	3	2	0	2	5	1	5	5	3	7
sig	0	0	0	0	0	0	0.27405	0.274	0	1.209486	0.7559289	1.76404
sigxb	0	0	0	0	0	0	0.00548	0.005	0	0.02419	0.0151186	0.035281
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.08	0		0.6	5.48
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	0	0	0
2	3	0	3	2	0	2	5	0	5	1	1	2
3	3	0	3	2	0	2	5	0	5	0	0	0
4	3	0	3	2	0	2	5	0	5	0	0	0
5	3	0	3	2	0	2	5	0	5	2	0	2
6	3	0	3	2	0	2	5	0	5	0	1	1
7	3	0	3	2	0	2	5	0	5	0	0	0
8	3	0	3	2	0	2	5	0	5	0	0	0
9	3	0	3	2	0	2	4	1	5	0	0	0
10	3	0	3	2	0	2	5	0	5	0	0	0
11	3	0	3	2	0	2	5	0	5	1	0	1
12	3	0	3	2	0	2	5	0	5	2	1	3
13	3	0	3	2	0	2	5	0	5	0	0	0
14	3	0	3	2	0	2	5	0	5	2	1	3
15	3	0	3	2	0	2	5	0	5	1	2	3
16	3	0	3	2	0	2	5	0	5	1	1	2
17	3	0	3	2	0	2	5	0	5	0	1	1
18	3	0	3	2	0	2	4	1	5	0	0	0
19	3	0	3	2	0	2	5	0	5	0	0	0
20	3	0	3	2	0	2	5	0	5	0	0	0
21	3	0	3	2	0	2	5	0	5	1	1	2
22	3	0	3	2	0	2	5	0	5	0	0	0
23	3	0	3	2	0	2	5	0	5	0	0	0
24	3	0	3	2	0	2	5	0	5	0	0	0
25	3	0	3	2	0	2	5	0	5	2	2	4
26	3	0	3	2	0	2	5	0	5	1	1	2
27	3	0	3	2	0	2	5	0	5	1	1	2
28	3	0	3	2	0	2	5	0	5	2	0	2
29	3	0	3	2	0	2	4	1	5	0	0	0
30	3	0	3	2	0	2	5	0	5	2	2	4
31	3	0	3	2	0	2	5	0	5	1	0	1
32	3	0	3	2	0	2	5	0	5	0	0	0
33	3	0	3	2	0	2	5	0	5	0	1	1
34	3	0	3	2	0	2	5	0	5	0	0	0
35	3	0	3	2	0	2	5	0	5	1	1	2
36	3	0	3	2	0	2	5	0	5	3	1	4
37	3	0	3	2	0	2	5	0	5	2	1	3
38	3	0	3	2	0	2	4	1	5	0	0	0
39	3	0	3	2	0	2	5	0	5	0	1	1
40	3	0	3	2	0	2	5	0	5	5	1	6
41	3	0	3	2	0	2	5	0	5	2	1	3
42	3	0	3	2	0	2	5	0	5	0	0	0
43	3	0	3	2	0	2	5	0	5	0	0	0
44	3	0	3	2	0	2	5	0	5	3	2	5
45	3	0	3	2	0	2	5	0	5	0	0	0
46	3	0	3	2	0	2	5	0	5	4	3	7
47	3	0	3	2	0	2	5	0	5	0	0	0
48	3	0	3	2	0	2	5	0	5	3	0	3
49	3	0	3	2	0	2	5	0	5	2	1	3
50	3	0	3	2	0	2	5	0	5	1	2	3

Table 86 2 CRUDES 5 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.76	0.14	2.9	0.96	0.38	1.34	0.44	0.58	1.02
max	3	2	3	2	1	2	2	2	4
sig	0.62466317	0.404566	0.46291005	0.8797031	0.490314	0.79821229	0.67491	0.758	1.134
sigxb	0.01249326	0.008091	0.0092582	0.01759406	0.009806	0.01596425	0.0135	0.015	0.023
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.14	0.1		0.38	0.66		0.58	3.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	2	2	4
2	3	0	3	0	1	1	0	0	0
3	0	0	0	0	0	0	0	0	0
4	3	0	3	1	0	1	0	0	0
5	3	0	3	2	0	2	0	2	2
6	2	0	2	0	1	1	0	0	0
7	3	0	3	1	1	2	0	1	1
8	3	0	3	0	0	0	0	0	0
9	3	0	3	1	1	2	1	1	2
10	3	0	3	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0
12	3	0	3	0	1	1	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	0	1	1	0	0	0
15	3	0	3	1	0	1	0	0	0
16	2	1	3	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	3	0	3	1	1	2	1	0	1
19	3	0	3	2	0	2	0	1	1
20	3	0	3	1	1	2	2	1	3
21	3	0	3	2	0	2	2	2	4
22	3	0	3	2	0	2	0	1	1
23	1	1	2	0	0	0	0	0	0
24	3	0	3	2	0	2	2	0	2
25	3	0	3	1	1	2	0	0	0
26	3	0	3	0	0	0	0	2	2
27	3	0	3	1	1	2	0	2	2
28	2	1	3	0	1	1	0	0	0
29	3	0	3	2	0	2	1	0	1
30	3	0	3	1	1	2	0	0	0
31	3	0	3	1	0	1	0	0	0
32	3	0	3	0	1	1	0	0	0
33	1	2	3	0	0	0	0	0	0
34	3	0	3	2	0	2	1	0	1
35	3	0	3	2	0	2	1	1	2
36	3	0	3	2	0	2	0	2	2
37	3	0	3	0	1	1	0	0	0
38	3	0	3	1	1	2	0	2	2
39	3	0	3	1	1	2	2	1	3
40	3	0	3	2	0	2	1	1	2
41	3	0	3	2	0	2	1	0	1
42	2	1	3	0	0	0	0	0	0
43	3	0	3	2	0	2	0	2	2
44	3	0	3	2	0	2	1	1	2
45	3	0	3	2	0	2	1	0	1
46	3	0	3	0	1	1	0	1	1
47	2	1	3	0	0	0	0	0	0
48	3	0	3	2	0	2	1	1	2
49	3	0	3	2	0	2	1	1	2
50	3	0	3	2	0	2	1	1	2

Table 87 2 CRUDES 5 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	2	0	5	0	0	0
xbar	3	0	3	2	0	2	4.76	0.24	5	1.14	0.82	1.96
max	3	0	3	2	0	2	5	3	5	4	4	7
sig	0	0	0	0	0	0	0.62466	0.625	0	1.385199	0.9833305	2.009772
sigxb	0	0	0	0	0	0	0.01249	0.012	0	0.027704	0.0196666	0.040195
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.24	0		0.82	5.04
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	0	0	0
2	3	0	3	2	0	2	2	3	5	0	0	0
3	3	0	3	2	0	2	5	0	5	1	1	2
4	3	0	3	2	0	2	4	1	5	0	0	0
5	3	0	3	2	0	2	3	2	5	0	0	0
6	3	0	3	2	0	2	5	0	5	1	1	2
7	3	0	3	2	0	2	5	0	5	0	1	1
8	3	0	3	2	0	2	4	1	5	0	0	0
9	3	0	3	2	0	2	5	0	5	1	2	3
10	3	0	3	2	0	2	5	0	5	4	1	5
11	3	0	3	2	0	2	5	0	5	2	0	2
12	3	0	3	2	0	2	5	0	5	2	1	3
13	3	0	3	2	0	2	5	0	5	1	0	1
14	3	0	3	2	0	2	5	0	5	0	1	1
15	3	0	3	2	0	2	5	0	5	0	0	0
16	3	0	3	2	0	2	5	0	5	2	2	4
17	3	0	3	2	0	2	4	1	5	0	0	0
18	3	0	3	2	0	2	3	2	5	0	0	0
19	3	0	3	2	0	2	5	0	5	0	0	0
20	3	0	3	2	0	2	5	0	5	1	2	3
21	3	0	3	2	0	2	5	0	5	0	1	1
22	3	0	3	2	0	2	5	0	5	0	0	0
23	3	0	3	2	0	2	5	0	5	4	1	5
24	3	0	3	2	0	2	5	0	5	4	0	4
25	3	0	3	2	0	2	5	0	5	0	0	0
26	3	0	3	2	0	2	5	0	5	2	1	3
27	3	0	3	2	0	2	5	0	5	3	3	6
28	3	0	3	2	0	2	5	0	5	0	0	0
29	3	0	3	2	0	2	5	0	5	0	1	1
29	3	0	3	2	0	2	5	0	5	0	1	1
29	3	0	3	2	0	2	5	0	5	3	2	5
32	3	0	3	2	0	2	4	1	5	0	1	1
33	3	0	3	2	0	2	5	0	5	2	0	2
34	3	0	3	2	0	2	5	0	5	0	0	0
35	3	0	3	2	0	2	5	0	5	1	1	2
36	3	0	3	2	0	2	5	0	5	2	4	6
37	3	0	3	2	0	2	5	0	5	3	1	4
38	3	0	3	2	0	2	4	1	5	0	0	0
39	3	0	3	2	0	2	5	0	5	0	1	1
40	3	0	3	2	0	2	5	0	5	0	1	1
41	3	0	3	2	0	2	5	0	5	3	0	3
42	3	0	3	2	0	2	5	0	5	1	0	1
43	3	0	3	2	0	2	5	0	5	4	1	5
44	3	0	3	2	0	2	5	0	5	3	1	4
45	3	0	3	2	0	2	5	0	5	3	4	7
46	3	0	3	2	0	2	5	0	5	0	1	1
47	3	0	3	2	0	2	5	0	5	3	2	5
48	3	0	3	2	0	2	5	0	5	0	0	0
49	3	0	3	2	0	2	5	0	5	1	1	2
50	3	0	3	2	0	2	5	0	5	0	0	0

Table 88 2 CRUDES 5 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	3	0	3	0	0	1	0	0	2
xbar	3	0	3	1.74	0.24	1.98	3.26	1.2	4.46
max	3	0	3	2	2	2	5	4	5
sig	0	0	0	0.52721835	0.476381	0.14142136	1.27471	0.969	0.838
sigxb	0	0	0	0.01054437	0.009528	0.00282843	0.02549	0.019	0.017
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.24	0.02		1.2	0.54
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	5	0	5
2	3	0	3	2	0	2	5	0	5
3	3	0	3	0	2	2	1	1	2
4	3	0	3	2	0	2	2	2	4
5	3	0	3	2	0	2	5	0	5
6	3	0	3	1	1	2	5	0	5
7	3	0	3	1	1	2	4	1	5
8	3	0	3	2	0	2	4	1	5
9	3	0	3	1	1	2	3	2	5
10	3	0	3	2	0	2	3	2	5
11	3	0	3	2	0	2	4	1	5
12	3	0	3	2	0	2	3	2	5
13	3	0	3	2	0	2	4	1	5
14	3	0	3	2	0	2	2	2	4
15	3	0	3	2	0	2	4	1	5
16	3	0	3	1	1	2	4	1	5
17	3	0	3	1	1	2	0	4	4
18	3	0	3	2	0	2	3	0	3
19	3	0	3	2	0	2	4	1	5
20	3	0	3	2	0	2	2	2	4
21	3	0	3	2	0	2	2	2	4
22	3	0	3	2	0	2	2	3	5
23	3	0	3	1	1	2	4	1	5
24	3	0	3	2	0	2	1	3	4
25	3	0	3	2	0	2	3	0	3
26	3	0	3	2	0	2	4	0	4
27	3	0	3	2	0	2	3	2	5
28	3	0	3	2	0	2	4	1	5
29	3	0	3	2	0	2	3	1	4
30	3	0	3	1	1	2	3	1	4
31	3	0	3	2	0	2	1	3	4
32	3	0	3	2	0	2	4	1	5
33	3	0	3	2	0	2	4	1	5
34	3	0	3	1	1	2	1	1	2
35	3	0	3	2	0	2	4	1	5
36	3	0	3	2	0	2	5	0	5
37	3	0	3	2	0	2	5	0	5
38	3	0	3	2	0	2	5	0	5
39	3	0	3	2	0	2	4	1	5
40	3	0	3	2	0	2	4	0	4
41	3	0	3	2	0	2	3	2	5
42	3	0	3	2	0	2	3	2	5
43	3	0	3	2	0	2	4	1	5
44	3	0	3	0	1	1	5	0	5
45	3	0	3	2	0	2	3	0	3
46	3	0	3	1	1	2	1	2	3
47	3	0	3	2	0	2	2	1	3
48	3	0	3	2	0	2	3	2	5
49	3	0	3	2	0	2	3	2	5
50	3	0	3	2	0	2	3	2	5

Table 89 2 CRUDES 5 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	4	0	5	0	0	0
xbar	3	0	3	2	0	2	4.94	0.06	5	0.92	0.94	1.86
max	3	0	3	2	0	2	5	1	5	4	4	6
sig	0	0	0	0	0	0	0.2399	0.24	0	1.15776	1.0956314	2.000102
sigxb	0	0	0	0	0	0	0.0048	0.005	0	0.023155	0.0219126	0.040002
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.06	0		0.94	5.14
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	0	0	0
2	3	0	3	2	0	2	5	0	5	0	0	0
3	3	0	3	2	0	2	5	0	5	1	1	2
4	3	0	3	2	0	2	5	0	5	0	0	0
5	3	0	3	2	0	2	5	0	5	0	0	0
6	3	0	3	2	0	2	5	0	5	0	0	0
7	3	0	3	2	0	2	5	0	5	0	2	2
8	3	0	3	2	0	2	5	0	5	0	0	0
9	3	0	3	2	0	2	5	0	5	2	3	5
10	3	0	3	2	0	2	4	1	5	0	0	0
11	3	0	3	2	0	2	5	0	5	0	0	0
12	3	0	3	2	0	2	5	0	5	3	3	6
13	3	0	3	2	0	2	5	0	5	0	0	0
14	3	0	3	2	0	2	4	1	5	0	0	0
15	3	0	3	2	0	2	5	0	5	0	1	1
16	3	0	3	2	0	2	5	0	5	0	0	0
17	3	0	3	2	0	2	5	0	5	0	0	0
18	3	0	3	2	0	2	5	0	5	0	1	1
19	3	0	3	2	0	2	5	0	5	0	0	0
20	3	0	3	2	0	2	5	0	5	4	0	4
21	3	0	3	2	0	2	4	1	5	0	0	0
22	3	0	3	2	0	2	5	0	5	2	1	3
23	3	0	3	2	0	2	5	0	5	0	1	1
24	3	0	3	2	0	2	5	0	5	1	1	2
25	3	0	3	2	0	2	5	0	5	0	0	0
26	3	0	3	2	0	2	5	0	5	2	2	4
27	3	0	3	2	0	2	5	0	5	0	0	0
28	3	0	3	2	0	2	5	0	5	3	1	4
29	3	0	3	2	0	2	5	0	5	2	4	6
30	3	0	3	2	0	2	5	0	5	1	2	3
31	3	0	3	2	0	2	5	0	5	1	2	3
32	3	0	3	2	0	2	5	0	5	2	1	3
33	3	0	3	2	0	2	5	0	5	0	2	2
34	3	0	3	2	0	2	5	0	5	0	0	0
35	3	0	3	2	0	2	5	0	5	2	2	4
36	3	0	3	2	0	2	5	0	5	0	0	0
37	3	0	3	2	0	2	5	0	5	0	0	0
38	3	0	3	2	0	2	5	0	5	3	1	4
39	3	0	3	2	0	2	5	0	5	0	0	0
40	3	0	3	2	0	2	5	0	5	2	2	4
41	3	0	3	2	0	2	5	0	5	2	2	4
42	3	0	3	2	0	2	5	0	5	3	3	6
43	3	0	3	2	0	2	5	0	5	1	0	1
44	3	0	3	2	0	2	5	0	5	2	0	2
45	3	0	3	2	0	2	5	0	5	2	2	4
46	3	0	3	2	0	2	5	0	5	0	0	0
47	3	0	3	2	0	2	5	0	5	1	1	2
48	3	0	3	2	0	2	5	0	5	3	3	6
49	3	0	3	2	0	2	5	0	5	1	1	2
50	3	0	3	2	0	2	5	0	5	0	2	2

Table 90 2 CRUDES 5 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.98	0.44	2.42	0.38	0.44	0.82	0.06	0	0.06
max	3	3	3	2	2	2	2	0	2
sig	1.18648856	0.7329	1.10822528	0.63535303	0.611455	0.87341694	0.31364	0	0.314
sigxb	0.02372977	0.014658	0.02216451	0.01270706	0.012229	0.01746834	0.00627	0	0.006
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.44	0.58		0.44	1.18		0	4.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	0	2	2	0	0	0
4	3	0	3	2	0	2	0	0	0
5	2	0	2	0	2	2	0	0	0
6	3	0	3	0	0	0	0	0	0
7	3	0	3	0	1	1	0	0	0
8	3	0	3	1	0	1	0	0	0
9	3	0	3	1	1	2	0	0	0
10	3	0	3	0	1	1	0	0	0
11	3	0	3	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	1	1	2	0	0	0	0	0	0
14	3	0	3	2	0	2	0	0	0
15	0	0	0	0	0	0	0	0	0
16	1	2	3	0	0	0	0	0	0
17	2	1	3	0	1	1	0	0	0
18	1	1	2	0	0	0	0	0	0
19	2	1	3	0	1	1	0	0	0
20	2	0	2	0	1	1	0	0	0
21	0	0	0	0	0	0	0	0	0
22	2	1	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	0	1	1	0	0	0
25	2	1	3	1	0	1	0	0	0
26	1	2	3	0	1	1	0	0	0
27	0	0	0	0	0	0	0	0	0
28	3	0	3	1	1	2	0	0	0
29	3	0	3	0	0	0	0	0	0
30	0	3	3	0	0	0	0	0	0
31	2	1	3	0	1	1	0	0	0
32	2	1	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	3	0	3	2	0	2	2	0	2
35	3	0	3	1	1	2	0	0	0
36	1	2	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	0	2	2	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	1	1	2	0	0	0
42	3	0	3	1	1	2	0	0	0
43	3	0	3	2	0	2	1	0	1
44	3	0	3	0	2	2	0	0	0
45	0	0	0	0	0	0	0	0	0
46	2	1	3	1	0	1	0	0	0
47	3	0	3	1	1	2	0	0	0
48	3	0	3	1	1	2	0	0	0
49	2	1	3	0	0	0	0	0	0
50	3	0	3	1	1	2	0	0	0

Table 91 2 CRUDES 5 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	0	0	0	0	0	0
xbar	3	0	3	2	0	2	2.34	1.46	3.8	1.88	1.08	2.96
max	3	0	3	2	0	2	5	4	5	5	4	6
sig	0	0	0	0	0	0	1.49298	1.147	1.37	1.334625	0.9864387	1.689825
sigxb	0	0	0	0	0	0	0.02986	0.023	0.027	0.026693	0.0197288	0.033797
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.46	1.2		1.08	4.04
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	1	3	1	1	2
2	3	0	3	2	0	2	1	3	4	1	1	2
3	3	0	3	2	0	2	0	2	2	1	1	2
4	3	0	3	2	0	2	3	1	4	1	0	1
5	3	0	3	2	0	2	2	1	3	1	2	3
6	3	0	3	2	0	2	5	0	5	3	2	5
7	3	0	3	2	0	2	0	2	2	1	1	2
8	3	0	3	2	0	2	4	1	5	3	2	5
9	3	0	3	2	0	2	2	2	4	2	1	3
10	3	0	3	2	0	2	5	0	5	3	1	4
11	3	0	3	2	0	2	4	1	5	3	1	4
12	3	0	3	2	0	2	4	1	5	2	4	6
13	3	0	3	2	0	2	4	1	5	4	2	6
14	3	0	3	2	0	2	1	1	2	0	1	1
15	3	0	3	2	0	2	1	2	3	1	2	3
16	3	0	3	2	0	2	1	4	5	1	1	2
17	3	0	3	2	0	2	2	2	4	2	1	3
18	3	0	3	2	0	2	1	1	2	1	1	2
19	3	0	3	2	0	2	2	3	5	1	0	1
20	3	0	3	2	0	2	2	3	5	3	0	3
21	3	0	3	2	0	2	4	0	4	1	4	5
22	3	0	3	2	0	2	4	0	4	2	2	4
23	3	0	3	2	0	2	5	0	5	4	1	5
24	3	0	3	2	0	2	2	3	5	4	1	5
25	3	0	3	2	0	2	0	0	0	0	0	0
26	3	0	3	2	0	2	4	1	5	2	1	3
27	3	0	3	2	0	2	1	0	1	0	0	0
28	3	0	3	2	0	2	4	0	4	3	0	3
29	3	0	3	2	0	2	2	1	3	1	1	2
30	3	0	3	2	0	2	2	3	5	1	3	4
31	3	0	3	2	0	2	2	3	5	5	0	5
32	3	0	3	2	0	2	1	2	3	1	1	2
33	3	0	3	2	0	2	1	3	4	0	3	3
34	3	0	3	2	0	2	0	2	2	0	0	0
35	3	0	3	2	0	2	2	2	4	0	0	0
36	3	0	3	2	0	2	5	0	5	3	1	4
37	3	0	3	2	0	2	2	3	5	1	0	1
38	3	0	3	2	0	2	3	2	5	4	0	4
39	3	0	3	2	0	2	1	1	2	2	0	2
40	3	0	3	2	0	2	3	0	3	2	1	3
41	3	0	3	2	0	2	1	3	4	2	1	3
42	3	0	3	2	0	2	3	1	4	3	1	4
43	3	0	3	2	0	2	4	1	5	4	2	6
44	3	0	3	2	0	2	2	2	4	3	1	4
45	3	0	3	2	0	2	1	4	5	1	1	2
46	3	0	3	2	0	2	2	1	3	2	2	4
47	3	0	3	2	0	2	4	1	5	3	1	4
48	3	0	3	2	0	2	4	1	5	4	1	5
49	3	0	3	2	0	2	2	1	3	1	0	1
50	3	0	3	2	0	2	0	0	0	0	0	0

Table 92 2 CRUDES 5 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	3	0	3	0	0	1	0	0	0
xbar	3	0	3	1.82	0.16	1.98	0.68	1.3	1.98
max	3	0	3	3	2	3	3	3	5
sig	0	0	0	0.56024776	0.421852	0.24660966	0.89077	1.093	1.436
sigxb	0	0	0	0.01120496	0.008437	0.00493219	0.01782	0.022	0.029
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.16	0.02		1.3	3.02
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	0	1	1
2	3	0	3	1	1	2	0	1	1
3	3	0	3	0	1	1	0	0	0
4	3	0	3	2	0	2	0	3	3
5	3	0	3	2	0	2	1	3	4
6	3	0	3	2	0	2	1	2	3
7	3	0	3	2	0	2	1	3	4
8	3	0	3	2	0	2	1	0	1
9	3	0	3	2	0	2	0	1	1
10	3	0	3	2	0	2	0	3	3
11	3	0	3	2	0	2	2	3	5
12	3	0	3	1	1	2	0	1	1
13	3	0	3	1	1	2	2	1	3
14	3	0	3	2	0	2	2	2	4
15	3	0	3	2	0	2	0	1	1
16	3	0	3	2	0	2	2	1	3
17	3	0	3	2	0	2	0	1	1
18	3	0	3	2	0	2	2	2	4
19	3	0	3	2	0	2	0	2	2
20	3	0	3	1	1	2	0	0	0
21	3	0	3	2	0	2	1	1	2
22	3	0	3	2	0	2	1	3	4
23	3	0	3	2	0	2	0	2	2
24	3	0	3	2	0	2	0	0	0
25	3	0	3	2	0	2	0	3	3
26	3	0	3	2	0	2	0	0	0
27	3	0	3	2	0	2	0	2	2
28	3	0	3	2	0	2	1	3	4
29	3	0	3	2	0	2	2	1	3
30	3	0	3	2	0	2	2	0	2
31	3	0	3	2	0	2	0	2	2
32	3	0	3	2	0	2	0	2	2
33	3	0	3	2	0	2	0	2	2
34	3	0	3	2	0	2	2	3	5
35	3	0	3	3	0	3	1	2	3
36	3	0	3	2	0	2	0	1	1
37	3	0	3	0	1	1	0	0	0
38	3	0	3	2	0	2	0	1	1
39	3	0	3	2	0	2	2	0	2
40	3	0	3	2	0	2	2	0	2
41	3	0	3	2	0	2	0	1	1
42	3	0	3	2	0	2	0	0	0
43	3	0	3	2	0	2	0	2	2
44	3	0	3	0	2	2	0	0	0
45	3	0	3	2	0	2	1	0	1
46	3	0	3	2	0	2	0	0	0
47	3	0	3	2	0	2	0	0	0
48	3	0	3	2	0	2	3	1	4
49	3	0	3	2	0	2	0	2	2
50	3	0	3	2	0	2	2	0	2

Table 93 2 CRUDES 5 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	3	0	5	0	0	0
xbar	3	0	3	2	0	2	4.74	0.26	5	1.4	1.38	2.78
max	3	0	3	2	0	2	5	2	5	5	4	6
sig	0	0	0	0	0	0	0.52722	0.527	0	1.293626	1.1228608	1.488596
sigxb	0	0	0	0	0	0	0.01054	0.011	0	0.025873	0.0224572	0.029772
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.26	0		1.38	4.22
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	1	0	1
2	3	0	3	2	0	2	5	0	5	3	1	4
3	3	0	3	2	0	2	3	2	5	1	0	1
4	3	0	3	2	0	2	5	0	5	0	2	2
5	3	0	3	2	0	2	4	1	5	1	1	2
6	3	0	3	2	0	2	4	1	5	0	1	1
7	3	0	3	2	0	2	4	1	5	0	1	1
8	3	0	3	2	0	2	5	0	5	3	1	4
9	3	0	3	2	0	2	5	0	5	3	0	3
10	3	0	3	2	0	2	5	0	5	1	1	2
11	3	0	3	2	0	2	5	0	5	0	4	4
12	3	0	3	2	0	2	5	0	5	0	2	2
13	3	0	3	2	0	2	5	0	5	2	2	4
14	3	0	3	2	0	2	3	2	5	1	0	1
15	3	0	3	2	0	2	5	0	5	1	0	1
16	3	0	3	2	0	2	5	0	5	1	0	1
17	3	0	3	2	0	2	5	0	5	0	2	2
18	3	0	3	2	0	2	5	0	5	0	2	2
19	3	0	3	2	0	2	4	1	5	0	0	0
20	3	0	3	2	0	2	5	0	5	1	1	2
21	3	0	3	2	0	2	5	0	5	0	2	2
22	3	0	3	2	0	2	5	0	5	3	2	5
23	3	0	3	2	0	2	5	0	5	0	4	4
24	3	0	3	2	0	2	5	0	5	0	2	2
25	3	0	3	2	0	2	5	0	5	0	1	1
26	3	0	3	2	0	2	5	0	5	3	0	3
27	3	0	3	2	0	2	5	0	5	1	1	2
28	3	0	3	2	0	2	5	0	5	1	2	3
29	3	0	3	2	0	2	5	0	5	2	0	2
30	3	0	3	2	0	2	5	0	5	5	1	6
31	3	0	3	2	0	2	4	1	5	1	1	2
32	3	0	3	2	0	2	4	1	5	1	1	2
33	3	0	3	2	0	2	4	1	5	2	0	2
34	3	0	3	2	0	2	4	1	5	4	1	5
35	3	0	3	2	0	2	5	0	5	1	2	3
36	3	0	3	2	0	2	5	0	5	2	2	4
37	3	0	3	2	0	2	5	0	5	0	1	1
38	3	0	3	2	0	2	5	0	5	2	3	5
39	3	0	3	2	0	2	5	0	5	2	3	5
40	3	0	3	2	0	2	5	0	5	2	2	4
41	3	0	3	2	0	2	4	1	5	2	1	3
42	3	0	3	2	0	2	5	0	5	3	2	5
43	3	0	3	2	0	2	5	0	5	0	4	4
44	3	0	3	2	0	2	5	0	5	1	2	3
45	3	0	3	2	0	2	5	0	5	0	1	1
46	3	0	3	2	0	2	5	0	5	3	3	6
47	3	0	3	2	0	2	5	0	5	1	3	4
48	3	0	3	2	0	2	5	0	5	4	0	4
49	3	0	3	2	0	2	5	0	5	2	1	3
50	3	0	3	2	0	2	5	0	5	3	0	3

Table 94 2 CRUDES 5 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	0	0	2	0	0	0	0	0	0
xbar	2.58	0.36	2.94	0.92	0.28	1.2	0.08	0.16	0.24
max	3	2	3	2	2	2	1	2	3
sig	0.75835483	0.662709	0.23989794	0.92228642	0.496518	0.9258201	0.27405	0.422	0.591
sigxb	0.0151671	0.013254	0.00479796	0.01844573	0.00993	0.0185164	0.00548	0.008	0.012
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.36	0.06		0.28	0.8		0.16	4.76
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	1	2	0	0	0	0	0	0
2	3	0	3	2	0	2	1	1	2
3	3	0	3	1	1	2	0	0	0
4	3	0	3	0	0	0	0	0	0
5	3	0	3	1	0	1	0	0	0
6	3	0	3	2	0	2	0	1	1
7	2	1	3	0	0	0	0	0	0
8	3	0	3	1	1	2	0	0	0
9	3	0	3	2	0	2	1	0	1
10	0	2	2	0	0	0	0	0	0
11	3	0	3	2	0	2	0	0	0
12	3	0	3	2	0	2	0	0	0
13	3	0	3	2	0	2	0	0	0
14	3	0	3	2	0	2	1	0	1
15	3	0	3	1	1	2	0	0	0
16	2	1	3	0	0	0	0	0	0
17	2	1	3	0	0	0	0	0	0
18	3	0	3	2	0	2	0	0	0
19	3	0	3	0	1	1	0	0	0
20	3	0	3	2	0	2	0	1	1
21	3	0	3	0	0	0	0	0	0
22	1	2	3	0	0	0	0	0	0
23	3	0	3	1	1	2	0	0	0
24	2	1	3	0	1	1	0	0	0
25	3	0	3	1	1	2	0	0	0
26	3	0	3	1	1	2	0	0	0
27	3	0	3	2	0	2	0	0	0
28	3	0	3	2	0	2	0	1	1
29	1	2	3	0	0	0	0	0	0
30	3	0	3	2	0	2	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	1	1	0	0	0
33	3	0	3	2	0	2	0	0	0
34	3	0	3	2	0	2	0	0	0
35	1	2	3	0	0	0	0	0	0
36	2	1	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	2	0	2	1	2	3
39	2	1	3	0	2	2	0	0	0
40	3	0	3	1	1	2	0	0	0
41	3	0	3	0	1	1	0	0	0
42	3	0	3	2	0	2	0	1	1
43	2	1	3	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	3	0	3	2	0	2	0	0	0
47	2	0	2	0	0	0	0	0	0
48	1	2	3	0	1	1	0	0	0
49	3	0	3	2	0	2	0	0	0
50	3	0	3	2	0	2	0	1	1

Table 95 2 CRUDES 5 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	1	0	3	0	0	0
xbar	3	0	3	2	0	2	3.04	1.56	4.6	2.08	1.32	3.4
max	3	0	3	2	0	2	5	4	5	5	3	7
sig	0	0	0	0	0	0	1.049	1.033	0.639	1.35285	0.9987748	1.749636
sigxb	0	0	0	0	0	0	0.02098	0.021	0.013	0.027057	0.0199755	0.034993
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.56	0.4		1.32	3.6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	2	3	5	1	0	1
2	3	0	3	2	0	2	3	2	5	0	0	0
3	3	0	3	2	0	2	3	1	4	0	2	2
4	3	0	3	2	0	2	4	1	5	4	3	7
5	3	0	3	2	0	2	4	1	5	4	0	4
6	3	0	3	2	0	2	3	1	4	2	0	2
7	3	0	3	2	0	2	3	1	4	1	0	1
8	3	0	3	2	0	2	5	0	5	4	1	5
9	3	0	3	2	0	2	1	4	5	1	1	2
10	3	0	3	2	0	2	3	2	5	2	0	2
11	3	0	3	2	0	2	2	3	5	3	0	3
12	3	0	3	2	0	2	2	3	5	2	2	4
13	3	0	3	2	0	2	5	0	5	4	2	6
14	3	0	3	2	0	2	2	1	3	1	3	4
15	3	0	3	2	0	2	3	1	4	3	2	5
16	3	0	3	2	0	2	5	0	5	2	3	5
17	3	0	3	2	0	2	4	1	5	3	1	4
18	3	0	3	2	0	2	3	0	3	1	2	3
19	3	0	3	2	0	2	3	2	5	4	2	6
20	3	0	3	2	0	2	4	1	5	2	1	3
21	3	0	3	2	0	2	3	2	5	2	3	5
22	3	0	3	2	0	2	3	1	4	2	2	4
23	3	0	3	2	0	2	1	3	4	5	1	6
24	3	0	3	2	0	2	4	1	5	1	3	4
25	3	0	3	2	0	2	4	1	5	1	0	1
26	3	0	3	2	0	2	4	1	5	4	0	4
27	3	0	3	2	0	2	2	1	3	0	0	0
28	3	0	3	2	0	2	2	3	5	3	1	4
29	3	0	3	2	0	2	3	1	4	4	2	6
30	3	0	3	2	0	2	2	2	4	0	1	1
31	3	0	3	2	0	2	1	4	5	1	0	1
32	3	0	3	2	0	2	2	1	3	2	2	4
33	3	0	3	2	0	2	1	3	4	4	2	6
34	3	0	3	2	0	2	3	2	5	2	1	3
35	3	0	3	2	0	2	5	0	5	1	2	3
36	3	0	3	2	0	2	3	2	5	3	1	4
37	3	0	3	2	0	2	4	1	5	1	2	3
38	3	0	3	2	0	2	3	2	5	1	2	3
39	3	0	3	2	0	2	3	2	5	1	2	3
40	3	0	3	2	0	2	5	0	5	3	3	6
41	3	0	3	2	0	2	3	1	4	3	1	4
42	3	0	3	2	0	2	3	2	5	4	1	5
43	3	0	3	2	0	2	3	2	5	1	1	2
44	3	0	3	2	0	2	3	2	5	1	2	3
45	3	0	3	2	0	2	3	2	5	2	2	4
46	3	0	3	2	0	2	3	2	5	1	1	2
47	3	0	3	2	0	2	2	3	5	1	2	3
48	3	0	3	2	0	2	4	0	4	4	1	5
49	3	0	3	2	0	2	3	2	5	1	0	1
50	3	0	3	2	0	2	3	1	4	1	0	1

Table 96 2 CRUDES 5 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	2	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
min	3	0	3	2	0	2	0	0	0
xbar	3	0	3	2	0	2	1.86	2.04	3.9
max	3	0	3	2	0	2	4	4	5
sig	0	0	0	0	0	0	1.1954	0.903	1.266
sigxb	0	0	0	0	0	0	0.02391	0.018	0.025
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0	0		2.04	1.1
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	2	0	2	2	2	4
2	3	0	3	2	0	2	2	3	5
3	3	0	3	2	0	2	3	2	5
4	3	0	3	2	0	2	0	4	4
5	3	0	3	2	0	2	0	2	2
6	3	0	3	2	0	2	1	1	2
7	3	0	3	2	0	2	3	1	4
8	3	0	3	2	0	2	2	1	3
9	3	0	3	2	0	2	2	3	5
10	3	0	3	2	0	2	4	1	5
11	3	0	3	2	0	2	2	3	5
12	3	0	3	2	0	2	2	3	5
13	3	0	3	2	0	2	3	2	5
14	3	0	3	2	0	2	1	2	3
15	3	0	3	2	0	2	2	3	5
16	3	0	3	2	0	2	0	1	1
17	3	0	3	2	0	2	1	2	3
18	3	0	3	2	0	2	0	4	4
19	3	0	3	2	0	2	2	2	4
20	3	0	3	2	0	2	0	3	3
21	3	0	3	2	0	2	2	3	5
22	3	0	3	2	0	2	3	1	4
23	3	0	3	2	0	2	4	1	5
24	3	0	3	2	0	2	2	3	5
25	3	0	3	2	0	2	2	2	4
26	3	0	3	2	0	2	2	2	4
27	3	0	3	2	0	2	1	3	4
28	3	0	3	2	0	2	1	3	4
29	3	0	3	2	0	2	0	0	0
30	3	0	3	2	0	2	2	2	4
31	3	0	3	2	0	2	1	3	4
32	3	0	3	2	0	2	2	3	5
33	3	0	3	2	0	2	0	2	2
34	3	0	3	2	0	2	3	2	5
35	3	0	3	2	0	2	0	1	1
36	3	0	3	2	0	2	3	1	4
37	3	0	3	2	0	2	1	2	3
38	3	0	3	2	0	2	1	1	2
39	3	0	3	2	0	2	4	0	4
40	3	0	3	2	0	2	3	2	5
41	3	0	3	2	0	2	3	2	5
42	3	0	3	2	0	2	0	2	2
43	3	0	3	2	0	2	2	3	5
44	3	0	3	2	0	2	3	2	5
45	3	0	3	2	0	2	4	1	5
46	3	0	3	2	0	2	3	2	5
47	3	0	3	2	0	2	2	2	4
48	3	0	3	2	0	2	3	2	5
49	3	0	3	2	0	2	2	2	4
50	3	0	3	2	0	2	2	2	4

Table 97 2 CRUDES 5 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	2	5	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	2	4	0	5	0	0	0
xbar	3	0	3	2	0	2	4.94	0.06	5	2.4	1.02	3.42
max	3	0	3	2	0	2	5	1	5	6	3	7
sig	0	0	0	0	0	0	0.2399	0.24	0	1.340119	0.8687312	1.654801
sigxb	0	0	0	0	0	0	0.0048	0.005	0	0.026802	0.0173746	0.033096
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.06	0		1.02	3.58
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	5	0	5	2	0	2
2	3	0	3	2	0	2	5	0	5	2	2	4
3	3	0	3	2	0	2	5	0	5	4	1	5
4	3	0	3	2	0	2	4	1	5	3	1	4
5	3	0	3	2	0	2	5	0	5	3	1	4
6	3	0	3	2	0	2	5	0	5	4	1	5
7	3	0	3	2	0	2	5	0	5	2	2	4
8	3	0	3	2	0	2	4	1	5	2	0	2
9	3	0	3	2	0	2	5	0	5	1	1	2
10	3	0	3	2	0	2	5	0	5	3	2	5
11	3	0	3	2	0	2	5	0	5	0	1	1
12	3	0	3	2	0	2	5	0	5	1	3	4
13	3	0	3	2	0	2	5	0	5	1	0	1
14	3	0	3	2	0	2	5	0	5	2	1	3
15	3	0	3	2	0	2	5	0	5	4	1	5
16	3	0	3	2	0	2	5	0	5	2	1	3
17	3	0	3	2	0	2	5	0	5	6	1	7
18	3	0	3	2	0	2	5	0	5	3	1	4
19	3	0	3	2	0	2	5	0	5	2	0	2
20	3	0	3	2	0	2	5	0	5	3	1	4
21	3	0	3	2	0	2	5	0	5	3	3	6
22	3	0	3	2	0	2	5	0	5	4	0	4
23	3	0	3	2	0	2	5	0	5	1	1	2
24	3	0	3	2	0	2	5	0	5	3	1	4
25	3	0	3	2	0	2	5	0	5	5	0	5
26	3	0	3	2	0	2	5	0	5	4	1	5
27	3	0	3	2	0	2	5	0	5	0	1	1
28	3	0	3	2	0	2	5	0	5	3	2	5
29	3	0	3	2	0	2	5	0	5	4	2	6
30	3	0	3	2	0	2	5	0	5	2	1	3
31	3	0	3	2	0	2	5	0	5	3	1	4
32	3	0	3	2	0	2	5	0	5	0	0	0
33	3	0	3	2	0	2	5	0	5	2	0	2
34	3	0	3	2	0	2	5	0	5	0	0	0
35	3	0	3	2	0	2	5	0	5	2	2	4
36	3	0	3	2	0	2	5	0	5	1	0	1
37	3	0	3	2	0	2	5	0	5	2	2	4
38	3	0	3	2	0	2	5	0	5	1	1	2
39	3	0	3	2	0	2	5	0	5	5	1	6
40	3	0	3	2	0	2	5	0	5	3	2	5
41	3	0	3	2	0	2	5	0	5	2	0	2
42	3	0	3	2	0	2	5	0	5	1	2	3
43	3	0	3	2	0	2	5	0	5	2	0	2
44	3	0	3	2	0	2	5	0	5	2	2	4
45	3	0	3	2	0	2	5	0	5	2	3	5
46	3	0	3	2	0	2	5	0	5	3	1	4
47	3	0	3	2	0	2	4	1	5	2	0	2
48	3	0	3	2	0	2	5	0	5	4	1	5
49	3	0	3	2	0	2	5	0	5	2	0	2
50	3	0	3	2	0	2	5	0	5	2	0	2

Table 98 2 CRUDES 5 LCS-r15 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	1	2								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.22	0.42	2.64	0.28	0.18	0.46	0.16	0.26	0.42	0	0	0
max	3	3	3	1	1	1	1	1	1	0	0	0
sig	1.09339389	0.702474	0.82709228	0.45355737	0.388088	0.50345743	0.37033	0.443	0.49857	0	0	0
sigxb	0.15462925	0.099345	0.11696851	0.0641427	0.054884	0.07119963	0.05237	0.063	0.07051	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.42	0.36		0.18	0.54		0.26	0.58		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	1	1	2	0	0	0	0	0	0	0	0	0
2	3	0	3	1	0	1	1	0	1	0	0	0
3	3	0	3	1	0	1	1	0	1	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0	0	0	0
6	3	0	3	1	0	1	0	0	0	0	0	0
7	3	0	3	1	0	1	0	1	1	0	0	0
8	2	1	3	0	0	0	0	0	0	0	0	0
9	0	2	2	0	0	0	0	0	0	0	0	0
10	3	0	3	0	1	1	1	0	1	0	0	0
11	3	0	3	0	0	0	1	0	1	0	0	0
12	3	0	3	1	0	1	0	1	1	0	0	0
13	3	0	3	1	0	1	1	0	1	0	0	0
14	0	1	1	0	0	0	0	0	0	0	0	0
15	3	0	3	0	0	0	0	1	1	0	0	0
16	3	0	3	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0	0	0	0
20	3	0	3	1	0	1	0	1	1	0	0	0
21	0	3	3	0	0	0	0	0	0	0	0	0
22	3	0	3	1	0	1	0	1	1	0	0	0
23	2	1	3	0	0	0	0	1	1	0	0	0
24	2	1	3	0	1	1	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0	0	0	0
26	1	1	2	0	0	0	0	1	1	0	0	0
27	3	0	3	0	1	1	0	1	1	0	0	0
28	3	0	3	0	1	1	1	0	1	0	0	0
29	3	0	3	0	0	0	0	0	0	0	0	0
30	2	1	3	0	1	1	0	0	0	0	0	0
31	3	0	3	0	0	0	0	1	1	0	0	0
32	2	1	3	0	1	1	0	0	0	0	0	0
33	3	0	3	0	0	0	1	0	1	0	0	0
34	3	0	3	0	1	1	0	1	1	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	1	2	3	0	0	0	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0	0	0	0
38	3	0	3	1	0	1	0	0	0	0	0	0
39	3	0	3	0	0	0	1	0	1	0	0	0
40	1	1	2	0	1	1	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0	0	0	0
42	1	0	1	0	0	0	0	0	0	0	0	0
43	1	1	2	0	0	0	0	0	0	0	0	0
44	3	0	3	1	0	1	0	1	1	0	0	0
45	3	0	3	1	0	1	0	1	1	0	0	0
46	2	1	3	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0
48	3	0	3	0	1	1	0	0	0	0	0	0
49	1	2	3	0	0	0	0	0	0	0	0	0
50	3	0	3	1	0	1	0	1	1	0	0	0

Table 99 1 CRUDES 1 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.22	0.42	0.64	0	0.04	0.04	0	0	0
max	2	2	3	0	1	1	0	0	0
sig	0.54548237	0.702474	1.02539191	0	0.197949	0.19794866	0	0	0
sigxb	0.07714286	0.099345	0.14501231	0	0.027994	0.02799417	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	2.36		0.04	0.96		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	1	1	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	1	0	1	0	1	1	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	1	1	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	1	1	0	0	0	0	0	0
18	2	1	3	0	1	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	2	2	0	0	0	0	0	0
21	0	2	2	0	0	0	0	0	0
22	0	2	2	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	1	1	2	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	1	2	3	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	1	2	3	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	1	1	0	0	0	0	0	0
37	0	1	1	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	2	2	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	1	0	1	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 100 1 CRUDES 2 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.06	0.52	2.58	0.18	0.14	0.32	0.06	0.08	0.14	0	0	0
max	3	3	3	1	1	1	2	1	2	0	0	0
sig	1.11410255	0.838852	0.97079811	0.38808793	0.35051	0.47121207	0.31364	0.274	0.45221	0	0	0
sigxb	0.15755789	0.118632	0.13729159	0.05488392	0.04957	0.06663945	0.04435	0.039	0.06395	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.52	0.42		0.14	0.68		0.08	1.86		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	0	0	0	0	0	0
2	2	1	3	0	1	1	0	0	0	0	0	0
3	0	3	3	0	0	0	0	0	0	0	0	0
4	2	0	2	0	0	0	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0	0	0	0
8	3	0	3	1	0	1	2	0	2	0	0	0
9	1	2	3	0	0	0	0	0	0	0	0	0
10	3	0	3	0	1	1	0	1	1	0	0	0
11	3	0	3	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	1	1	2	0	0	0	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	0	1	1	0	0	0
19	2	1	3	0	0	0	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0	0	0	0
21	3	0	3	1	0	1	0	0	0	0	0	0
22	1	0	1	0	0	0	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0	0	0	0
24	1	2	3	0	0	0	0	0	0	0	0	0
25	2	1	3	0	1	1	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	3	0	3	1	0	1	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	3	0	3	1	0	1	1	1	2	0	0	0
37	2	1	3	0	0	0	0	0	0	0	0	0
38	1	2	3	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0
40	1	2	3	0	0	0	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0	0	0	0
42	1	0	1	0	0	0	0	0	0	0	0	0
43	3	0	3	1	0	1	0	1	1	0	0	0
44	2	1	3	0	0	0	0	0	0	0	0	0
45	3	0	3	0	1	1	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0	0	0	0
47	0	3	3	0	0	0	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0

Table 101 1 CRUDES 2 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1	0.5	1.5	0.02	0.04	0.06	0.04	0.2	0.24
max	3	2	3	1	1	1	1	2	2
sig	1.14285714	0.707107	1.34392055	0.14142136	0.197949	0.23989794	0.19795	0.495	0.59109
sigxb	0.16162441	0.1	0.19005907	0.02	0.027994	0.03392669	0.02799	0.07	0.08359
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.5	1.5		0.04	0.94		0.2	1.76
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	1	2	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	2	0	2	0	0	0	0	2	2
5	1	1	2	0	0	0	0	0	0
6	1	1	2	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	2	1	3	0	0	0	1	1	2
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	1	0	1	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	1	0	1	0	0	0	0	0	0
14	2	1	3	0	0	0	0	0	0
15	1	2	3	0	0	0	0	1	1
16	3	0	3	1	0	1	1	1	2
17	1	0	1	0	0	0	0	0	0
18	0	2	2	0	0	0	0	0	0
19	1	1	2	0	0	0	0	1	1
20	2	1	3	0	0	0	0	0	0
21	0	1	1	0	0	0	0	0	0
22	0	1	1	0	0	0	0	0	0
23	1	2	3	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0
25	0	1	1	0	0	0	0	0	0
26	3	0	3	0	1	1	0	1	1
27	0	0	0	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	2	1	3	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	3	0	3	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	2	2	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	3	0	3	0	0	0	0	2	2
44	1	2	3	0	0	0	0	1	1
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 102 1 CRUDES 2 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.88	0.1	2.98	0.5	0.16	0.66	0.92	0.34	1.26	0	0	0
max	3	1	3	1	1	1	2	2	2	0	0	0
sig	0.38544964	0.303046	0.14142136	0.50507627	0.370328	0.47851812	0.87691	0.593	0.89921	0	0	0
sigxb	0.05451081	0.042857	0.02	0.07142857	0.052372	0.06767268	0.12401	0.084	0.12717	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.1	0.02		0.16	0.34		0.34	0.74		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	2	0	2	0	0	0
2	3	0	3	1	0	1	2	0	2	0	0	0
3	3	0	3	1	0	1	1	1	2	0	0	0
4	3	0	3	0	1	1	0	1	1	0	0	0
5	3	0	3	1	0	1	2	0	2	0	0	0
6	3	0	3	1	0	1	2	0	2	0	0	0
7	3	0	3	1	0	1	0	2	2	0	0	0
8	3	0	3	0	1	1	0	0	0	0	0	0
9	3	0	3	1	0	1	1	1	2	0	0	0
10	3	0	3	1	0	1	0	1	1	0	0	0
11	1	1	2	0	0	0	0	0	0	0	0	0
12	3	0	3	1	0	1	2	0	2	0	0	0
13	3	0	3	0	1	1	2	0	2	0	0	0
14	3	0	3	1	0	1	1	1	2	0	0	0
15	3	0	3	0	0	0	0	0	0	0	0	0
16	3	0	3	0	0	0	0	0	0	0	0	0
17	3	0	3	0	0	0	2	0	2	0	0	0
18	3	0	3	1	0	1	2	0	2	0	0	0
19	3	0	3	1	0	1	2	0	2	0	0	0
20	3	0	3	0	0	0	0	0	0	0	0	0
21	2	1	3	0	0	0	0	0	0	0	0	0
22	3	0	3	1	0	1	2	0	2	0	0	0
23	2	1	3	0	0	0	0	0	0	0	0	0
24	3	0	3	0	0	0	1	0	1	0	0	0
25	3	0	3	0	1	1	0	1	1	0	0	0
26	3	0	3	1	0	1	2	0	2	0	0	0
27	3	0	3	0	0	0	0	0	0	0	0	0
28	3	0	3	1	0	1	0	2	2	0	0	0
29	3	0	3	0	0	0	1	0	1	0	0	0
30	3	0	3	1	0	1	2	0	2	0	0	0
31	3	0	3	1	0	1	0	2	2	0	0	0
32	3	0	3	1	0	1	2	0	2	0	0	0
33	3	0	3	0	0	0	0	0	0	0	0	0
34	3	0	3	0	1	1	2	0	2	0	0	0
35	3	0	3	1	0	1	2	0	2	0	0	0
36	3	0	3	0	1	1	1	1	2	0	0	0
37	3	0	3	1	0	1	1	0	1	0	0	0
38	3	0	3	1	0	1	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0	0	0	0
41	3	0	3	1	0	1	1	0	1	0	0	0
42	3	0	3	1	0	1	1	1	2	0	0	0
43	3	0	3	0	1	1	1	1	2	0	0	0
44	3	0	3	0	0	0	0	0	0	0	0	0
45	3	0	3	0	1	1	1	1	2	0	0	0
46	3	0	3	1	0	1	2	0	2	0	0	0
47	3	0	3	1	0	1	2	0	2	0	0	0
48	3	0	3	0	0	0	1	1	2	0	0	0
49	3	0	3	0	0	0	0	0	0	0	0	0
50	3	0	3	0	0	0	0	0	0	0	0	0

Table 103 1 CRUDES 2 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.4	0.24	0.64	0.02	0.04	0.06	0	0.04	0.04
max	3	2	3	1	1	1	0	1	1
sig	0.9035079	0.555492	1.12049552	0.14142136	0.197949	0.23989794	0	0.198	0.19795
sigxb	0.12777531	0.078558	0.158462	0.02	0.027994	0.03392669	0	0.028	0.02799
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.24	2.36		0.04	0.94		0.04	1.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	1	1	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	1	1	2	0	0	0	0	0	0
6	3	0	3	0	1	1	0	1	1
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	1	1	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	3	0	3	0	1	1	0	1	1
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	2	2	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	1	2	3	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	1	1	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	0	2	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	0	0	0	0	0
47	1	1	2	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	2	1	3	1	0	1	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 104 1 CRUDES 2 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.52	0.38	2.9	0.52	0.16	0.68	0.38	0.32	0.7	0.02	0	0.02
max	3	3	3	1	1	1	2	2	2	1	0	1
sig	0.886175	0.779586	0.50507627	0.50467205	0.370328	0.47121207	0.63535	0.621	0.86307	0.141421	0	0.141421
sigxb	0.12532407	0.11025	0.07142857	0.07137141	0.052372	0.06663945	0.08985	0.088	0.12206	0.02	0	0.02
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.38	0.1		0.16	0.32		0.32	1.3		0	2.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	0	0	0	0	0
2	3	0	3	0	1	1	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0	0	0	0
4	3	0	3	0	1	1	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0	0	0	0
6	2	1	3	0	0	0	0	0	0	0	0	0
7	3	0	3	1	0	1	0	0	0	0	0	0
8	3	0	3	1	0	1	1	0	1	0	0	0
9	0	3	3	0	0	0	0	0	0	0	0	0
10	3	0	3	1	0	1	0	0	0	0	0	0
11	3	0	3	1	0	1	2	0	2	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	1	0	1	1	1	2	0	0	0
14	3	0	3	1	0	1	1	1	2	0	0	0
15	3	0	3	0	1	1	1	0	1	0	0	0
16	1	2	3	0	1	1	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	1	1	2	0	0	0
19	1	2	3	0	1	1	0	0	0	0	0	0
20	1	2	3	0	0	0	0	0	0	0	0	0
21	3	0	3	1	0	1	0	0	0	0	0	0
22	2	1	3	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	3	0	3	1	0	1	0	2	2	0	0	0
25	0	3	3	0	0	0	0	0	0	0	0	0
26	3	0	3	1	0	1	1	0	1	0	0	0
27	3	0	3	0	1	1	1	1	2	0	0	0
28	3	0	3	1	0	1	2	0	2	0	0	0
29	3	0	3	0	0	0	0	0	0	0	0	0
30	3	0	3	1	0	1	0	2	2	0	0	0
31	3	0	3	1	0	1	0	2	2	0	0	0
32	3	0	3	1	0	1	1	0	1	0	0	0
33	3	0	3	1	0	1	1	1	2	0	0	0
34	2	1	3	0	0	0	0	0	0	0	0	0
35	3	0	3	0	0	0	0	0	0	0	0	0
36	3	0	3	1	0	1	0	0	0	0	0	0
37	3	0	3	1	0	1	2	0	2	1	0	1
38	3	0	3	1	0	1	1	0	1	0	0	0
39	3	0	3	0	1	1	0	1	1	0	0	0
40	3	0	3	0	1	1	0	1	1	0	0	0
41	3	0	3	1	0	1	0	1	1	0	0	0
42	2	1	3	0	0	0	0	0	0	0	0	0
43	3	0	3	1	0	1	0	0	0	0	0	0
44	2	1	3	1	0	1	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0	0	0	0
46	2	1	3	1	0	1	0	0	0	0	0	0
47	3	0	3	1	0	1	1	0	1	0	0	0
48	1	0	1	0	0	0	0	0	0	0	0	0
49	3	0	3	1	0	1	2	0	2	0	0	0
50	3	0	3	1	0	1	0	2	2	0	0	0

Table 105 1 CRUDES 2 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.86	0.64	2.5	0.08	0.12	0.2	0.24	0.14	0.38
max	3	3	3	1	1	1	2	2	2
sig	1.22906967	0.89807	1.01519074	0.27404752	0.328261	0.40406102	0.51745	0.405	0.6667
sigxb	0.1738167	0.127006	0.14356965	0.03875617	0.046423	0.05714286	0.07318	0.057	0.09429
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.64	0.5		0.12	0.8		0.14	1.62
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	0	1	1	0	0	0	0	0	0
4	1	2	3	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	3	0	3	1	0	1	2	0	2
7	3	0	3	1	0	1	1	1	2
8	3	0	3	0	1	1	0	1	1
9	0	0	0	0	0	0	0	0	0
10	1	1	2	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	2	1	3	0	0	0	1	0	1
13	3	0	3	0	1	1	0	1	1
14	0	0	0	0	0	0	0	0	0
15	3	0	3	1	0	1	1	0	1
16	3	0	3	0	0	0	1	0	1
17	0	3	3	0	0	0	0	0	0
18	1	1	2	0	0	0	0	0	0
19	3	0	3	0	1	1	1	0	1
20	3	0	3	0	0	0	0	0	0
21	3	0	3	0	0	0	1	1	2
22	3	0	3	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	3	0	3	0	1	1	2	0	2
29	1	1	2	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	1	1	2	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	0	0	0	0	1	1
36	2	1	3	0	0	0	0	0	0
37	0	3	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	2	2
39	2	1	3	0	0	0	0	0	0
40	0	3	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	3	0	3	0	1	1	1	0	1
43	2	1	3	0	1	1	0	0	0
44	1	2	3	0	0	0	0	0	0
45	1	2	3	0	0	0	1	0	1
46	1	2	3	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0
48	2	1	3	1	0	1	0	0	0
49	3	0	3	0	0	0	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 106 1 CRUDES 2 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.82	0.16	0.98	1.32	0.42	1.74	0	0	0
max	3	0	3	1	1	1	2	2	2	0	0	0
sig	0	0	0	0.38808793	0.370328	0.14142136	0.81916	0.642	0.5646	0	0	0
sigxb	0	0	0	0.05488392	0.052372	0.02	0.11585	0.091	0.07985	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.16	0.02		0.42	0.26		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	2	0	2	0	0	0
2	3	0	3	0	1	1	1	0	1	0	0	0
3	3	0	3	1	0	1	2	0	2	0	0	0
4	3	0	3	1	0	1	2	0	2	0	0	0
5	3	0	3	1	0	1	0	1	1	0	0	0
6	3	0	3	1	0	1	2	0	2	0	0	0
7	3	0	3	1	0	1	2	0	2	0	0	0
8	3	0	3	1	0	1	2	0	2	0	0	0
9	3	0	3	1	0	1	0	0	0	0	0	0
10	3	0	3	1	0	1	2	0	2	0	0	0
11	3	0	3	1	0	1	1	1	2	0	0	0
12	3	0	3	0	0	0	0	0	0	0	0	0
13	3	0	3	1	0	1	1	1	2	0	0	0
14	3	0	3	1	0	1	2	0	2	0	0	0
15	3	0	3	1	0	1	2	0	2	0	0	0
16	3	0	3	1	0	1	0	1	1	0	0	0
17	3	0	3	1	0	1	2	0	2	0	0	0
18	3	0	3	1	0	1	2	0	2	0	0	0
19	3	0	3	1	0	1	0	2	2	0	0	0
20	3	0	3	0	1	1	1	0	1	0	0	0
21	3	0	3	1	0	1	1	1	2	0	0	0
22	3	0	3	1	0	1	0	2	2	0	0	0
23	3	0	3	1	0	1	1	1	2	0	0	0
24	3	0	3	0	1	1	0	2	2	0	0	0
25	3	0	3	1	0	1	0	1	1	0	0	0
26	3	0	3	1	0	1	2	0	2	0	0	0
27	3	0	3	1	0	1	1	1	2	0	0	0
28	3	0	3	0	1	1	1	1	2	0	0	0
29	3	0	3	1	0	1	2	0	2	0	0	0
30	3	0	3	1	0	1	2	0	2	0	0	0
31	3	0	3	0	1	1	2	0	2	0	0	0
32	3	0	3	1	0	1	2	0	2	0	0	0
33	3	0	3	1	0	1	1	1	2	0	0	0
34	3	0	3	1	0	1	0	1	1	0	0	0
35	3	0	3	1	0	1	1	1	2	0	0	0
36	3	0	3	1	0	1	2	0	2	0	0	0
37	3	0	3	1	0	1	2	0	2	0	0	0
38	3	0	3	1	0	1	0	2	2	0	0	0
39	3	0	3	1	0	1	2	0	2	0	0	0
40	3	0	3	0	1	1	0	0	0	0	0	0
41	3	0	3	1	0	1	1	0	1	0	0	0
42	3	0	3	1	0	1	2	0	2	0	0	0
43	3	0	3	1	0	1	2	0	2	0	0	0
44	3	0	3	1	0	1	2	0	2	0	0	0
45	3	0	3	1	0	1	2	0	2	0	0	0
46	3	0	3	0	1	1	2	0	2	0	0	0
47	3	0	3	1	0	1	2	0	2	0	0	0
48	3	0	3	1	0	1	2	0	2	0	0	0
49	3	0	3	1	0	1	1	1	2	0	0	0
50	3	0	3	1	0	1	2	0	2	0	0	0

Table 107 1 CRUDES 2 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.16	0.14	0.3	0	0.06	0.06	0	0	0
max	2	2	3	0	1	1	0	0	0
sig	0.42185209	0.404566	0.67763093	0	0.239898	0.23989794	0	0	0
sigxb	0.05965889	0.057214	0.09583148	0	0.033927	0.03392669	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.14	2.7		0.06	0.94		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	0	1	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	1	1	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	1	1	2	0	0	0	0	0	0
19	1	0	1	0	0	0	0	0	0
20	0	2	2	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	1	0	1	0	1	1	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	1	1	2	0	0	0	0	0	0
26	0	1	1	0	1	1	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	1	0	1	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	2	1	3	0	1	1	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 108 1 CRUDES 2 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	1.98	0.44	2.42	0.44	0.2	0.64	0.02	0	0.02	0.02	0.02	0.04
max	3	3	3	1	1	1	1	0	1	1	1	1
sig	1.22040475	0.7329	1.0515295	0.50142654	0.404061	0.48487322	0.14142	0	0.14142	0.141421	0.1414214	0.197949
sigxb	0.17259129	0.103648	0.14870873	0.07091242	0.057143	0.06857143	0.02	0	0.02	0.02	0.02	0.027994
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.44	0.58		0.2	0.36		0	1.98		0.02	2.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	0	0	0	0	0	0	0	0	0	0	0	0
2	2	1	3	1	0	1	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0	0	0	0
4	3	0	3	1	0	1	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	3	3	0	0	0	0	0	0	0	0	0
7	0	2	2	0	0	0	0	0	0	0	0	0
8	3	0	3	1	0	1	1	0	1	0	1	1
9	3	0	3	1	0	1	0	0	0	0	0	0
10	3	0	3	0	1	1	0	0	0	0	0	0
11	1	2	3	1	0	1	0	0	0	0	0	0
12	3	0	3	1	0	1	0	0	0	0	0	0
13	2	1	3	1	0	1	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0	0	0	0
15	3	0	3	1	0	1	0	0	0	0	0	0
16	3	0	3	1	0	1	0	0	0	1	0	1
17	3	0	3	1	0	1	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	3	0	3	1	0	1	0	0	0	0	0	0
20	2	0	2	0	1	1	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	3	0	3	1	0	1	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0	0	0	0
24	3	0	3	1	0	1	0	0	0	0	0	0
25	1	0	1	0	0	0	0	0	0	0	0	0
26	0	1	1	0	0	0	0	0	0	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	1	1	2	0	1	1	0	0	0	0	0	0
29	2	1	3	0	0	0	0	0	0	0	0	0
30	1	2	3	0	1	1	0	0	0	0	0	0
31	3	0	3	1	0	1	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0	0	0	0
33	3	0	3	1	0	1	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0
36	1	1	2	0	0	0	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0	0	0	0
41	0	1	1	0	0	0	0	0	0	0	0	0
42	3	0	3	0	1	1	0	0	0	0	0	0
43	1	2	3	1	0	1	0	0	0	0	0	0
44	3	0	3	1	0	1	0	0	0	0	0	0
45	2	1	3	1	0	1	0	0	0	0	0	0
46	3	0	3	0	1	1	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	0	1	1	0	0	0	0	0	0
49	1	1	2	0	0	0	0	0	0	0	0	0
50	2	1	3	0	0	0	0	0	0	0	0	0

Table 109 1 CRUDES 2 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1	0.62	1.62	0.08	0.1	0.18	0	0.04	0.04
max	3	3	3	1	1	1	0	1	1
sig	1.17803018	0.923392	1.41262529	0.27404752	0.303046	0.38808793	0	0.198	0.19795
sigxb	0.16659863	0.130587	0.19977538	0.03875617	0.042857	0.05488392	0	0.028	0.02799
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.62	1.38		0.1	0.82		0.04	1.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0	0	0	0
2	1	2	3	1	0	1	0	0	0
3	1	2	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	3	0	3	1	0	1	0	1	1
6	3	0	3	0	1	1	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	3	3	0	0	0	0	0	0
9	1	2	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	2	2	1	0	1	0	0	0
14	0	1	1	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	2	1	3	0	0	0	0	0	0
17	1	2	3	0	1	1	0	0	0
18	0	3	3	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	2	0	2	0	0	0	0	0	0
21	3	0	3	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0
24	3	0	3	0	0	0	0	1	1
25	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	1	2	3	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	1	0	1	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	1	2	3	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	1	2	3	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	2	1	3	0	1	1	0	0	0
36	3	0	3	0	0	0	0	0	0
37	0	2	2	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	2	1	3	0	1	1	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	3	0	3	0	1	1	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	2	0	2	0	0	0	0	0	0
48	1	1	2	0	0	0	0	0	0
49	2	1	3	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 110 1 CRUDES 2 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	2	0	0	0	0	0	0	0	0	0
xbar	2.72	0.26	2.98	0.64	0.2	0.84	0.3	0.26	0.56	0	0.06	0.06
max	3	3	3	1	1	1	2	2	2	0	1	1
sig	0.6074369	0.564602	0.14142136	0.48487322	0.404061	0.37032804	0.61445	0.527	0.8369	0	0.2398979	0.239898
sigxb	0.08590455	0.079847	0.02	0.06857143	0.057143	0.05237229	0.0869	0.075	0.11836	0	0.0339267	0.033927
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.26	0.02		0.2	0.16		0.26	1.44		0.06	2.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	0	0	0	0	0	0
2	3	0	3	1	0	1	2	0	2	0	0	0
3	3	0	3	1	0	1	0	0	0	0	0	0
4	2	1	3	1	0	1	0	0	0	0	0	0
5	3	0	3	1	0	1	0	2	2	0	0	0
6	2	1	3	0	1	1	0	0	0	0	0	0
7	3	0	3	1	0	1	2	0	2	0	1	1
8	2	1	3	1	0	1	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0	0	0	0
10	3	0	3	0	0	0	0	0	0	0	0	0
11	3	0	3	1	0	1	0	0	0	0	0	0
12	2	1	3	0	0	0	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0	0	0	0
14	3	0	3	1	0	1	0	0	0	0	0	0
15	3	0	3	1	0	1	1	0	1	0	0	0
16	3	0	3	0	1	1	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	1	1	2	0	0	0
19	3	0	3	1	0	1	2	0	2	0	1	1
20	3	0	3	1	0	1	0	0	0	0	0	0
21	3	0	3	1	0	1	0	1	1	0	0	0
22	3	0	3	1	0	1	2	0	2	0	0	0
23	3	0	3	1	0	1	1	1	2	0	0	0
24	2	1	3	0	0	0	0	0	0	0	0	0
25	3	0	3	1	0	1	0	0	0	0	0	0
26	3	0	3	1	0	1	1	1	2	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	3	0	3	0	1	1	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0	0	0	0
30	3	0	3	1	0	1	0	1	1	0	0	0
31	3	0	3	1	0	1	0	1	1	0	0	0
32	3	0	3	0	1	1	0	0	0	0	0	0
33	3	0	3	1	0	1	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	3	0	3	1	0	1	0	0	0	0	0	0
37	3	0	3	1	0	1	0	0	0	0	0	0
38	3	0	3	1	0	1	0	0	0	0	0	0
39	3	0	3	1	0	1	1	0	1	0	0	0
40	3	0	3	1	0	1	0	0	0	0	0	0
41	3	0	3	1	0	1	0	2	2	0	0	0
42	3	0	3	1	0	1	1	1	2	0	0	0
43	1	1	2	0	1	1	0	0	0	0	0	0
44	3	0	3	1	0	1	1	1	2	0	0	0
45	0	3	3	0	0	0	0	0	0	0	0	0
46	2	1	3	0	1	1	0	0	0	0	0	0
47	3	0	3	1	0	1	0	1	1	0	1	1
48	2	1	3	0	1	1	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0	0	0	0
50	3	0	3	0	1	1	0	0	0	0	0	0

Table 111 1 CRUDES 2 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.3	0.38	0.68	0	0.02	0.02	0	0	0
max	3	3	3	0	1	1	0	0	0
sig	0.67763093	0.752953	1.16828847	0	0.141421	0.14142136	0	0	0
sigxb	0.09583148	0.106484	0.16522094	0	0.02	0.02	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.38	2.32		0.02	0.98		0	2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	1	2	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	2	1	3	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	1	1	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	1	1	2	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	1	2	3	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	2	1	3	0	1	1	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	1	1	2	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	2	2	0	0	0	0	0	0
40	1	0	1	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	2	2	0	0	0	0	0	0
43	0	3	3	0	0	0	0	0	0
44	1	2	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 112 1 CRUDES 2 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.44	0.24	2.68	0.52	0.16	0.68	0.16	0.14	0.3	0.04	0.12	0.16
max	3	2	3	1	1	1	2	2	2	1	2	3
sig	1.01337988	0.555492	0.8675558	0.50467205	0.370328	0.47121207	0.5095	0.452	0.70711	0.197949	0.435187	0.548095
sigxb	0.14331356	0.078558	0.12269092	0.07137141	0.052372	0.06663945	0.07205	0.064	0.1	0.027994	0.0615447	0.077512
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.24	0.32		0.16	0.32		0.14	1.7		0.12	2.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0	0	0	0
2	3	0	3	1	0	1	0	0	0	0	0	0
3	3	0	3	1	0	1	1	1	2	0	1	1
4	1	2	3	0	1	1	0	0	0	0	0	0
5	3	0	3	1	0	1	0	2	2	0	2	2
6	3	0	3	1	0	1	0	1	1	0	0	0
7	3	0	3	1	0	1	2	0	2	1	2	3
8	3	0	3	0	0	0	0	0	0	0	0	0
9	3	0	3	1	0	1	1	1	2	0	1	1
10	3	0	3	0	1	1	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0	0	0	0
12	3	0	3	1	0	1	0	0	0	0	0	0
13	1	2	3	0	0	0	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	1	2	3	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	0	0	0	0	0	0
19	3	0	3	1	0	1	0	0	0	0	0	0
20	3	0	3	1	0	1	0	0	0	0	0	0
21	2	1	3	0	0	0	0	0	0	0	0	0
22	3	0	3	1	0	1	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0	0	0	0
25	1	1	2	0	0	0	0	0	0	0	0	0
26	3	0	3	1	0	1	0	0	0	0	0	0
27	3	0	3	0	1	1	0	0	0	0	0	0
28	2	1	3	1	0	1	0	0	0	0	0	0
29	3	0	3	1	0	1	0	0	0	0	0	0
30	3	0	3	1	0	1	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0	0	0	0
33	3	0	3	1	0	1	2	0	2	1	0	1
34	3	0	3	1	0	1	0	0	0	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0
37	3	0	3	1	0	1	2	0	2	0	0	0
38	3	0	3	0	1	1	0	0	0	0	0	0
39	3	0	3	1	0	1	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0	0	0	0
41	2	0	2	0	1	1	0	0	0	0	0	0
42	3	0	3	1	0	1	0	0	0	0	0	0
43	0	1	1	0	0	0	0	0	0	0	0	0
44	3	0	3	1	0	1	0	2	2	0	0	0
45	3	0	3	0	1	1	0	0	0	0	0	0
46	3	0	3	1	0	1	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0	0	0	0
50	3	0	3	0	1	1	0	0	0	0	0	0

Table 113 1 CRUDES 2 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs						
	3	1	2						
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.9	0.52	2.42	0.32	0.34	0.66	0.04	0.1	0.14
max	3	3	3	1	1	1	1	1	1
sig	1.14731274	0.735125	0.97079811	0.47121207	0.478518	0.47851812	0.19795	0.303	0.35051
sigxb	0.16225452	0.103962	0.13729159	0.06663945	0.067673	0.06767268	0.02799	0.043	0.04957
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.52	0.58		0.34	0.34		0.1	1.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	1	1
2	3	0	3	1	0	1	0	1	1
3	3	0	3	0	0	0	0	0	0
4	1	2	3	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	3	0	3	1	0	1	0	0	0
7	0	0	0	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	1	0	1	0	0	0
10	2	1	3	1	0	1	0	0	0
11	2	0	2	0	0	0	0	0	0
12	1	1	2	0	1	1	0	0	0
13	1	1	2	0	1	1	0	0	0
14	3	0	3	1	0	1	0	1	1
15	0	0	0	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0
17	1	2	3	0	1	1	0	0	0
18	1	1	2	0	1	1	0	0	0
19	0	1	1	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	3	0	3	1	0	1	1	0	1
22	0	3	3	0	0	0	0	0	0
23	2	0	2	0	0	0	0	0	0
24	2	1	3	1	0	1	0	0	0
25	1	1	2	0	1	1	0	0	0
26	3	0	3	0	1	1	0	0	0
27	2	1	3	0	1	1	0	0	0
28	0	2	2	0	1	1	0	0	0
29	2	1	3	1	0	1	0	0	0
30	2	1	3	0	0	0	0	0	0
31	3	0	3	1	0	1	0	1	1
32	3	0	3	1	0	1	0	0	0
33	2	1	3	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0
35	3	0	3	1	0	1	0	0	0
36	2	1	3	0	1	1	0	0	0
37	1	0	1	1	0	1	0	0	0
38	0	0	0	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	3	0	3	1	0	1	0	1	1
41	3	0	3	0	1	1	0	0	0
42	3	0	3	1	0	1	0	0	0
43	2	1	3	0	1	1	0	0	0
44	1	1	2	0	0	0	0	0	0
45	3	0	3	0	1	1	1	0	1
46	2	0	2	0	1	1	0	0	0
47	0	2	2	0	0	0	0	0	0
48	3	0	3	1	0	1	0	0	0
49	3	0	3	0	1	1	0	0	0
50	3	0	3	0	1	1	0	0	0

Table 114 1 CRUDES 2 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	2	3								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.92	0.06	2.98	0.88	0.08	0.96	1.08	0.42	1.5	0.04	0.12	0.16
max	3	2	3	1	1	1	2	2	2	1	1	2
sig	0.34046787	0.313636	0.14142136	0.32826072	0.274048	0.19794866	0.92229	0.642	0.81441	0.197949	0.3282607	0.421852
sigxb	0.04814943	0.044355	0.02	0.04642308	0.038756	0.02799417	0.13043	0.091	0.11518	0.027994	0.0464231	0.059659
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.06	0.02		0.08	0.04		0.42	0.5		0.12	2.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	2	2	0	0	0
2	3	0	3	1	0	1	2	0	2	0	0	0
3	3	0	3	1	0	1	2	0	2	0	0	0
4	3	0	3	1	0	1	2	0	2	0	0	0
5	3	0	3	1	0	1	0	1	1	0	0	0
6	3	0	3	1	0	1	0	2	2	0	0	0
7	3	0	3	1	0	1	1	1	2	0	0	0
8	2	0	2	0	1	1	0	0	0	0	0	0
9	3	0	3	1	0	1	1	1	2	0	0	0
10	3	0	3	1	0	1	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0	0	0	0
12	3	0	3	1	0	1	1	1	2	0	1	1
13	3	0	3	1	0	1	0	0	0	0	0	0
14	3	0	3	1	0	1	1	1	2	0	0	0
15	3	0	3	1	0	1	0	1	1	0	0	0
16	3	0	3	1	0	1	0	0	0	0	0	0
17	3	0	3	1	0	1	2	0	2	0	1	1
18	3	0	3	1	0	1	1	1	2	0	0	0
19	3	0	3	1	0	1	0	2	2	0	0	0
20	3	0	3	1	0	1	0	1	1	0	0	0
21	3	0	3	1	0	1	2	0	2	0	0	0
22	3	0	3	1	0	1	2	0	2	0	0	0
23	3	0	3	1	0	1	2	0	2	0	0	0
24	3	0	3	1	0	1	2	0	2	0	0	0
25	3	0	3	1	0	1	2	0	2	0	0	0
26	3	0	3	1	0	1	0	0	0	0	0	0
27	3	0	3	1	0	1	2	0	2	0	0	0
28	3	0	3	1	0	1	2	0	2	0	0	0
29	3	0	3	1	0	1	2	0	2	1	1	2
30	3	0	3	1	0	1	2	0	2	1	0	1
31	1	2	3	0	1	1	0	0	0	0	0	0
32	3	0	3	1	0	1	2	0	2	0	0	0
33	3	0	3	1	0	1	2	0	2	0	0	0
34	3	0	3	1	0	1	2	0	2	0	0	0
35	3	0	3	1	0	1	2	0	2	0	0	0
36	3	0	3	1	0	1	2	0	2	0	0	0
37	3	0	3	1	0	1	0	1	1	0	0	0
38	2	1	3	0	0	0	0	0	0	0	0	0
39	3	0	3	1	0	1	0	1	1	0	0	0
40	3	0	3	1	0	1	2	0	2	0	0	0
41	3	0	3	0	1	1	0	0	0	0	0	0
42	3	0	3	1	0	1	1	1	2	0	0	0
43	3	0	3	1	0	1	1	1	2	0	0	0
44	3	0	3	1	0	1	2	0	2	0	0	0
45	3	0	3	0	0	0	0	0	0	0	0	0
46	3	0	3	1	0	1	2	0	2	0	1	1
47	3	0	3	1	0	1	1	1	2	0	0	0
48	3	0	3	1	0	1	2	0	2	0	1	1
49	3	0	3	1	0	1	2	0	2	0	1	1
50	3	0	3	1	0	1	0	2	2	0	0	0

Table 115 1 CRUDES 2 LCS-r15 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.58	0.3	0.88	0	0.08	0.08	0	0	0
max	3	2	3	0	1	1	0	0	0
sig	0.94954339	0.580288	1.22291055	0	0.274048	0.27404752	0	0	0
sigxb	0.01899087	0.011606	0.02445821	0	0.005481	0.00548095	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.3	2.12		0.08	0.92		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	3	0	3	0	0	0	0	0	0
11	0	1	1	0	0	0	0	0	0
12	1	0	1	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	2	1	3	0	0	0	0	0	0
15	1	2	3	0	0	0	0	0	0
16	0	1	1	0	0	0	0	0	0
17	0	1	1	0	0	0	0	0	0
18	2	1	3	0	1	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0
23	2	0	2	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	0	1	1	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	1	1	2	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	2	1	3	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	3	0	3	0	1	1	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	2	3	0	1	1	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	2	0	2	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	2	0	2	0	1	1	0	0	0
45	1	0	1	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 116 1 CRUDES 3 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0	0	0	0
xbar	2.82	0.14	2.96	0.58	0.14	0.72	0.68	0.42	1.1	0.06	0.06	0.12
max	3	2	3	1	1	1	3	3	3	2	2	2
sig	0.48191794	0.452205	0.19794866	0.49856938	0.35051	0.45355737	1.07741	0.731	1.23305	0.313636	0.3136357	0.435187
sigxb	0.00963836	0.009044	0.00395897	0.00997139	0.00701	0.00907115	0.02155	0.015	0.02466	0.006273	0.0062727	0.008704
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.14	0.04		0.14	0.28		0.42	1.9		0.06	3.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0	0	0	0
4	3	0	3	1	0	1	2	1	3	0	0	0
5	3	0	3	0	1	1	0	0	0	0	0	0
6	3	0	3	0	1	1	0	0	0	0	0	0
7	3	0	3	1	0	1	0	1	1	0	0	0
8	3	0	3	1	0	1	1	1	2	0	0	0
9	3	0	3	1	0	1	2	1	3	0	0	0
10	3	0	3	1	0	1	0	1	1	0	0	0
11	3	0	3	0	0	0	0	0	0	0	0	0
12	3	0	3	1	0	1	1	1	2	0	0	0
13	3	0	3	1	0	1	3	0	3	0	1	1
14	2	1	3	0	1	1	0	0	0	0	0	0
15	3	0	3	1	0	1	0	1	1	0	0	0
16	3	0	3	1	0	1	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	3	0	3	0	2	2
19	2	0	2	0	1	1	0	0	0	0	0	0
20	1	2	3	0	0	0	0	0	0	0	0	0
21	3	0	3	0	1	1	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0	0	0	0
23	3	0	3	1	0	1	3	0	3	1	0	1
24	3	0	3	1	0	1	0	1	1	0	0	0
25	3	0	3	0	0	0	0	1	1	0	0	0
26	3	0	3	1	0	1	2	0	2	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	3	0	3	1	0	1	2	0	2	0	0	0
29	1	2	3	0	1	1	0	0	0	0	0	0
30	3	0	3	0	0	0	0	0	0	0	0	0
31	3	0	3	1	0	1	3	0	3	2	0	2
32	2	1	3	0	0	0	0	0	0	0	0	0
33	3	0	3	1	0	1	0	3	3	0	0	0
34	3	0	3	1	0	1	0	1	1	0	0	0
35	2	0	2	0	0	0	0	0	0	0	0	0
36	3	0	3	1	0	1	2	0	2	0	0	0
37	3	0	3	0	0	0	0	0	0	0	0	0
38	3	0	3	1	0	1	0	2	2	0	0	0
39	3	0	3	1	0	1	1	0	1	0	0	0
40	3	0	3	0	0	0	0	0	0	0	0	0
41	3	0	3	0	1	1	0	0	0	0	0	0
42	3	0	3	1	0	1	1	0	1	0	0	0
43	3	0	3	1	0	1	0	2	2	0	0	0
44	2	1	3	0	0	0	0	0	0	0	0	0
45	3	0	3	1	0	1	3	0	3	0	0	0
46	3	0	3	1	0	1	3	0	3	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	1	0	1	1	2	3	0	0	0
49	3	0	3	1	0	1	1	2	3	0	0	0
50	3	0	3	0	0	0	0	0	0	0	0	0

Table 117 1 CRUDES 3 LCS-r1 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.72	0.66	2.38	0.04	0.08	0.12	0.02	0.3	0.32
max	3	3	3	1	1	1	1	2	2
sig	1.12558375	0.823383	1.1045361	0.19794866	0.274048	0.32826072	0.14142	0.544	0.55107
sigxb	0.02251167	0.016468	0.02209072	0.00395897	0.005481	0.00656521	0.00283	0.011	0.01102
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.66	0.62		0.08	0.88		0.3	2.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	3	3	0	0	0	0	0	0
2	2	1	3	0	0	0	0	2	2
3	0	2	2	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	3	0	3	0	0	0	0	0	0
6	1	1	2	0	0	0	0	0	0
7	3	0	3	0	0	0	0	2	2
8	2	0	2	0	0	0	0	0	0
9	1	1	2	0	1	1	0	0	0
10	3	0	3	0	0	0	0	1	1
11	0	0	0	0	0	0	0	0	0
12	3	0	3	1	0	1	0	1	1
13	0	0	0	0	0	0	0	0	0
14	1	2	3	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	3	0	3	0	1	1	0	1	1
17	3	0	3	0	0	0	0	0	0
18	1	2	3	0	0	0	0	0	0
19	1	2	3	0	0	0	0	0	0
20	3	0	3	0	0	0	0	1	1
21	3	0	3	0	1	1	0	1	1
22	2	1	3	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	1	1	2	0	0	0	1	0	1
25	2	1	3	0	0	0	0	0	0
26	1	2	3	0	0	0	0	1	1
27	2	0	2	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	2	1	3	0	0	0	0	1	1
30	3	0	3	1	0	1	0	0	0
31	2	1	3	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	3	0	3	0	0	0	0	1	1
34	3	0	3	0	0	0	0	0	0
35	1	2	3	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	3	0	3	0	1	1	0	0	0
39	2	1	3	0	0	0	0	1	1
40	2	0	2	0	0	0	0	0	0
41	1	2	3	0	0	0	0	0	0
42	3	0	3	0	0	0	0	1	1
43	2	1	3	0	0	0	0	0	0
44	1	2	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	2	1	3	0	0	0	0	0	0
47	3	0	3	0	0	0	0	1	1
48	0	0	0	0	0	0	0	0	0
49	2	1	3	0	0	0	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 118 1 CRUDES 3 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.88	0.06	2.94	0.78	0.1	0.88	2.08	0.42	2.5	0	0.04	0.04
max	3	3	3	1	1	1	3	2	3	0	1	1
sig	0.59384599	0.424264	0.42426407	0.41845196	0.303046	0.32826072	1.14	0.575	0.88641	0	0.1979487	0.197949
sigxb	0.01187692	0.008485	0.00848528	0.00836904	0.006061	0.00656521	0.0228	0.011	0.01773	0	0.003959	0.003959
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.06	0.06		0.1	0.12		0.42	0.5		0.04	3.96
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	1	1	1	1	2	0	0	0
2	3	0	3	0	0	0	2	1	3	0	0	0
3	3	0	3	0	0	0	0	1	1	0	0	0
4	3	0	3	1	0	1	3	0	3	0	0	0
5	3	0	3	0	0	0	0	1	1	0	0	0
6	3	0	3	1	0	1	3	0	3	0	0	0
7	3	0	3	1	0	1	3	0	3	0	0	0
8	3	0	3	1	0	1	3	0	3	0	0	0
9	3	0	3	1	0	1	2	0	2	0	0	0
10	3	0	3	1	0	1	3	0	3	0	0	0
11	3	0	3	0	1	1	0	1	1	0	0	0
12	3	0	3	0	1	1	3	0	3	0	0	0
13	3	0	3	1	0	1	2	1	3	0	0	0
14	3	0	3	1	0	1	1	2	3	0	0	0
15	3	0	3	1	0	1	2	1	3	0	0	0
16	3	0	3	1	0	1	1	1	2	0	0	0
17	3	0	3	1	0	1	2	1	3	0	0	0
18	3	0	3	0	0	0	2	1	3	0	0	0
19	3	0	3	1	0	1	1	1	2	0	0	0
20	3	0	3	1	0	1	3	0	3	0	0	0
21	3	0	3	1	0	1	2	0	2	0	0	0
22	3	0	3	1	0	1	2	1	3	0	0	0
23	3	0	3	0	1	1	0	1	1	0	0	0
24	3	0	3	1	0	1	3	0	3	0	0	0
25	3	0	3	1	0	1	3	0	3	0	0	0
26	3	0	3	1	0	1	3	0	3	0	0	0
27	3	0	3	1	0	1	3	0	3	0	0	0
28	3	0	3	1	0	1	3	0	3	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	3	0	3	0	1	1	1	1	2	0	0	0
31	3	0	3	1	0	1	3	0	3	0	0	0
32	3	0	3	1	0	1	3	0	3	0	0	0
33	3	0	3	1	0	1	0	2	2	0	0	0
34	0	3	3	0	0	0	0	0	0	0	0	0
35	3	0	3	1	0	1	3	0	3	0	0	0
36	3	0	3	1	0	1	3	0	3	0	0	0
37	3	0	3	1	0	1	1	1	2	0	0	0
38	3	0	3	1	0	1	3	0	3	0	0	0
39	3	0	3	1	0	1	2	1	3	0	0	0
40	3	0	3	1	0	1	3	0	3	0	0	0
41	3	0	3	1	0	1	3	0	3	0	1	1
42	3	0	3	1	0	1	3	0	3	0	0	0
43	3	0	3	1	0	1	2	1	3	0	0	0
44	3	0	3	1	0	1	3	0	3	0	0	0
45	3	0	3	1	0	1	3	0	3	0	0	0
46	3	0	3	1	0	1	3	0	3	0	1	1
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	1	0	1	3	0	3	0	0	0
49	3	0	3	1	0	1	3	0	3	0	0	0
50	3	0	3	1	0	1	3	0	3	0	0	0

Table 119 1 CRUDES 3 LCS-r3 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.1	0.42	1.52	0.06	0.12	0.18	0.02	0.1	0.12
max	3	2	3	1	1	1	1	1	1
sig	1.19948969	0.672795	1.34376869	0.23989794	0.328261	0.38808793	0.14142	0.303	0.32826
sigxb	0.02398979	0.013456	0.02687537	0.00479796	0.006565	0.00776176	0.00283	0.006	0.00657
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	1.48		0.12	0.82		0.1	2.88
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	3	0	3	1	0	1	0	1	1
6	0	0	0	0	0	0	0	0	0
7	1	1	2	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	1	0	1	0	0	0	0	0	0
11	2	1	3	0	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	1	1	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	2	0	2	0	0	0	0	0	0
17	1	1	2	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	0	2	2	0	0	0	0	0	0
21	3	0	3	0	1	1	0	1	1
22	2	1	3	1	0	1	0	0	0
23	0	0	0	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	3	0	3	0	1	1	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	3	0	3	1	0	1	0	1	1
30	1	2	3	0	1	1	1	0	1
31	0	0	0	0	0	0	0	0	0
32	0	2	2	0	0	0	0	0	0
33	3	0	3	0	1	1	0	1	1
34	0	0	0	0	0	0	0	0	0
35	0	2	2	0	0	0	0	0	0
36	2	1	3	0	0	0	0	1	1
37	2	0	2	0	0	0	0	0	0
38	2	1	3	0	0	0	0	0	0
39	2	0	2	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	0	1	1	0	0	0
42	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	1	1	2	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	2	0	2	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 120 1 CRUDES 3 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.96	0.04	3	0.82	0.1	0.92	1.28	0.72	2	0.04	0.02	0.06
max	3	1	3	1	1	1	3	3	3	2	1	2
sig	0.19794866	0.197949	0	0.38808793	0.303046	0.27404752	1.05056	0.757	1.12486	0.282843	0.1414214	0.313636
sigxb	0.00395897	0.003959	0	0.00776176	0.006061	0.00548095	0.02101	0.015	0.0225	0.005657	0.0028284	0.006273
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.04	0		0.1	0.08		0.72	1		0.02	3.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	0	0	0	0	0
2	3	0	3	1	0	1	2	0	2	0	0	0
3	2	1	3	0	0	0	0	1	1	0	0	0
4	3	0	3	1	0	1	2	1	3	0	0	0
5	3	0	3	1	0	1	1	2	3	0	0	0
6	3	0	3	1	0	1	1	1	2	0	0	0
7	3	0	3	1	0	1	2	1	3	0	0	0
8	3	0	3	1	0	1	0	2	2	0	0	0
9	3	0	3	1	0	1	1	0	1	0	0	0
10	3	0	3	0	1	1	0	0	0	0	0	0
11	3	0	3	1	0	1	3	0	3	0	0	0
12	3	0	3	1	0	1	3	0	3	0	0	0
13	3	0	3	1	0	1	2	1	3	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	3	0	3	1	0	1	0	0	0	0	0	0
16	3	0	3	1	0	1	2	1	3	0	0	0
17	2	1	3	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	3	0	3	2	0	2
19	3	0	3	1	0	1	2	1	3	0	0	0
20	3	0	3	1	0	1	0	1	1	0	0	0
21	3	0	3	1	0	1	2	1	3	0	0	0
22	3	0	3	0	1	1	1	2	3	0	0	0
23	3	0	3	1	0	1	1	2	3	0	0	0
24	3	0	3	1	0	1	3	0	3	0	0	0
25	3	0	3	0	0	0	0	0	0	0	0	0
26	3	0	3	1	0	1	3	0	3	0	0	0
27	3	0	3	1	0	1	2	0	2	0	0	0
28	3	0	3	1	0	1	2	1	3	0	0	0
29	3	0	3	1	0	1	2	1	3	0	0	0
30	3	0	3	1	0	1	2	0	2	0	0	0
31	3	0	3	1	0	1	2	0	2	0	0	0
32	3	0	3	0	1	1	0	1	1	0	0	0
33	3	0	3	1	0	1	1	1	2	0	0	0
34	3	0	3	1	0	1	0	1	1	0	0	0
35	3	0	3	1	0	1	2	1	3	0	0	0
36	3	0	3	1	0	1	2	0	2	0	0	0
37	3	0	3	1	0	1	0	0	0	0	0	0
38	3	0	3	1	0	1	2	1	3	0	0	0
39	3	0	3	1	0	1	2	1	3	0	0	0
40	3	0	3	1	0	1	0	3	3	0	0	0
41	3	0	3	1	0	1	2	0	2	0	0	0
42	3	0	3	1	0	1	2	1	3	0	1	1
43	3	0	3	1	0	1	1	1	2	0	0	0
44	3	0	3	1	0	1	1	2	3	0	0	0
45	3	0	3	1	0	1	0	2	2	0	0	0
46	3	0	3	1	0	1	3	0	3	0	0	0
47	3	0	3	0	1	1	0	0	0	0	0	0
48	3	0	3	0	1	1	1	0	1	0	0	0
49	3	0	3	1	0	1	1	1	2	0	0	0
50	3	0	3	1	0	1	0	1	1	0	0	0

Table 121 1 CRUDES 3 LCS-r5 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	1	0	0	0	0	0	0
xbar	2.8	0.12	2.92	0.48	0.28	0.76	1.12	0.66	1.78
max	3	3	3	1	1	1	3	2	3
sig	0.60609153	0.520596	0.34046787	0.50467205	0.453557	0.43141911	1.09991	0.745	1.20017
sigxb	0.01212183	0.010412	0.00680936	0.01009344	0.009071	0.00862838	0.022	0.015	0.024
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.12	0.08		0.28	0.24		0.66	1.22
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	0	0
2	3	0	3	1	0	1	2	0	2
3	2	1	3	0	0	0	0	0	0
4	3	0	3	0	0	0	0	0	0
5	1	2	3	0	0	0	0	0	0
6	3	0	3	1	0	1	0	2	2
7	3	0	3	0	1	1	1	2	3
8	3	0	3	0	1	1	1	0	1
9	3	0	3	1	0	1	1	1	2
10	3	0	3	0	0	0	3	0	3
11	3	0	3	0	0	0	1	2	3
12	3	0	3	1	0	1	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	1	0	1	3	0	3
15	3	0	3	0	1	1	0	1	1
16	3	0	3	1	0	1	2	1	3
17	3	0	3	1	0	1	0	1	1
18	3	0	3	0	1	1	3	0	3
19	3	0	3	1	0	1	1	1	2
20	3	0	3	0	0	0	1	2	3
21	2	0	2	0	0	0	1	0	1
22	3	0	3	1	0	1	1	1	2
23	3	0	3	0	0	0	0	0	0
24	3	0	3	1	0	1	2	1	3
25	3	0	3	0	1	1	2	1	3
26	3	0	3	1	0	1	1	2	3
27	3	0	3	1	0	1	2	1	3
28	3	0	3	0	1	1	1	1	2
29	0	3	3	0	0	0	0	0	0
30	1	0	1	0	0	0	0	0	0
31	3	0	3	0	0	0	3	0	3
32	2	0	2	0	0	0	0	0	0
33	3	0	3	1	0	1	3	0	3
34	3	0	3	1	0	1	2	1	3
35	3	0	3	0	1	1	0	2	2
36	3	0	3	0	1	1	0	1	1
37	3	0	3	0	1	1	0	0	0
38	3	0	3	0	1	1	1	1	2
39	3	0	3	1	0	1	0	1	1
40	3	0	3	1	0	1	3	0	3
41	3	0	3	1	0	1	2	1	3
42	3	0	3	1	0	1	2	1	3
43	3	0	3	1	0	1	0	0	0
44	3	0	3	0	1	1	0	2	2
45	3	0	3	1	0	1	2	0	2
46	3	0	3	1	0	1	2	0	2
47	3	0	3	0	1	1	2	0	2
48	3	0	3	1	0	1	0	2	2
49	3	0	3	1	0	1	2	1	3
50	3	0	3	1	0	1	3	0	3

Table 122 1 CRUDES 3 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	0	0	3	0	0	0
xbar	3	0	3	0.94	0.06	1	2.78	0.22	3	0	0	0
max	3	0	3	1	1	1	3	3	3	0	0	0
sig	0	0	0	0.23989794	0.239898	0	0.61578	0.616	0	0	0	0
sigxb	0	0	0	0.00479796	0.004798	0	0.01232	0.012	0	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.06	0		0.22	0		0	4
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	2	1	3	0	0	0
2	3	0	3	1	0	1	3	0	3	0	0	0
3	3	0	3	1	0	1	3	0	3	0	0	0
4	3	0	3	1	0	1	3	0	3	0	0	0
5	3	0	3	1	0	1	3	0	3	0	0	0
6	3	0	3	1	0	1	3	0	3	0	0	0
7	3	0	3	1	0	1	3	0	3	0	0	0
8	3	0	3	1	0	1	3	0	3	0	0	0
9	3	0	3	1	0	1	3	0	3	0	0	0
10	3	0	3	1	0	1	3	0	3	0	0	0
11	3	0	3	1	0	1	3	0	3	0	0	0
12	3	0	3	1	0	1	3	0	3	0	0	0
13	3	0	3	1	0	1	3	0	3	0	0	0
14	3	0	3	1	0	1	3	0	3	0	0	0
15	3	0	3	1	0	1	3	0	3	0	0	0
16	3	0	3	1	0	1	3	0	3	0	0	0
17	3	0	3	1	0	1	3	0	3	0	0	0
18	3	0	3	1	0	1	3	0	3	0	0	0
19	3	0	3	1	0	1	3	0	3	0	0	0
20	3	0	3	1	0	1	3	0	3	0	0	0
21	3	0	3	1	0	1	3	0	3	0	0	0
22	3	0	3	0	1	1	0	3	3	0	0	0
23	3	0	3	1	0	1	3	0	3	0	0	0
24	3	0	3	1	0	1	3	0	3	0	0	0
25	3	0	3	1	0	1	3	0	3	0	0	0
26	3	0	3	1	0	1	3	0	3	0	0	0
27	3	0	3	1	0	1	3	0	3	0	0	0
28	3	0	3	0	1	1	2	1	3	0	0	0
29	3	0	3	1	0	1	3	0	3	0	0	0
30	3	0	3	1	0	1	3	0	3	0	0	0
31	3	0	3	1	0	1	3	0	3	0	0	0
32	3	0	3	1	0	1	3	0	3	0	0	0
33	3	0	3	1	0	1	3	0	3	0	0	0
34	3	0	3	1	0	1	3	0	3	0	0	0
35	3	0	3	1	0	1	3	0	3	0	0	0
36	3	0	3	1	0	1	3	0	3	0	0	0
37	3	0	3	1	0	1	3	0	3	0	0	0
38	3	0	3	1	0	1	3	0	3	0	0	0
39	3	0	3	1	0	1	3	0	3	0	0	0
40	3	0	3	1	0	1	2	1	3	0	0	0
41	3	0	3	1	0	1	3	0	3	0	0	0
42	3	0	3	1	0	1	3	0	3	0	0	0
43	3	0	3	1	0	1	3	0	3	0	0	0
44	3	0	3	1	0	1	1	2	3	0	0	0
45	3	0	3	1	0	1	2	1	3	0	0	0
46	3	0	3	1	0	1	3	0	3	0	0	0
47	3	0	3	1	0	1	1	2	3	0	0	0
48	3	0	3	0	1	1	3	0	3	0	0	0
49	3	0	3	1	0	1	3	0	3	0	0	0
50	3	0	3	1	0	1	3	0	3	0	0	0

Table 123 1 CRUDES 3 LCS-r7 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.24	0.36	0.6	0.02	0.08	0.1	0	0	0
max	3	3	3	1	1	1	0	0	0
sig	0.59109031	0.749422	1.04978132	0.14142136	0.274048	0.30304576	0	0	0
sigxb	0.01182181	0.014988	0.02099563	0.00282843	0.005481	0.00606092	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.36	2.4		0.08	0.9		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	1	1	0	1	1	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	2	2	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	2	2	0	0	0	0	0	0
11	1	1	2	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	1	0	1	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	1	1	2	0	1	1	0	0	0
21	1	0	1	0	0	0	0	0	0
22	1	2	3	0	1	1	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	1	2	3	0	1	1	0	0	0
32	0	3	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	2	1	3	0	0	0	0	0	0
37	1	1	2	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	1	0	1	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	2	2	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 124 1 CRUDES 3 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0	0	0	0
xbar	2.58	0.28	2.86	0.72	0.1	0.82	0.18	0.28	0.46	0.18	0.16	0.34
max	3	2	3	1	1	1	2	2	3	2	2	2
sig	0.78480467	0.572855	0.53490415	0.45355737	0.303046	0.38808793	0.52255	0.536	0.83812	0.481918	0.4677344	0.658074
sigxb	0.01569609	0.011457	0.01069808	0.00907115	0.006061	0.00776176	0.01045	0.011	0.01676	0.009638	0.0093547	0.013161
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.28	0.14		0.1	0.18		0.28	2.54		0.16	3.66
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	1	1	0	0	0
2	2	1	3	1	0	1	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0	0	0	0
4	3	0	3	1	0	1	0	2	2	1	1	2
5	3	0	3	1	0	1	0	0	0	0	0	0
6	2	0	2	0	0	0	0	0	0	0	0	0
7	3	0	3	1	0	1	0	0	0	0	0	0
8	3	0	3	0	1	1	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0	0	0	0
10	3	0	3	1	0	1	1	0	1	1	0	1
11	3	0	3	1	0	1	0	0	0	0	0	0
12	3	0	3	1	0	1	0	2	2	0	2	2
13	3	0	3	1	0	1	0	0	0	0	0	0
14	1	2	3	0	1	1	0	0	0	0	0	0
15	1	2	3	0	1	1	0	0	0	0	0	0
16	3	0	3	1	0	1	0	1	1	0	0	0
17	3	0	3	1	0	1	2	1	3	1	0	1
18	3	0	3	0	1	1	0	0	0	0	0	0
19	3	0	3	1	0	1	0	0	0	0	0	0
20	3	0	3	1	0	1	0	0	0	0	0	0
21	3	0	3	1	0	1	2	1	3	2	0	2
22	2	1	3	1	0	1	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0	0	0	0
24	3	0	3	1	0	1	0	0	0	0	0	0
25	2	1	3	1	0	1	0	0	0	0	0	0
26	3	0	3	1	0	1	0	0	0	0	0	0
27	3	0	3	1	0	1	0	1	1	0	1	1
28	3	0	3	1	0	1	0	0	0	1	0	1
29	3	0	3	1	0	1	0	1	1	0	1	1
30	3	0	3	1	0	1	0	1	1	0	1	1
31	1	2	3	1	0	1	0	0	0	0	0	0
32	2	1	3	1	0	1	0	0	0	0	0	0
33	3	0	3	1	0	1	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	3	0	3	1	0	1	0	0	0	0	0	0
37	2	1	3	0	0	0	0	0	0	0	0	0
38	3	0	3	1	0	1	1	1	2	0	2	2
39	0	1	1	0	0	0	0	0	0	0	0	0
40	3	0	3	1	0	1	1	1	2	2	0	2
41	2	1	3	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0
43	3	0	3	1	0	1	0	0	0	0	0	0
44	3	0	3	1	0	1	2	0	2	0	0	0
45	3	0	3	1	0	1	0	1	1	1	0	1
46	2	1	3	0	0	0	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0	0	0	0
48	3	0	3	1	0	1	0	0	0	0	0	0
49	2	0	2	0	1	1	0	0	0	0	0	0
50	3	0	3	1	0	1	0	0	0	0	0	0

Table 125 1 CRUDES 3 LCS-r9 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.84	0.56	2.4	0.16	0.2	0.36	0.02	0.08	0.1
max	4	3	4	1	1	1	1	2	2
sig	1.20135977	0.786623	1.17803018	0.37032804	0.404061	0.48487322	0.14142	0.34	0.36422
sigxb	0.0240272	0.015732	0.0235606	0.00740656	0.008081	0.00969746	0.00283	0.007	0.00728
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.56	0.6		0.2	0.64		0.08	2.9
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0	0	0	0
2	3	0	3	0	1	1	0	0	0
3	1	2	3	1	0	1	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	2	1	3	0	1	1	0	0	0
7	3	0	3	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	3	0	3	1	0	1	0	0	0
10	3	0	3	1	0	1	1	0	1
11	3	0	3	0	1	1	0	0	0
12	4	0	4	1	0	1	0	0	0
13	2	0	2	0	0	0	0	0	0
14	3	0	3	1	0	1	0	0	0
15	2	1	3	0	1	1	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	1	2	3	0	0	0	0	0	0
20	2	1	3	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0
24	3	0	3	0	1	1	0	2	2
25	0	0	0	0	0	0	0	0	0
26	1	2	3	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0
30	3	0	3	0	0	0	0	0	0
31	3	0	3	0	0	0	0	1	1
32	1	2	3	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	1	2	3	0	1	1	0	0	0
35	2	1	3	1	0	1	0	0	0
36	0	0	0	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0
38	0	3	3	0	0	0	0	0	0
39	2	1	3	0	1	1	0	1	1
40	3	0	3	0	1	1	0	0	0
41	3	0	3	1	0	1	0	0	0
42	2	1	3	0	0	0	0	0	0
43	2	0	2	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	1	2	0	1	1	0	0	0
47	2	1	3	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 126 1 CRUDES 3 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.98	0	0.98	1.82	0.64	2.46	0.22	0.26	0.48
max	3	0	3	1	0	1	3	3	3	2	3	3
sig	0	0	0	0.14142136	0	0.14142136	1.11922	0.776	0.83812	0.46467	0.5646021	0.762381
sigxb	0	0	0	0.00282843	0	0.00282843	0.02238	0.016	0.01676	0.009293	0.011292	0.015248
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0.02		0.64	0.54		0.26	3.52
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	1	1	2	0	0	0
2	3	0	3	1	0	1	1	2	3	0	1	1
3	3	0	3	1	0	1	2	1	3	0	0	0
4	3	0	3	1	0	1	3	0	3	0	1	1
5	3	0	3	1	0	1	1	2	3	0	0	0
6	3	0	3	0	0	0	0	0	0	0	0	0
7	3	0	3	1	0	1	3	0	3	0	0	0
8	3	0	3	1	0	1	1	1	2	0	0	0
9	3	0	3	1	0	1	3	0	3	0	1	1
10	3	0	3	1	0	1	3	0	3	2	1	3
11	3	0	3	1	0	1	3	0	3	0	3	3
12	3	0	3	1	0	1	3	0	3	0	0	0
13	3	0	3	1	0	1	3	0	3	1	0	1
14	3	0	3	1	0	1	3	0	3	0	1	1
15	3	0	3	1	0	1	2	1	3	0	0	0
16	3	0	3	1	0	1	1	0	1	0	0	0
17	3	0	3	1	0	1	1	1	2	0	0	0
18	3	0	3	1	0	1	2	1	3	0	1	1
19	3	0	3	1	0	1	1	1	2	0	0	0
20	3	0	3	1	0	1	2	0	2	0	0	0
21	3	0	3	1	0	1	3	0	3	0	0	0
22	3	0	3	1	0	1	1	1	2	0	0	0
23	3	0	3	1	0	1	0	0	0	0	0	0
24	3	0	3	1	0	1	2	1	3	0	1	1
25	3	0	3	1	0	1	1	1	2	0	0	0
26	3	0	3	1	0	1	3	0	3	1	0	1
27	3	0	3	1	0	1	2	0	2	0	0	0
28	3	0	3	1	0	1	2	1	3	1	1	2
29	3	0	3	1	0	1	3	0	3	1	0	1
30	3	0	3	1	0	1	2	1	3	0	0	0
31	3	0	3	1	0	1	0	2	2	0	0	0
32	3	0	3	1	0	1	3	0	3	0	0	0
33	3	0	3	1	0	1	0	1	1	0	0	0
34	3	0	3	1	0	1	3	0	3	0	0	0
35	3	0	3	1	0	1	3	0	3	1	0	1
36	3	0	3	1	0	1	3	0	3	1	0	1
37	3	0	3	1	0	1	0	2	2	0	0	0
38	3	0	3	1	0	1	2	0	2	0	0	0
39	3	0	3	1	0	1	3	0	3	0	0	0
40	3	0	3	1	0	1	3	0	3	0	0	0
41	3	0	3	1	0	1	1	1	2	1	0	1
42	3	0	3	1	0	1	1	2	3	1	0	1
43	3	0	3	1	0	1	0	0	0	0	0	0
44	3	0	3	1	0	1	2	1	3	0	0	0
45	3	0	3	1	0	1	1	1	2	0	0	0
46	3	0	3	1	0	1	3	0	3	0	0	0
47	3	0	3	1	0	1	2	1	3	0	1	1
48	3	0	3	1	0	1	3	0	3	1	1	2
49	3	0	3	1	0	1	0	2	2	0	0	0
50	3	0	3	1	0	1	0	3	3	0	0	0

Table 127 1 CRUDES 3 LCS-r11 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.9	0.5	1.4	0.1	0.16	0.26	0	0	0
max	3	2	3	1	1	1	0	0	0
sig	1.16496475	0.735402	1.34011879	0.30304576	0.370328	0.4430875	0	0	0
sigxb	0.02329929	0.014708	0.02680238	0.00606092	0.007407	0.00886175	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.5	1.6		0.16	0.74		0	3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	3	0	3	1	0	1	0	0	0
5	1	1	2	0	0	0	0	0	0
6	0	2	2	0	1	1	0	0	0
7	2	1	3	1	0	1	0	0	0
8	1	1	2	0	0	0	0	0	0
9	0	2	2	0	1	1	0	0	0
10	3	0	3	1	0	1	0	0	0
11	1	2	3	0	0	0	0	0	0
12	2	1	3	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	1	0	1	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	3	0	3	1	0	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	2	2	0	1	1	0	0	0
22	3	0	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	0	1	1	0	0	0
26	3	0	3	0	1	1	0	0	0
27	0	0	0	0	0	0	0	0	0
28	1	2	3	0	1	1	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	2	1	3	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	1	1	0	0	0	0	0	0
35	1	0	1	0	0	0	0	0	0
36	0	1	1	0	0	0	0	0	0
37	2	1	3	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	1	2	3	0	1	1	0	0	0
40	0	1	1	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	1	1	2	0	0	0	0	0	0
43	1	1	2	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	1	2	3	0	1	1	0	0	0
47	0	0	0	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 128 1 CRUDES 3 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.94	0.06	3	0.9	0.04	0.94	0.8	0.72	1.52	0.28	0.42	0.7
max	3	1	3	1	1	1	2	3	3	3	3	3
sig	0.23989794	0.239898	0	0.30304576	0.197949	0.23989794	0.83299	0.73	1.16479	0.640153	0.7583548	1.015191
sigxb	0.00479796	0.004798	0	0.00606092	0.003959	0.00479796	0.01666	0.015	0.0233	0.012803	0.0151671	0.020304
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.06	0		0.04	0.06		0.72	1.48		0.42	3.3
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0	0	0	0
2	3	0	3	1	0	1	0	1	1	0	0	0
3	3	0	3	1	0	1	1	0	1	0	0	0
4	3	0	3	1	0	1	1	2	3	0	0	0
5	3	0	3	1	0	1	1	1	2	0	1	1
6	3	0	3	1	0	1	2	1	3	0	0	0
7	3	0	3	1	0	1	2	1	3	0	2	2
8	3	0	3	1	0	1	0	1	1	1	0	1
9	3	0	3	1	0	1	0	0	0	0	0	0
10	3	0	3	1	0	1	0	0	0	0	0	0
11	3	0	3	1	0	1	2	0	2	0	0	0
12	3	0	3	1	0	1	1	0	1	0	0	0
13	3	0	3	1	0	1	2	0	2	2	1	3
14	3	0	3	1	0	1	0	0	0	0	0	0
15	3	0	3	1	0	1	1	2	3	0	1	1
16	3	0	3	1	0	1	0	0	0	0	0	0
17	3	0	3	1	0	1	2	1	3	0	1	1
18	2	1	3	0	1	1	0	0	0	0	0	0
19	3	0	3	1	0	1	0	3	3	1	0	1
20	3	0	3	1	0	1	0	1	1	0	0	0
21	3	0	3	1	0	1	0	1	1	0	1	1
22	3	0	3	1	0	1	2	1	3	0	0	0
23	3	0	3	1	0	1	0	1	1	1	0	1
24	3	0	3	1	0	1	1	2	3	0	2	2
25	3	0	3	1	0	1	1	0	1	0	0	0
26	3	0	3	1	0	1	0	1	1	0	1	1
27	3	0	3	1	0	1	0	1	1	0	0	0
28	3	0	3	1	0	1	0	1	1	0	0	0
29	3	0	3	1	0	1	2	1	3	0	1	1
30	3	0	3	1	0	1	2	1	3	0	3	3
31	3	0	3	1	0	1	0	0	0	0	0	0
32	3	0	3	1	0	1	2	1	3	1	1	2
33	3	0	3	1	0	1	1	2	3	0	0	0
34	3	0	3	1	0	1	1	2	3	1	1	2
35	3	0	3	1	0	1	0	1	1	1	0	1
36	3	0	3	1	0	1	1	1	2	0	0	0
37	3	0	3	1	0	1	2	1	3	0	3	3
38	3	0	3	1	0	1	2	0	2	2	1	3
39	3	0	3	1	0	1	1	0	1	0	0	0
40	2	1	3	0	0	0	0	0	0	0	0	0
41	2	1	3	1	0	1	0	0	0	0	0	0
42	3	0	3	1	0	1	1	0	1	0	0	0
43	3	0	3	1	0	1	2	0	2	3	0	3
44	3	0	3	0	0	0	0	0	0	0	0	0
45	3	0	3	1	0	1	0	0	0	0	0	0
46	3	0	3	0	1	1	0	0	0	0	0	0
47	3	0	3	1	0	1	1	1	2	1	1	2
48	3	0	3	1	0	1	2	1	3	0	0	0
49	3	0	3	1	0	1	0	1	1	0	0	0
50	3	0	3	1	0	1	1	1	2	0	0	0

Table 129 1 CRUDES 3 LCS-r13 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.74	0.18	2.92	0.84	0.12	0.96	0.64	0.5	1.14
max	3	2	3	1	1	1	3	3	3
sig	0.66424731	0.481918	0.44446712	0.37032804	0.328261	0.19794866	0.87505	0.763	1.21235
sigxb	0.01328495	0.009638	0.00888934	0.00740656	0.006565	0.00395897	0.0175	0.015	0.02425
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.18	0.08		0.12	0.04		0.5	1.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	1	1	2
2	3	0	3	1	0	1	0	0	0
3	3	0	3	1	0	1	2	1	3
4	3	0	3	0	1	1	0	0	0
5	3	0	3	1	0	1	1	0	1
6	3	0	3	1	0	1	1	2	3
7	2	1	3	1	0	1	0	0	0
8	3	0	3	1	0	1	0	0	0
9	3	0	3	0	1	1	0	0	0
10	3	0	3	1	0	1	0	0	0
11	3	0	3	1	0	1	1	1	2
12	3	0	3	1	0	1	1	1	2
13	3	0	3	1	0	1	2	0	2
14	1	2	3	0	1	1	0	0	0
15	3	0	3	1	0	1	0	0	0
16	3	0	3	1	0	1	0	2	2
17	3	0	3	0	0	0	0	0	0
18	1	1	2	0	1	1	0	0	0
19	3	0	3	1	0	1	0	0	0
20	3	0	3	1	0	1	3	0	3
21	3	0	3	1	0	1	1	1	2
22	3	0	3	1	0	1	2	1	3
23	3	0	3	1	0	1	0	2	2
24	3	0	3	1	0	1	0	0	0
25	3	0	3	1	0	1	1	1	2
26	3	0	3	1	0	1	0	0	0
27	0	0	0	0	0	0	0	0	0
28	3	0	3	1	0	1	1	0	1
29	3	0	3	1	0	1	2	1	3
30	3	0	3	1	0	1	2	0	2
31	3	0	3	1	0	1	0	0	0
32	3	0	3	1	0	1	0	3	3
33	3	0	3	1	0	1	1	0	1
34	3	0	3	1	0	1	0	0	0
35	3	0	3	1	0	1	0	0	0
36	2	1	3	1	0	1	0	0	0
37	2	1	3	0	1	1	0	0	0
38	3	0	3	1	0	1	0	0	0
39	3	0	3	1	0	1	0	0	0
40	3	0	3	1	0	1	2	1	3
41	3	0	3	1	0	1	0	0	0
42	3	0	3	1	0	1	2	1	3
43	3	0	3	1	0	1	1	0	1
44	3	0	3	1	0	1	0	2	2
45	3	0	3	1	0	1	3	0	3
46	3	0	3	1	0	1	1	1	2
47	3	0	3	1	0	1	0	2	2
48	3	0	3	1	0	1	1	1	2
49	1	2	3	1	0	1	0	0	0
50	2	1	3	0	1	1	0	0	0

Table 130 1 CRUDES 3 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	3	4								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	0	0	1	0	0	0
xbar	3	0	3	1	0	1	2.54	0.3	2.84	0.38	0.26	0.64
max	3	0	3	1	0	1	3	3	3	2	2	3
sig	0	0	0	0	0	0	0.73429	0.647	0.46773	0.602376	0.5272183	0.802038
sigxb	0	0	0	0	0	0	0.01469	0.013	0.00935	0.012048	0.0105444	0.016041
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.3	0.16		0.26	3.36
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	3	0	3	0	0	0
2	3	0	3	1	0	1	1	0	1	0	0	0
3	3	0	3	1	0	1	3	0	3	0	1	1
4	3	0	3	1	0	1	3	0	3	0	0	0
5	3	0	3	1	0	1	2	1	3	0	0	0
6	3	0	3	1	0	1	3	0	3	0	0	0
7	3	0	3	1	0	1	3	0	3	1	2	3
8	3	0	3	1	0	1	3	0	3	1	0	1
9	3	0	3	1	0	1	3	0	3	0	0	0
10	3	0	3	1	0	1	3	0	3	0	0	0
11	3	0	3	1	0	1	2	0	2	0	0	0
12	3	0	3	1	0	1	2	1	3	0	0	0
13	3	0	3	1	0	1	3	0	3	0	0	0
14	3	0	3	1	0	1	2	1	3	1	0	1
15	3	0	3	1	0	1	1	0	1	0	0	0
16	3	0	3	1	0	1	3	0	3	0	0	0
17	3	0	3	1	0	1	3	0	3	1	0	1
18	3	0	3	1	0	1	3	0	3	0	0	0
19	3	0	3	1	0	1	1	2	3	1	0	1
20	3	0	3	1	0	1	2	1	3	1	1	2
21	3	0	3	1	0	1	3	0	3	0	0	0
22	3	0	3	1	0	1	3	0	3	1	0	1
23	3	0	3	1	0	1	3	0	3	0	0	0
24	3	0	3	1	0	1	2	1	3	0	0	0
25	3	0	3	1	0	1	3	0	3	0	0	0
26	3	0	3	1	0	1	3	0	3	0	1	1
27	3	0	3	1	0	1	3	0	3	1	0	1
28	3	0	3	1	0	1	2	0	2	0	0	0
29	3	0	3	1	0	1	3	0	3	1	0	1
30	3	0	3	1	0	1	3	0	3	1	0	1
31	3	0	3	1	0	1	3	0	3	0	0	0
32	3	0	3	1	0	1	2	1	3	0	1	1
33	3	0	3	1	0	1	1	2	3	0	0	0
34	3	0	3	1	0	1	2	1	3	0	1	1
35	3	0	3	1	0	1	3	0	3	0	0	0
36	3	0	3	1	0	1	3	0	3	0	1	1
37	3	0	3	1	0	1	3	0	3	2	0	2
38	3	0	3	1	0	1	0	3	3	0	0	0
39	3	0	3	1	0	1	3	0	3	0	2	2
40	3	0	3	1	0	1	3	0	3	2	1	3
41	3	0	3	1	0	1	3	0	3	0	0	0
42	3	0	3	1	0	1	2	0	2	0	0	0
43	3	0	3	1	0	1	3	0	3	2	0	2
44	3	0	3	1	0	1	3	0	3	1	0	1
45	3	0	3	1	0	1	2	1	3	0	0	0
46	3	0	3	1	0	1	3	0	3	0	1	1
47	3	0	3	1	0	1	2	0	2	1	0	1
48	3	0	3	1	0	1	3	0	3	0	1	1
49	3	0	3	1	0	1	3	0	3	0	0	0
50	3	0	3	1	0	1	3	0	3	1	0	1

Table 131 1 CRUDES 3 LCS-r15 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.78	0.5	1.28	0.06	0.02	0.08	0	0	0
max	3	2	3	1	1	1	0	0	0
sig	1.09339389	0.762648	1.3407278	0.23989794	0.141421	0.27404752	0	0	0
sigxb	0.02186788	0.015253	0.02681456	0.00479796	0.002828	0.00548095	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.5	1.72		0.02	0.92		0	4
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	0	0	0
2	0	2	2	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	1	2	3	0	0	0	0	0	0
8	3	0	3	1	0	1	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	1	2	3	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	2	2	0	0	0	0	0	0
18	3	0	3	1	0	1	0	0	0
19	0	0	0	0	0	0	0	0	0
20	3	0	3	1	0	1	0	0	0
21	3	0	3	0	1	1	0	0	0
22	0	0	0	0	0	0	0	0	0
23	1	2	3	0	0	0	0	0	0
24	1	0	1	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	2	1	3	0	0	0	0	0	0
27	0	1	1	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	0	1	1	0	0	0	0	0	0
30	1	1	2	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	1	1	0	0	0	0	0	0
33	1	2	3	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	1	0	1	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	0	1	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	2	1	3	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0
48	1	2	3	0	0	0	0	0	0
49	1	1	2	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 132 1 CRUDES 4 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.98	0.02	3	0.88	0.04	0.92	1.64	0.86	2.5	0.04	0.12	0.16
max	3	1	3	1	1	1	4	4	4	2	2	3
sig	0.14142136	0.141421	0	0.32826072	0.197949	0.27404752	1.50861	1.05	1.40335	0.282843	0.3854496	0.548095
sigx	0.00282843	0.002828	0	0.00656521	0.003959	0.00548095	0.03017	0.021	0.02807	0.005657	0.007709	0.010962
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0		0.04	0.08		0.86	1.5		0.12	4.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	0	4	0	0	0
2	3	0	3	1	0	1	0	2	2	0	0	0
3	3	0	3	1	0	1	1	1	2	0	0	0
4	3	0	3	1	0	1	4	0	4	0	0	0
5	3	0	3	1	0	1	2	1	3	0	0	0
6	3	0	3	1	0	1	2	1	3	0	0	0
7	3	0	3	1	0	1	0	2	2	0	0	0
8	3	0	3	1	0	1	3	1	4	0	0	0
9	3	0	3	1	0	1	0	1	1	0	0	0
10	3	0	3	0	0	0	0	0	0	0	0	0
11	3	0	3	1	0	1	1	0	1	0	0	0
12	3	0	3	1	0	1	4	0	4	0	0	0
13	3	0	3	1	0	1	2	0	2	0	0	0
14	3	0	3	0	0	0	0	0	0	0	0	0
15	3	0	3	1	0	1	4	0	4	0	1	1
16	3	0	3	1	0	1	3	1	4	0	0	0
17	3	0	3	1	0	1	3	0	3	0	0	0
18	3	0	3	1	0	1	1	2	3	0	0	0
19	3	0	3	1	0	1	1	2	3	0	0	0
20	3	0	3	1	0	1	0	2	2	0	0	0
21	3	0	3	1	0	1	1	2	3	0	0	0
22	3	0	3	1	0	1	0	2	2	0	0	0
23	3	0	3	1	0	1	4	0	4	0	2	2
24	3	0	3	1	0	1	4	0	4	0	1	1
25	3	0	3	1	0	1	4	0	4	2	1	3
26	3	0	3	1	0	1	0	4	4	0	0	0
27	3	0	3	1	0	1	3	1	4	0	0	0
28	3	0	3	1	0	1	1	1	2	0	0	0
29	3	0	3	1	0	1	2	1	3	0	0	0
30	3	0	3	1	0	1	2	1	3	0	0	0
31	3	0	3	1	0	1	4	0	4	0	0	0
32	3	0	3	1	0	1	1	0	1	0	0	0
33	3	0	3	1	0	1	4	0	4	0	1	1
34	3	0	3	1	0	1	1	0	1	0	0	0
35	3	0	3	1	0	1	3	1	4	0	0	0
36	2	1	3	0	1	1	0	0	0	0	0	0
37	3	0	3	1	0	1	0	4	4	0	0	0
38	3	0	3	1	0	1	1	0	1	0	0	0
39	3	0	3	1	0	1	2	1	3	0	0	0
40	3	0	3	0	0	0	0	0	0	0	0	0
41	3	0	3	0	1	1	1	1	2	0	0	0
42	3	0	3	1	0	1	1	2	3	0	0	0
43	3	0	3	1	0	1	2	0	2	0	0	0
44	3	0	3	1	0	1	0	1	1	0	0	0
45	3	0	3	1	0	1	4	0	4	0	0	0
46	3	0	3	1	0	1	1	3	4	0	0	0
47	3	0	3	1	0	1	0	2	2	0	0	0
48	3	0	3	1	0	1	1	0	1	0	0	0
49	3	0	3	0	0	0	0	0	0	0	0	0
50	3	0	3	1	0	1	0	0	0	0	0	0

Table 133 1 CRUDES 4 LCS-r1 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.38	0.34	2.72	0.06	0.18	0.24	0.28	0.56	0.84
max	3	2	3	1	1	1	2	2	4
sig	0.98747255	0.592814	0.70101967	0.23989794	0.388088	0.43141911	0.57286	0.733	1.03726
sigxb	0.01974945	0.011856	0.01402039	0.00479796	0.007762	0.00862838	0.01146	0.015	0.02075
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.34	0.28		0.18	0.76		0.56	3.16
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	2	1	3
2	3	0	3	0	0	0	1	0	1
3	3	0	3	0	0	0	0	0	0
4	3	0	3	1	0	1	0	2	2
5	3	0	3	0	0	0	0	0	0
6	3	0	3	0	1	1	1	1	2
7	1	2	3	0	0	0	0	0	0
8	3	0	3	0	1	1	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	0	0	0	1	1	2
11	2	0	2	0	0	0	0	0	0
12	3	0	3	1	0	1	0	0	0
13	0	0	0	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	3	0	3	0	0	0	1	0	1
16	3	0	3	0	1	1	2	2	4
17	3	0	3	0	0	0	0	1	1
18	3	0	3	0	0	0	1	0	1
19	3	0	3	0	0	0	0	1	1
20	2	1	3	0	0	0	0	0	0
21	3	0	3	0	0	0	1	1	2
22	2	1	3	0	0	0	0	0	0
23	1	1	2	0	0	0	0	1	1
24	3	0	3	0	0	0	0	1	1
25	2	1	3	0	1	1	0	0	0
26	1	1	2	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	0	2	2	0	1	1	0	0	0
29	3	0	3	0	1	1	0	2	2
30	0	2	2	0	0	0	0	0	0
31	3	0	3	0	0	0	1	0	1
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	1	1	1	2	3
34	3	0	3	0	0	0	0	2	2
35	2	0	2	0	0	0	0	0	0
36	3	0	3	0	1	1	0	1	1
37	3	0	3	0	0	0	0	1	1
38	2	1	3	0	0	0	0	0	0
39	3	0	3	0	0	0	0	2	2
40	0	0	0	0	0	0	0	0	0
41	3	0	3	0	0	0	0	1	1
42	2	1	3	0	0	0	0	0	0
43	3	0	3	0	1	1	0	2	2
44	0	1	1	0	0	0	0	1	1
45	3	0	3	0	0	0	0	0	0
46	3	0	3	1	0	1	2	1	3
47	3	0	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	2	1	3	0	0	0	0	0	0
50	3	0	3	0	0	0	0	1	1

Table 134 1 CRUDES 4 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	1	0	3	0	0	0
xbar	3	0	3	0.94	0.06	1	3.58	0.32	3.9	0.28	0.2	0.48
max	3	0	3	1	1	1	4	3	4	3	3	4
sig	0	0	0	0.23989794	0.239898	0	0.90554	0.713	0.30305	0.671277	0.5714286	1.01499
sigx	0	0	0	0.00479796	0.004798	0	0.01811	0.014	0.00606	0.013426	0.0114286	0.0203
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.06	0		0.32	0.1		0.2	4.52
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	0	4	0	0	0
2	3	0	3	1	0	1	1	2	3	0	0	0
3	3	0	3	1	0	1	2	2	4	0	0	0
4	3	0	3	1	0	1	1	2	3	0	0	0
5	3	0	3	1	0	1	4	0	4	0	0	0
6	3	0	3	1	0	1	4	0	4	2	1	3
7	3	0	3	1	0	1	4	0	4	0	0	0
8	3	0	3	1	0	1	4	0	4	0	0	0
9	3	0	3	1	0	1	4	0	4	0	0	0
10	3	0	3	1	0	1	4	0	4	0	0	0
11	3	0	3	1	0	1	4	0	4	0	0	0
12	3	0	3	1	0	1	4	0	4	0	0	0
13	3	0	3	1	0	1	4	0	4	0	0	0
14	3	0	3	1	0	1	4	0	4	0	0	0
15	3	0	3	1	0	1	4	0	4	1	0	1
16	3	0	3	1	0	1	4	0	4	0	0	0
17	3	0	3	1	0	1	4	0	4	1	2	3
18	3	0	3	1	0	1	3	0	3	0	0	0
19	3	0	3	1	0	1	4	0	4	0	0	0
20	3	0	3	1	0	1	4	0	4	0	0	0
21	3	0	3	1	0	1	4	0	4	3	1	4
22	3	0	3	1	0	1	4	0	4	0	0	0
23	3	0	3	1	0	1	4	0	4	0	0	0
24	3	0	3	1	0	1	4	0	4	0	0	0
25	3	0	3	1	0	1	4	0	4	0	0	0
26	3	0	3	1	0	1	4	0	4	0	0	0
27	3	0	3	1	0	1	3	1	4	0	0	0
28	3	0	3	0	1	1	3	1	4	0	0	0
29	3	0	3	1	0	1	3	1	4	0	0	0
30	3	0	3	0	1	1	2	1	3	0	0	0
31	3	0	3	1	0	1	3	1	4	0	0	0
32	3	0	3	1	0	1	4	0	4	0	0	0
33	3	0	3	1	0	1	4	0	4	0	0	0
34	3	0	3	1	0	1	4	0	4	0	0	0
35	3	0	3	1	0	1	4	0	4	0	0	0
36	3	0	3	1	0	1	4	0	4	2	0	2
37	3	0	3	1	0	1	4	0	4	0	0	0
38	3	0	3	1	0	1	4	0	4	0	0	0
39	3	0	3	1	0	1	4	0	4	0	1	1
40	3	0	3	1	0	1	4	0	4	0	3	3
41	3	0	3	1	0	1	4	0	4	1	1	2
42	3	0	3	1	0	1	4	0	4	0	0	0
43	3	0	3	1	0	1	1	3	4	0	0	0
44	3	0	3	0	1	1	1	2	3	0	0	0
45	3	0	3	1	0	1	4	0	4	0	0	0
46	3	0	3	1	0	1	4	0	4	2	0	2
47	3	0	3	1	0	1	4	0	4	1	1	2
48	3	0	3	1	0	1	4	0	4	0	0	0
49	3	0	3	1	0	1	4	0	4	1	0	1
50	3	0	3	1	0	1	4	0	4	0	0	0

Table 135 1 CRUDES 4 LCS-r3 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.54	0.52	2.06	0.06	0.18	0.24	0.04	0.22	0.26
max	3	2	3	1	1	1	2	3	3
sig	1.26507239	0.735125	1.25210028	0.23989794	0.388088	0.43141911	0.28284	0.582	0.63278
sigxb	0.02530145	0.014702	0.02504201	0.00479796	0.007762	0.00862838	0.00566	0.012	0.01266
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.52	0.94		0.18	0.76		0.22	3.74
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	2	2	0	0	0	0	0	0
2	2	1	3	0	1	1	0	0	0
3	1	2	3	0	0	0	0	0	0
4	0	1	1	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	1	1	2	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	1	1	0	1	1
10	1	2	3	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	2	1	3	0	0	0	0	0	0
16	3	0	3	1	0	1	0	2	2
17	2	1	3	0	1	1	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	2	2	0	0	0	0	0	0
20	3	0	3	0	0	0	0	0	0
21	0	1	1	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	2	1	3	0	1	1	0	0	0
25	3	0	3	0	1	1	0	1	1
26	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0
28	1	0	1	0	0	0	0	0	0
29	2	1	3	0	1	1	0	1	1
30	3	0	3	0	0	0	0	0	0
31	2	0	2	0	0	0	0	0	0
32	3	0	3	0	1	1	0	1	1
33	3	0	3	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	3	0	3	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	0	2	2	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0
42	1	2	3	0	0	0	0	0	0
43	3	0	3	0	0	0	0	1	1
44	1	1	2	0	0	0	0	0	0
45	3	0	3	1	0	1	0	1	1
46	1	0	1	0	0	0	0	0	0
47	3	0	3	1	0	1	0	3	3
48	3	0	3	0	1	1	2	0	2
49	3	0	3	0	1	1	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 136 1 CRUDES 4 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.96	0.02	0.98	2.98	0.52	3.5	0.18	0.1	0.28
max	3	0	3	1	1	1	4	2	4	3	2	3
sig	0	0	0	0.19794866	0.141421	0.14142136	1.20357	0.735	0.93131	0.522553	0.3642157	0.671277
sigx	0	0	0	0.00395897	0.002828	0.00282843	0.02407	0.015	0.01863	0.010451	0.0072843	0.013426
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.02	0.02		0.52	0.5		0.1	4.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	2	2	4	0	0	0
2	3	0	3	1	0	1	3	0	3	0	0	0
3	3	0	3	1	0	1	3	0	3	0	0	0
4	3	0	3	1	0	1	4	0	4	0	0	0
5	3	0	3	1	0	1	4	0	4	1	1	2
6	3	0	3	1	0	1	1	1	2	0	0	0
7	3	0	3	1	0	1	3	1	4	1	1	2
8	3	0	3	1	0	1	2	2	4	0	0	0
9	3	0	3	1	0	1	4	0	4	0	2	2
10	3	0	3	1	0	1	4	0	4	0	0	0
11	3	0	3	1	0	1	4	0	4	0	0	0
12	3	0	3	1	0	1	2	1	3	0	0	0
13	3	0	3	1	0	1	3	0	3	0	0	0
14	3	0	3	1	0	1	4	0	4	0	0	0
15	3	0	3	1	0	1	3	1	4	0	0	0
16	3	0	3	1	0	1	4	0	4	1	0	1
17	3	0	3	1	0	1	4	0	4	0	0	0
18	3	0	3	1	0	1	4	0	4	0	1	1
19	3	0	3	1	0	1	2	1	3	0	0	0
20	3	0	3	1	0	1	3	0	3	0	0	0
21	3	0	3	1	0	1	4	0	4	1	0	1
22	3	0	3	0	1	1	3	1	4	0	0	0
23	3	0	3	1	0	1	3	1	4	0	0	0
24	3	0	3	1	0	1	4	0	4	1	0	1
25	3	0	3	1	0	1	3	0	3	0	0	0
26	3	0	3	1	0	1	4	0	4	0	0	0
27	3	0	3	1	0	1	4	0	4	0	0	0
28	3	0	3	1	0	1	4	0	4	3	0	3
29	3	0	3	1	0	1	4	0	4	0	0	0
30	3	0	3	1	0	1	3	1	4	0	0	0
31	3	0	3	1	0	1	3	0	3	0	0	0
32	3	0	3	1	0	1	1	1	2	0	0	0
33	3	0	3	1	0	1	3	1	4	0	0	0
34	3	0	3	1	0	1	1	1	2	0	0	0
35	3	0	3	1	0	1	4	0	4	0	0	0
36	3	0	3	1	0	1	4	0	4	0	0	0
37	3	0	3	1	0	1	3	1	4	0	0	0
38	3	0	3	1	0	1	2	2	4	0	0	0
39	3	0	3	1	0	1	0	0	0	0	0	0
40	3	0	3	1	0	1	4	0	4	0	0	0
41	3	0	3	1	0	1	2	2	4	0	0	0
42	3	0	3	1	0	1	4	0	4	0	0	0
43	3	0	3	1	0	1	4	0	4	0	0	0
44	3	0	3	1	0	1	4	0	4	1	0	1
45	3	0	3	1	0	1	1	2	3	0	0	0
46	3	0	3	1	0	1	1	2	3	0	0	0
47	3	0	3	0	0	0	0	0	0	0	0	0
48	3	0	3	1	0	1	1	2	3	0	0	0
49	3	0	3	1	0	1	4	0	4	0	0	0
50	3	0	3	1	0	1	4	0	4	0	0	0

Table 137 1 CRUDES 4 LCS-r5 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	1
xbar	3	0	3	0.74	0.18	0.92	2	1.28	3.28
max	3	0	3	1	1	1	4	4	4
sig	0	0	0	0.4430875	0.388088	0.27404752	1.10657	0.97	0.80913
sigxb	0	0	0	0.00886175	0.007762	0.00548095	0.02213	0.019	0.01618
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.18	0.08		1.28	0.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	3	1	4
2	3	0	3	1	0	1	4	0	4
3	3	0	3	0	1	1	1	3	4
4	3	0	3	1	0	1	2	2	4
5	3	0	3	0	0	0	2	1	3
6	3	0	3	0	0	0	2	1	3
7	3	0	3	1	0	1	2	0	2
8	3	0	3	1	0	1	1	2	3
9	3	0	3	1	0	1	2	2	4
10	3	0	3	0	1	1	1	1	2
11	3	0	3	1	0	1	1	2	3
12	3	0	3	0	0	0	0	1	1
13	3	0	3	1	0	1	4	0	4
14	3	0	3	1	0	1	2	1	3
15	3	0	3	1	0	1	2	0	2
16	3	0	3	1	0	1	1	1	2
17	3	0	3	1	0	1	2	1	3
18	3	0	3	1	0	1	3	0	3
19	3	0	3	1	0	1	2	2	4
20	3	0	3	1	0	1	2	2	4
21	3	0	3	0	1	1	2	2	4
22	3	0	3	1	0	1	2	1	3
23	3	0	3	1	0	1	3	0	3
24	3	0	3	0	1	1	0	1	1
25	3	0	3	1	0	1	2	2	4
26	3	0	3	1	0	1	2	2	4
27	3	0	3	0	0	0	1	2	3
28	3	0	3	0	1	1	0	3	3
29	3	0	3	1	0	1	2	1	3
30	3	0	3	1	0	1	3	1	4
31	3	0	3	1	0	1	2	1	3
32	3	0	3	1	0	1	4	0	4
33	3	0	3	1	0	1	4	0	4
34	3	0	3	1	0	1	3	0	3
35	3	0	3	1	0	1	2	2	4
36	3	0	3	1	0	1	2	2	4
37	3	0	3	1	0	1	2	1	3
38	3	0	3	1	0	1	1	1	2
39	3	0	3	1	0	1	3	0	3
40	3	0	3	1	0	1	0	4	4
41	3	0	3	1	0	1	4	0	4
42	3	0	3	1	0	1	1	2	3
43	3	0	3	0	1	1	1	2	3
44	3	0	3	0	1	1	3	1	4
45	3	0	3	1	0	1	1	3	4
46	3	0	3	1	0	1	3	1	4
47	3	0	3	1	0	1	1	2	3
48	3	0	3	1	0	1	1	2	3
49	3	0	3	1	0	1	4	0	4
50	3	0	3	0	1	1	2	2	4

Table 138 1 CRUDES 4 LCS-r6 Data Spreadsheet

		starting values for the run										
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	3	0	4	0	0	0
xbar	3	0	3	0.96	0.04	1	3.88	0.12	4	0.06	0.08	0.14
max	3	0	3	1	1	1	4	1	4	2	1	3
sig	0	0	0	0.19794866	0.197949	0	0.32826	0.328	0	0.313636	0.2740475	0.534904
sigx	0	0	0	0.00395897	0.003959	0	0.00657	0.007	0	0.006273	0.005481	0.010698
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.04	0		0.12	0		0.08	4.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	0	4	0	0	0
2	3	0	3	1	0	1	4	0	4	0	0	0
3	3	0	3	1	0	1	4	0	4	0	0	0
4	3	0	3	1	0	1	4	0	4	0	0	0
5	3	0	3	1	0	1	4	0	4	2	1	3
6	3	0	3	1	0	1	4	0	4	0	0	0
7	3	0	3	1	0	1	3	1	4	0	0	0
8	3	0	3	1	0	1	4	0	4	0	0	0
9	3	0	3	1	0	1	4	0	4	0	0	0
10	3	0	3	1	0	1	4	0	4	0	0	0
11	3	0	3	1	0	1	4	0	4	0	0	0
12	3	0	3	1	0	1	4	0	4	0	0	0
13	3	0	3	1	0	1	4	0	4	0	1	1
14	3	0	3	1	0	1	4	0	4	0	0	0
15	3	0	3	1	0	1	3	1	4	0	0	0
16	3	0	3	1	0	1	4	0	4	0	0	0
17	3	0	3	1	0	1	4	0	4	0	0	0
18	3	0	3	1	0	1	4	0	4	0	0	0
19	3	0	3	1	0	1	4	0	4	0	0	0
20	3	0	3	1	0	1	4	0	4	0	0	0
21	3	0	3	1	0	1	4	0	4	0	0	0
22	3	0	3	1	0	1	4	0	4	0	0	0
23	3	0	3	1	0	1	4	0	4	0	0	0
24	3	0	3	1	0	1	4	0	4	0	0	0
25	3	0	3	1	0	1	4	0	4	0	0	0
26	3	0	3	1	0	1	4	0	4	0	0	0
27	3	0	3	1	0	1	4	0	4	0	0	0
28	3	0	3	1	0	1	3	1	4	0	0	0
29	3	0	3	1	0	1	4	0	4	0	0	0
30	3	0	3	1	0	1	3	1	4	0	0	0
31	3	0	3	1	0	1	4	0	4	0	0	0
32	3	0	3	1	0	1	3	1	4	0	0	0
33	3	0	3	0	1	1	4	0	4	0	0	0
34	3	0	3	0	1	1	3	1	4	0	0	0
35	3	0	3	1	0	1	4	0	4	0	0	0
36	3	0	3	1	0	1	4	0	4	0	1	1
37	3	0	3	1	0	1	4	0	4	0	0	0
38	3	0	3	1	0	1	4	0	4	0	0	0
39	3	0	3	1	0	1	4	0	4	0	0	0
40	3	0	3	1	0	1	4	0	4	1	1	2
41	3	0	3	1	0	1	4	0	4	0	0	0
42	3	0	3	1	0	1	4	0	4	0	0	0
43	3	0	3	1	0	1	4	0	4	0	0	0
44	3	0	3	1	0	1	4	0	4	0	0	0
45	3	0	3	1	0	1	4	0	4	0	0	0
46	3	0	3	1	0	1	4	0	4	0	0	0
47	3	0	3	1	0	1	4	0	4	0	0	0
48	3	0	3	1	0	1	4	0	4	0	0	0
49	3	0	3	1	0	1	4	0	4	0	0	0
50	3	0	3	1	0	1	4	0	4	0	0	0

Table 139 1 CRUDES 4 LCS-r7 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.64	0.6	1.24	0.06	0.1	0.16	0	0	0
max	3	3	3	1	1	1	0	0	0
sig	1.02539191	0.92582	1.25454277	0.23989794	0.303046	0.37032804	0	0	0
sigxb	0.02050784	0.018516	0.02509086	0.00479796	0.006061	0.00740656	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.6	1.76		0.1	0.84		0	4
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	0	1	1	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	1	2	3	0	1	1	0	0	0
8	1	0	1	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	3	3	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	3	3	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	1	1	2	0	0	0	0	0	0
17	2	1	3	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	2	2	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	1	0	1	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	3	0	3	1	0	1	0	0	0
27	0	1	1	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	3	0	3	0	1	1	0	0	0
30	0	2	2	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	1	3	1	0	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	1	1	2	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	1	1	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	2	0	2	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	1	1	2	0	0	0	0	0	0
41	1	0	1	0	0	0	0	0	0
42	0	1	1	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	2	2	0	1	1	0	0	0
45	0	0	0	0	0	0	0	0	0
46	2	0	2	1	0	1	0	0	0
47	0	3	3	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0
49	0	2	2	0	1	1	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 140 1 CRUDES 4 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0	0	0	0
xbar	2.94	0.06	3	0.88	0.06	0.94	0.74	0.78	1.52	0.46	0.32	0.78
max	3	1	3	1	1	1	3	3	4	3	2	3
sig	0.23989794	0.239898	0	0.32826072	0.239898	0.23989794	0.96489	0.815	1.35887	0.705951	0.5869325	0.974993
sigx	0.00479796	0.004798	0	0.00656521	0.004798	0.00479796	0.0193	0.016	0.02718	0.014119	0.0117387	0.0195
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.06	0		0.06	0.06		0.78	2.48		0.32	4.22
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	2	0	2	1	0	1
2	3	0	3	1	0	1	0	3	3	1	0	1
3	3	0	3	1	0	1	2	2	4	0	1	1
4	3	0	3	1	0	1	0	1	1	0	0	0
5	3	0	3	1	0	1	0	3	3	1	0	1
6	3	0	3	0	0	0	0	0	0	0	0	0
7	2	1	3	1	0	1	0	0	0	0	0	0
8	3	0	3	1	0	1	1	1	2	0	0	0
9	3	0	3	1	0	1	0	1	1	0	0	0
10	3	0	3	1	0	1	0	0	0	0	0	0
11	3	0	3	1	0	1	1	1	2	2	0	2
12	3	0	3	1	0	1	1	1	2	0	1	1
13	3	0	3	1	0	1	1	1	2	0	0	0
14	3	0	3	1	0	1	0	1	1	0	0	0
15	3	0	3	1	0	1	1	1	2	0	0	0
16	3	0	3	1	0	1	1	1	2	1	2	3
17	3	0	3	1	0	1	1	1	2	0	1	1
18	3	0	3	1	0	1	2	2	4	1	0	1
19	3	0	3	1	0	1	1	2	3	3	0	3
20	3	0	3	1	0	1	0	0	0	0	0	0
21	3	0	3	1	0	1	0	1	1	0	1	1
22	3	0	3	1	0	1	0	0	0	0	0	0
23	3	0	3	1	0	1	1	1	2	1	0	1
24	3	0	3	1	0	1	3	1	4	1	2	3
25	3	0	3	1	0	1	0	0	0	0	0	0
26	3	0	3	0	1	1	0	0	0	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	3	0	3	1	0	1	2	2	4	1	0	1
29	3	0	3	1	0	1	1	0	1	0	1	1
30	2	1	3	0	1	1	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0	0	0	0
33	3	0	3	1	0	1	0	1	1	0	1	1
34	3	0	3	1	0	1	0	1	1	0	0	0
35	3	0	3	1	0	1	0	0	0	0	0	0
36	3	0	3	1	0	1	1	2	3	0	1	1
37	3	0	3	1	0	1	0	1	1	0	0	0
38	3	0	3	1	0	1	3	0	3	2	0	2
39	3	0	3	1	0	1	2	1	3	1	0	1
40	3	0	3	1	0	1	0	2	2	1	0	1
41	2	1	3	0	0	0	0	0	0	0	0	0
42	3	0	3	1	0	1	0	1	1	0	0	0
43	3	0	3	0	1	1	0	0	0	0	0	0
44	3	0	3	1	0	1	2	1	3	2	1	3
45	3	0	3	1	0	1	0	0	0	1	0	1
46	3	0	3	1	0	1	1	1	2	0	0	0
47	3	0	3	1	0	1	1	0	1	1	1	2
48	3	0	3	1	0	1	0	0	0	0	0	0
49	3	0	3	1	0	1	3	0	3	1	1	2
50	3	0	3	1	0	1	3	1	4	1	2	3

Table 141 1 CRUDES 4 LCS-r9 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	2	0	0	0	0	0	0
xbar	2.74	0.16	2.9	0.4	0.28	0.68	0.14	0.44	0.58
max	3	3	3	1	1	1	2	2	3
sig	0.59965977	0.509502	0.30304576	0.49487166	0.453557	0.47121207	0.40457	0.611	0.8352
sigxb	0.0119932	0.01019	0.00606092	0.00989743	0.009071	0.00942424	0.00809	0.012	0.0167
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.16	0.1		0.28	0.32		0.44	3.42
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0	0	0	0
2	3	0	3	0	1	1	0	0	0
3	2	0	2	1	0	1	0	0	0
4	3	0	3	0	1	1	0	0	0
5	3	0	3	1	0	1	0	2	2
6	3	0	3	0	0	0	0	0	0
7	3	0	3	1	0	1	0	2	2
8	3	0	3	1	0	1	0	1	1
9	3	0	3	0	0	0	0	0	0
10	3	0	3	0	1	1	0	0	0
11	3	0	3	0	0	0	0	0	0
12	3	0	3	1	0	1	0	0	0
13	3	0	3	0	0	0	0	1	1
14	3	0	3	0	0	0	0	0	0
15	3	0	3	0	1	1	0	1	1
16	3	0	3	1	0	1	0	1	1
17	3	0	3	0	0	0	0	0	0
18	3	0	3	0	0	0	0	0	0
19	3	0	3	1	0	1	0	1	1
20	3	0	3	1	0	1	0	1	1
21	3	0	3	1	0	1	0	1	1
22	3	0	3	1	0	1	1	1	2
23	3	0	3	1	0	1	2	1	3
24	3	0	3	0	1	1	0	0	0
25	2	1	3	0	1	1	0	0	0
26	3	0	3	1	0	1	0	0	0
27	3	0	3	0	0	0	0	0	0
28	0	3	3	0	0	0	0	2	2
29	3	0	3	1	0	1	1	1	2
30	3	0	3	0	1	1	0	0	0
31	2	1	3	0	1	1	0	0	0
32	3	0	3	1	0	1	1	1	2
33	3	0	3	1	0	1	0	0	0
34	3	0	3	1	0	1	1	1	2
35	2	0	2	0	0	0	0	0	0
36	3	0	3	1	0	1	0	1	1
37	2	1	3	0	1	1	0	0	0
38	3	0	3	0	1	1	0	0	0
39	3	0	3	0	1	1	0	0	0
40	3	0	3	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0
42	3	0	3	0	1	1	0	1	1
43	2	0	2	0	0	0	0	0	0
44	3	0	3	1	0	1	1	1	2
45	3	0	3	0	1	1	0	0	0
46	2	0	2	0	0	0	0	0	0
47	1	1	2	1	0	1	0	0	0
48	3	0	3	1	0	1	0	0	0
49	3	0	3	0	0	0	0	0	0
50	3	0	3	0	1	1	0	1	1

Table 142 1 CRUDES 4 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	0	0	1	0	0	0
xba	3	0	3	0.98	0.02	1	2.56	0.98	3.54	0.4	0.36	0.76
max	3	0	3	1	1	1	4	3	4	2	2	3
sig	0	0	0	0.14142136	0.141421	0	1.23156	0.979	0.86213	0.606092	0.6627093	0.959592
sigx	0	0	0	0.00282843	0.002828	0	0.02463	0.02	0.01724	0.012122	0.0132542	0.019192
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.02	0		0.98	0.46		0.36	4.24
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	3	1	4	1	1	2
2	3	0	3	1	0	1	1	2	3	0	0	0
3	3	0	3	1	0	1	2	0	2	0	0	0
4	3	0	3	1	0	1	3	1	4	0	0	0
5	3	0	3	1	0	1	4	0	4	0	1	1
6	3	0	3	1	0	1	3	1	4	0	0	0
7	3	0	3	1	0	1	2	2	4	1	2	3
8	3	0	3	1	0	1	4	0	4	0	2	2
9	3	0	3	1	0	1	4	0	4	2	0	2
10	3	0	3	1	0	1	3	1	4	1	0	1
11	3	0	3	1	0	1	4	0	4	2	0	2
12	3	0	3	1	0	1	1	3	4	1	0	1
13	3	0	3	1	0	1	4	0	4	0	2	2
14	3	0	3	1	0	1	2	2	4	0	1	1
15	3	0	3	1	0	1	2	2	4	0	1	1
16	3	0	3	1	0	1	3	1	4	1	0	1
17	3	0	3	1	0	1	0	1	1	0	0	0
18	3	0	3	1	0	1	2	0	2	0	0	0
19	3	0	3	1	0	1	3	1	4	1	2	3
20	3	0	3	1	0	1	3	1	4	0	0	0
21	3	0	3	1	0	1	3	1	4	0	1	1
22	3	0	3	1	0	1	3	0	3	0	0	0
23	3	0	3	1	0	1	3	1	4	0	0	0
24	3	0	3	1	0	1	2	2	4	0	0	0
25	3	0	3	1	0	1	3	1	4	0	0	0
26	3	0	3	1	0	1	4	0	4	1	0	1
27	3	0	3	1	0	1	1	0	1	0	0	0
28	3	0	3	1	0	1	1	3	4	0	0	0
29	3	0	3	1	0	1	3	0	3	0	0	0
30	3	0	3	1	0	1	2	1	3	0	0	0
31	3	0	3	1	0	1	2	1	3	1	0	1
32	3	0	3	1	0	1	4	0	4	0	0	0
33	3	0	3	1	0	1	4	0	4	1	1	2
34	3	0	3	1	0	1	4	0	4	0	0	0
35	3	0	3	1	0	1	4	0	4	0	0	0
36	3	0	3	1	0	1	4	0	4	2	1	3
37	3	0	3	1	0	1	4	0	4	0	0	0
38	3	0	3	1	0	1	0	2	2	0	0	0
39	3	0	3	1	0	1	1	3	4	0	0	0
40	3	0	3	1	0	1	0	3	3	1	0	1
41	3	0	3	1	0	1	3	1	4	0	0	0
42	3	0	3	1	0	1	3	1	4	1	0	1
43	3	0	3	1	0	1	4	0	4	1	2	3
44	3	0	3	0	1	1	0	1	1	0	0	0
45	3	0	3	1	0	1	1	3	4	0	0	0
46	3	0	3	1	0	1	2	2	4	1	0	1
47	3	0	3	1	0	1	2	1	3	0	0	0
48	3	0	3	1	0	1	3	1	4	0	1	1
49	3	0	3	1	0	1	3	0	3	0	0	0
50	3	0	3	1	0	1	2	2	4	1	0	1

Table 143 1 CRUDES 4 LCS-r11 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.16	0.7	1.86	0.12	0.12	0.24	0	0	0
max	3	3	3	1	1	1	0	0	0
sig	1.14926773	0.863075	1.27791284	0.32826072	0.328261	0.43141911	0	0	0
sigxb	0.02298535	0.017261	0.02555826	0.00656521	0.006565	0.00862838	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.7	1.14		0.12	0.76		0	4
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	1	0	1	0	0	0
4	1	1	2	0	1	1	0	0	0
5	1	1	2	0	0	0	0	0	0
6	0	3	3	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	3	0	3	1	0	1	0	0	0
11	1	2	3	0	0	0	0	0	0
12	2	1	3	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	3	0	3	1	0	1	0	0	0
15	0	0	0	0	0	0	0	0	0
16	2	0	2	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	1	1	2	0	0	0	0	0	0
23	3	0	3	1	0	1	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	0	1	1	0	0	0
26	0	2	2	0	0	0	0	0	0
27	0	2	2	0	0	0	0	0	0
28	0	2	2	0	0	0	0	0	0
29	1	1	2	0	0	0	0	0	0
30	2	0	2	0	0	0	0	0	0
31	2	1	3	0	1	1	0	0	0
32	0	3	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	1	1	0	0	0	0	0	0
35	2	1	3	0	1	1	0	0	0
36	2	1	3	1	0	1	0	0	0
37	1	1	2	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	1	0	1	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0
41	1	1	2	0	0	0	0	0	0
42	2	1	3	0	1	1	0	0	0
43	0	0	0	0	0	0	0	0	0
44	2	1	3	0	0	0	0	0	0
45	2	1	3	1	0	1	0	0	0
46	0	0	0	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0
48	2	1	3	0	1	1	0	0	0
49	0	3	3	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 144 1 CRUDES 4 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	0	0	0	0	0	0
xbar	3	0	3	1	0	1	2.24	0.88	3.12	0.98	0.74	1.72
max	3	0	3	1	0	1	4	3	4	3	3	5
sig	0	0	0	0	0	0	1.34862	0.895	1.17178	0.958102	0.8283251	1.278392
sigx	0	0	0	0	0	0	0.02697	0.018	0.02344	0.019162	0.0165665	0.025568
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.88	0.88		0.74	3.28
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	0	4	1	0	1
2	3	0	3	1	0	1	4	0	4	2	1	3
3	3	0	3	1	0	1	3	1	4	2	0	2
4	3	0	3	1	0	1	2	2	4	1	1	2
5	3	0	3	1	0	1	1	3	4	0	1	1
6	3	0	3	1	0	1	1	2	3	0	0	0
7	3	0	3	1	0	1	2	1	3	2	1	3
8	3	0	3	1	0	1	4	0	4	2	2	4
9	3	0	3	1	0	1	2	2	4	2	0	2
10	3	0	3	1	0	1	2	2	4	1	0	1
11	3	0	3	1	0	1	1	2	3	0	1	1
12	3	0	3	1	0	1	4	0	4	1	1	2
13	3	0	3	1	0	1	3	1	4	0	1	1
14	3	0	3	1	0	1	4	0	4	0	2	2
15	3	0	3	1	0	1	0	0	0	0	0	0
16	3	0	3	1	0	1	2	1	3	0	0	0
17	3	0	3	1	0	1	3	0	3	2	2	4
18	3	0	3	1	0	1	2	1	3	1	1	2
19	3	0	3	1	0	1	2	1	3	1	1	2
20	3	0	3	1	0	1	3	0	3	3	1	4
21	3	0	3	1	0	1	3	1	4	2	1	3
22	3	0	3	1	0	1	2	2	4	0	1	1
23	3	0	3	1	0	1	4	0	4	2	3	5
24	3	0	3	1	0	1	2	1	3	2	1	3
25	3	0	3	1	0	1	4	0	4	1	2	3
26	3	0	3	1	0	1	2	0	2	0	0	0
27	3	0	3	1	0	1	4	0	4	1	1	2
28	3	0	3	1	0	1	0	2	2	2	0	2
29	3	0	3	1	0	1	4	0	4	1	0	1
30	3	0	3	1	0	1	3	1	4	0	1	1
31	3	0	3	1	0	1	4	0	4	2	0	2
32	3	0	3	1	0	1	4	0	4	0	2	2
33	3	0	3	1	0	1	0	0	0	0	0	0
34	3	0	3	1	0	1	3	1	4	3	0	3
35	3	0	3	1	0	1	1	1	2	3	0	3
36	3	0	3	1	0	1	0	3	3	0	0	0
37	3	0	3	1	0	1	0	1	1	1	0	1
38	3	0	3	1	0	1	0	0	0	0	0	0
39	3	0	3	1	0	1	3	0	3	1	0	1
40	3	0	3	1	0	1	2	2	4	1	1	2
41	3	0	3	1	0	1	2	0	2	0	0	0
42	3	0	3	1	0	1	3	0	3	0	1	1
43	3	0	3	1	0	1	0	1	1	1	0	1
44	3	0	3	1	0	1	2	2	4	2	1	3
45	3	0	3	1	0	1	3	0	3	1	0	1
46	3	0	3	1	0	1	3	1	4	0	3	3
47	3	0	3	1	0	1	1	2	3	0	2	2
48	3	0	3	1	0	1	2	2	4	0	0	0
49	3	0	3	1	0	1	0	1	1	0	0	0
50	3	0	3	1	0	1	2	1	3	2	1	3

Table 145 1 CRUDES 4 LCS-r13 Data Spreadsheet

	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	0.94	0.04	0.98	1.48	1.32	2.8
max	3	0	3	1	1	1	4	3	4
sig	0	0	0	0.23989794	0.197949	0.14142136	1.18218	0.891	1.27775
sigxb	0	0	0	0.00479796	0.003959	0.00282843	0.02364	0.018	0.02556
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.04	0.02		1.32	1.2
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	2	2	4
2	3	0	3	1	0	1	1	1	2
3	3	0	3	1	0	1	4	0	4
4	3	0	3	1	0	1	3	0	3
5	3	0	3	1	0	1	3	1	4
6	3	0	3	1	0	1	2	1	3
7	3	0	3	0	1	1	0	0	0
8	3	0	3	1	0	1	0	2	2
9	3	0	3	1	0	1	1	3	4
10	3	0	3	1	0	1	1	2	3
11	3	0	3	1	0	1	1	1	2
12	3	0	3	0	1	1	0	0	0
13	3	0	3	1	0	1	3	1	4
14	3	0	3	1	0	1	2	2	4
15	3	0	3	1	0	1	0	2	2
16	3	0	3	1	0	1	2	1	3
17	3	0	3	1	0	1	0	0	0
18	3	0	3	1	0	1	2	0	2
19	3	0	3	1	0	1	2	1	3
20	3	0	3	1	0	1	3	1	4
21	3	0	3	1	0	1	0	2	2
22	3	0	3	1	0	1	4	0	4
23	3	0	3	1	0	1	2	2	4
24	3	0	3	1	0	1	0	2	2
25	3	0	3	1	0	1	2	1	3
26	3	0	3	1	0	1	3	1	4
27	3	0	3	1	0	1	3	1	4
28	3	0	3	1	0	1	1	3	4
29	3	0	3	1	0	1	2	2	4
30	3	0	3	1	0	1	0	2	2
31	3	0	3	1	0	1	1	2	3
32	3	0	3	1	0	1	0	0	0
33	3	0	3	1	0	1	2	1	3
34	3	0	3	1	0	1	0	0	0
35	3	0	3	1	0	1	3	1	4
36	3	0	3	1	0	1	1	2	3
37	3	0	3	1	0	1	1	2	3
38	3	0	3	1	0	1	2	2	4
39	3	0	3	1	0	1	1	1	2
40	3	0	3	1	0	1	0	3	3
41	3	0	3	1	0	1	2	1	3
42	3	0	3	1	0	1	0	3	3
43	3	0	3	1	0	1	1	2	3
44	3	0	3	1	0	1	2	1	3
45	3	0	3	0	0	0	0	0	0
46	3	0	3	1	0	1	0	2	2
47	3	0	3	1	0	1	2	2	4
48	3	0	3	1	0	1	2	2	4
49	3	0	3	1	0	1	2	1	3
50	3	0	3	1	0	1	3	1	4

Table 146 1 CRUDES 4 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	4	5								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	2	0	4	0	0	0
xbar	3	0	3	1	0	1	3.78	0.22	4	0.76	0.56	1.32
max	3	0	3	1	0	1	4	2	4	5	2	5
sig	0	0	0	0	0	0	0.46467	0.465	0	1.079682	0.674915	1.300549
sigx	0	0	0	0	0	0	0.00929	0.009	0	0.021594	0.0134983	0.026011
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.22	0		0.56	3.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	0	4	1	0	1
2	3	0	3	1	0	1	4	0	4	2	1	3
3	3	0	3	1	0	1	4	0	4	2	0	2
4	3	0	3	1	0	1	4	0	4	1	0	1
5	3	0	3	1	0	1	4	0	4	0	1	1
6	3	0	3	1	0	1	3	1	4	2	1	3
7	3	0	3	1	0	1	4	0	4	2	1	3
8	3	0	3	1	0	1	3	1	4	1	0	1
9	3	0	3	1	0	1	4	0	4	2	0	2
10	3	0	3	1	0	1	4	0	4	1	1	2
11	3	0	3	1	0	1	4	0	4	2	1	3
12	3	0	3	1	0	1	4	0	4	2	2	4
13	3	0	3	1	0	1	4	0	4	2	0	2
14	3	0	3	1	0	1	4	0	4	0	2	2
15	3	0	3	1	0	1	3	1	4	0	0	0
16	3	0	3	1	0	1	2	2	4	0	0	0
17	3	0	3	1	0	1	3	1	4	0	1	1
18	3	0	3	1	0	1	3	1	4	0	1	1
19	3	0	3	1	0	1	4	0	4	0	0	0
20	3	0	3	1	0	1	3	1	4	0	1	1
21	3	0	3	1	0	1	4	0	4	1	2	3
22	3	0	3	1	0	1	4	0	4	0	0	0
23	3	0	3	1	0	1	4	0	4	2	0	2
24	3	0	3	1	0	1	4	0	4	0	1	1
25	3	0	3	1	0	1	4	0	4	0	1	1
26	3	0	3	1	0	1	4	0	4	0	0	0
27	3	0	3	1	0	1	4	0	4	5	0	5
28	3	0	3	1	0	1	4	0	4	0	0	0
29	3	0	3	1	0	1	4	0	4	3	2	5
30	3	0	3	1	0	1	4	0	4	0	1	1
31	3	0	3	1	0	1	4	0	4	0	0	0
32	3	0	3	1	0	1	4	0	4	0	0	0
33	3	0	3	1	0	1	4	0	4	0	1	1
34	3	0	3	1	0	1	4	0	4	0	2	2
35	3	0	3	1	0	1	4	0	4	0	0	0
36	3	0	3	1	0	1	3	1	4	0	1	1
37	3	0	3	1	0	1	4	0	4	0	0	0
38	3	0	3	1	0	1	4	0	4	2	1	3
39	3	0	3	1	0	1	4	0	4	0	1	1
40	3	0	3	1	0	1	4	0	4	0	1	1
41	3	0	3	1	0	1	4	0	4	1	0	1
42	3	0	3	1	0	1	4	0	4	0	0	0
43	3	0	3	1	0	1	4	0	4	1	0	1
44	3	0	3	1	0	1	3	1	4	1	0	1
45	3	0	3	1	0	1	4	0	4	0	0	0
46	3	0	3	1	0	1	4	0	4	0	1	1
47	3	0	3	1	0	1	4	0	4	0	0	0
48	3	0	3	1	0	1	4	0	4	2	0	2
49	3	0	3	1	0	1	3	1	4	0	0	0
50	3	0	3	1	0	1	4	0	4	0	0	0

Table 147 1 CRUDES 4 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.94	0.78	1.72	0.06	0.08	0.14	0	0.02	0.02
max	3	3	3	1	1	1	0	1	1
sig	1.11410255	0.953832	1.35586406	0.23989794	0.274048	0.35050983	0	0.141	0.14142
sigxb	0.02228205	0.019077	0.02711728	0.00479796	0.005481	0.0070102	0	0.003	0.00283
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.78	1.28		0.08	0.86		0.02	4.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	1	1	1	0	1	0	0	0
3	2	1	3	0	0	0	0	0	0
4	3	0	3	0	1	1	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	0	3	3	0	0	0	0	0	0
11	1	1	2	0	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	3	3	0	1	1	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	2	1	3	0	1	1	0	1	1
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	1	2	3	0	0	0	0	0	0
20	1	1	2	0	0	0	0	0	0
21	3	0	3	1	0	1	0	0	0
22	2	1	3	0	0	0	0	0	0
23	1	1	2	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	3	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	0	2	2	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	1	2	3	0	0	0	0	0	0
31	0	3	3	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	0	1	1	0	0	0	0	0	0
34	1	1	2	0	0	0	0	0	0
35	2	1	3	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	2	1	3	0	0	0	0	0	0
38	2	1	3	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	0	1	1	0	0	0	0	0	0
42	2	0	2	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	1	1	2	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	2	1	3	1	0	1	0	0	0
48	0	3	3	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 148 1 CRUDES 5 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.98	0	0.98	3.56	0.84	4.4	0.48	0.52	1
max	3	0	3	1	0	1	5	4	5	5	4	6
sig	0	0	0	0.14142136	0	0.14142136	1.68014	0.976	1.19523	1.034901	0.9527618	1.577909
sigxb	0	0	0	0.00282843	0	0.00282843	0.0336	0.02	0.0239	0.020698	0.0190552	0.031558
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0.02		0.84	0.6		0.52	5
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	2	4
2	3	0	3	1	0	1	1	1	2	0	0	0
3	3	0	3	1	0	1	4	1	5	2	1	3
4	3	0	3	1	0	1	4	1	5	0	0	0
5	3	0	3	1	0	1	4	1	5	0	0	0
6	3	0	3	1	0	1	3	2	5	0	0	0
7	3	0	3	1	0	1	5	0	5	1	4	5
8	3	0	3	1	0	1	4	1	5	0	0	0
9	3	0	3	1	0	1	5	0	5	0	0	0
10	3	0	3	1	0	1	4	0	4	0	0	0
11	3	0	3	0	0	0	0	0	0	0	0	0
12	3	0	3	1	0	1	5	0	5	0	1	1
13	3	0	3	1	0	1	5	0	5	0	3	3
14	3	0	3	1	0	1	5	0	5	0	0	0
15	3	0	3	1	0	1	3	1	4	0	0	0
16	3	0	3	1	0	1	5	0	5	1	0	1
17	3	0	3	1	0	1	1	4	5	0	0	0
18	3	0	3	1	0	1	5	0	5	2	2	4
19	3	0	3	1	0	1	3	2	5	0	0	0
20	3	0	3	1	0	1	3	1	4	0	0	0
21	3	0	3	1	0	1	1	3	4	0	0	0
22	3	0	3	1	0	1	5	0	5	2	1	3
23	3	0	3	1	0	1	5	0	5	0	1	1
24	3	0	3	1	0	1	0	1	1	0	0	0
25	3	0	3	1	0	1	5	0	5	0	3	3
26	3	0	3	1	0	1	4	1	5	0	0	0
27	3	0	3	1	0	1	4	0	4	0	0	0
28	3	0	3	1	0	1	5	0	5	0	0	0
29	3	0	3	1	0	1	3	2	5	0	0	0
30	3	0	3	1	0	1	5	0	5	1	2	3
31	3	0	3	1	0	1	2	2	4	0	0	0
32	3	0	3	1	0	1	4	1	5	0	0	0
33	3	0	3	1	0	1	5	0	5	1	0	1
34	3	0	3	1	0	1	5	0	5	0	0	0
35	3	0	3	1	0	1	1	3	4	1	1	2
36	3	0	3	1	0	1	4	1	5	0	0	0
37	3	0	3	1	0	1	4	1	5	0	0	0
38	3	0	3	1	0	1	5	0	5	5	1	6
39	3	0	3	1	0	1	4	1	5	0	0	0
40	3	0	3	1	0	1	0	2	2	0	0	0
41	3	0	3	1	0	1	3	2	5	0	0	0
42	3	0	3	1	0	1	4	1	5	0	0	0
43	3	0	3	1	0	1	5	0	5	0	2	2
44	3	0	3	1	0	1	5	0	5	1	1	2
45	3	0	3	1	0	1	5	0	5	1	0	1
46	3	0	3	1	0	1	1	1	2	0	0	0
47	3	0	3	1	0	1	4	1	5	0	1	1
48	3	0	3	1	0	1	0	2	2	0	0	0
49	3	0	3	1	0	1	5	0	5	4	0	4
50	3	0	3	1	0	1	1	2	3	0	0	0

Table 149 1 CRUDES 5 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	1	0	0	0	0	0	0
xbar	2.86	0.08	2.94	0.28	0.24	0.52	1	1.24	2.24
max	3	1	3	1	1	1	4	4	5
sig	0.49528388	0.274048	0.31363569	0.45355737	0.431419	0.50467205	1.06904	1.041	1.54603
sigxb	0.00990568	0.005481	0.00627271	0.00907115	0.008628	0.01009344	0.02138	0.021	0.03092
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.08	0.06		0.24	0.48		1.24	2.76
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	1	0	1
2	3	0	3	1	0	1	1	2	3
3	3	0	3	0	1	1	2	2	4
4	3	0	3	0	1	1	1	2	3
5	3	0	3	1	0	1	0	2	2
6	3	0	3	0	1	1	0	2	2
7	3	0	3	1	0	1	1	1	2
8	3	0	3	0	1	1	3	0	3
9	3	0	3	0	1	1	1	1	2
10	3	0	3	1	0	1	1	4	5
11	3	0	3	0	0	0	0	0	0
12	3	0	3	1	0	1	2	1	3
13	3	0	3	0	0	0	0	3	3
14	3	0	3	0	1	1	1	2	3
15	3	0	3	0	1	1	0	0	0
16	3	0	3	0	1	1	1	1	2
17	3	0	3	0	0	0	2	3	5
18	3	0	3	1	0	1	1	3	4
19	3	0	3	0	1	1	0	1	1
20	3	0	3	0	0	0	2	1	3
21	3	0	3	0	0	0	0	0	0
22	3	0	3	0	0	0	0	1	1
23	3	0	3	1	0	1	1	1	2
24	3	0	3	1	0	1	0	2	2
25	2	1	3	0	0	0	0	1	1
26	3	0	3	0	0	0	1	1	2
27	3	0	3	0	0	0	1	3	4
28	3	0	3	0	0	0	0	0	0
29	3	0	3	1	0	1	0	2	2
30	3	0	3	1	0	1	3	1	4
31	3	0	3	0	0	0	4	0	4
32	3	0	3	1	0	1	1	0	1
33	3	0	3	1	0	1	3	1	4
34	2	1	3	0	0	0	0	0	0
35	3	0	3	0	0	0	0	2	2
36	3	0	3	0	0	0	0	0	0
37	2	0	2	0	0	0	0	1	1
38	3	0	3	0	0	0	2	2	4
39	0	1	1	0	0	0	0	0	0
40	3	0	3	0	1	1	1	2	3
41	3	0	3	1	0	1	2	1	3
42	3	0	3	0	0	0	1	3	4
43	3	0	3	0	0	0	1	1	2
44	3	0	3	0	0	0	3	2	5
45	3	0	3	0	1	1	0	0	0
46	3	0	3	0	0	0	3	1	4
47	3	0	3	1	0	1	1	0	1
48	2	1	3	0	0	0	0	0	0
49	3	0	3	0	1	1	2	2	4
50	3	0	3	0	0	0	0	1	1

Table 150 1 CRUDES 5 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	3	0	5	0	0	0
xbar	3	0	3	1	0	1	4.74	0.26	5	0.6	0.64	1.24
max	3	0	3	1	0	1	5	2	5	4	4	6
sig	0	0	0	0	0	0	0.63278	0.633	0	1.087968	0.9205145	1.6233
sigxb	0	0	0	0	0	0	0.01266	0.013	0	0.021759	0.0184103	0.032466
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.26	0		0.64	4.76
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	2	4
2	3	0	3	1	0	1	4	1	5	0	0	0
3	3	0	3	1	0	1	5	0	5	2	2	4
4	3	0	3	1	0	1	5	0	5	4	0	4
5	3	0	3	1	0	1	5	0	5	0	0	0
6	3	0	3	1	0	1	5	0	5	0	0	0
7	3	0	3	1	0	1	5	0	5	0	1	1
8	3	0	3	1	0	1	5	0	5	0	0	0
9	3	0	3	1	0	1	5	0	5	0	0	0
10	3	0	3	1	0	1	5	0	5	0	1	1
11	3	0	3	1	0	1	3	2	5	0	0	0
12	3	0	3	1	0	1	5	0	5	0	1	1
13	3	0	3	1	0	1	5	0	5	0	2	2
14	3	0	3	1	0	1	5	0	5	4	0	4
15	3	0	3	1	0	1	5	0	5	0	0	0
16	3	0	3	1	0	1	5	0	5	0	1	1
17	3	0	3	1	0	1	5	0	5	1	2	3
18	3	0	3	1	0	1	5	0	5	1	1	2
19	3	0	3	1	0	1	4	1	5	0	0	0
20	3	0	3	1	0	1	4	1	5	0	0	0
21	3	0	3	1	0	1	5	0	5	0	0	0
22	3	0	3	1	0	1	3	2	5	0	0	0
23	3	0	3	1	0	1	5	0	5	2	4	6
24	3	0	3	1	0	1	5	0	5	2	1	3
25	3	0	3	1	0	1	5	0	5	3	2	5
26	3	0	3	1	0	1	5	0	5	0	1	1
27	3	0	3	1	0	1	5	0	5	0	0	0
28	3	0	3	1	0	1	5	0	5	0	0	0
29	3	0	3	1	0	1	5	0	5	1	1	2
30	3	0	3	1	0	1	3	2	5	0	0	0
31	3	0	3	1	0	1	5	0	5	3	0	3
32	3	0	3	1	0	1	5	0	5	2	0	2
33	3	0	3	1	0	1	3	2	5	0	0	0
34	3	0	3	1	0	1	5	0	5	0	0	0
35	3	0	3	1	0	1	5	0	5	0	1	1
36	3	0	3	1	0	1	3	2	5	0	0	0
37	3	0	3	1	0	1	5	0	5	0	1	1
38	3	0	3	1	0	1	5	0	5	1	3	4
39	3	0	3	1	0	1	5	0	5	0	0	0
40	3	0	3	1	0	1	5	0	5	1	2	3
41	3	0	3	1	0	1	5	0	5	1	1	2
42	3	0	3	1	0	1	5	0	5	0	0	0
43	3	0	3	1	0	1	5	0	5	0	0	0
44	3	0	3	1	0	1	5	0	5	0	1	1
45	3	0	3	1	0	1	5	0	5	0	0	0
46	3	0	3	1	0	1	5	0	5	0	0	0
47	3	0	3	1	0	1	5	0	5	0	0	0
48	3	0	3	1	0	1	5	0	5	0	0	0
49	3	0	3	1	0	1	5	0	5	0	1	1
50	3	0	3	1	0	1	5	0	5	0	0	0

Table 151 1 CRUDES 5 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.8	0.58	2.38	0.12	0.14	0.26	0.14	0.22	0.36
max	3	2	3	1	1	1	2	3	5
sig	1.26168012	0.835195	1.12286078	0.32826072	0.35051	0.4430875	0.45221	0.616	0.94242
sigxb	0.0252336	0.016704	0.02245722	0.00656521	0.00701	0.00886175	0.00904	0.012	0.01885
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.58	0.62		0.14	0.74		0.22	4.64
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	1	2	3	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	0	2	2	0	0	0	0	0	0
4	1	2	3	0	0	0	0	0	0
5	3	0	3	0	1	1	0	2	2
6	1	2	3	0	0	0	0	0	0
7	3	0	3	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	0	1	1	0	0	0
10	0	0	0	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0
12	1	2	3	0	0	0	0	0	0
13	0	2	2	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	1	1	2	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	1	0	1	0	1	1
18	3	0	3	0	1	1	0	1	1
19	3	0	3	0	1	1	1	0	1
20	3	0	3	1	0	1	1	1	2
21	1	2	3	0	0	0	0	0	0
22	0	1	1	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	1	2	3	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	2	0	2	0	0	0	0	0	0
30	1	2	3	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	1	1	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	1	0	1	1	2	3
35	1	2	3	0	0	0	0	0	0
36	0	2	2	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	3	0	3	1	0	1	2	3	5
40	0	0	0	0	0	0	0	0	0
41	3	0	3	1	0	1	2	0	2
42	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	3	0	3	1	0	1	0	1	1
46	2	1	3	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	3	0	3	0	1	1	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 152 1 CRUDES 5 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	2	0	4	0	0	0
xbar	3	0	3	1	0	1	4.3	0.6	4.9	0.32	0.44	0.76
max	3	0	3	1	0	1	5	2	5	4	3	4
sig	0	0	0	0	0	0	0.88641	0.756	0.30305	0.819158	0.8369039	1.286666
sigxb	0	0	0	0	0	0	0.01773	0.015	0.00606	0.016383	0.0167381	0.025733
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.6	0.1		0.44	5.24
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	2	4
2	3	0	3	1	0	1	5	0	5	0	0	0
3	3	0	3	1	0	1	5	0	5	0	0	0
4	3	0	3	1	0	1	3	2	5	0	0	0
5	3	0	3	1	0	1	3	2	5	0	0	0
6	3	0	3	1	0	1	5	0	5	0	0	0
7	3	0	3	1	0	1	4	1	5	0	0	0
8	3	0	3	1	0	1	4	1	5	0	0	0
9	3	0	3	1	0	1	5	0	5	0	0	0
10	3	0	3	1	0	1	3	2	5	0	0	0
11	3	0	3	1	0	1	5	0	5	0	0	0
12	3	0	3	1	0	1	3	1	4	0	0	0
13	3	0	3	1	0	1	5	0	5	1	0	1
14	3	0	3	1	0	1	4	1	5	0	1	1
15	3	0	3	1	0	1	5	0	5	1	1	2
16	3	0	3	1	0	1	5	0	5	0	2	2
17	3	0	3	1	0	1	5	0	5	2	1	3
18	3	0	3	1	0	1	5	0	5	3	1	4
19	3	0	3	1	0	1	4	1	5	0	0	0
20	3	0	3	1	0	1	5	0	5	0	2	2
21	3	0	3	1	0	1	5	0	5	0	0	0
22	3	0	3	1	0	1	5	0	5	4	0	4
23	3	0	3	1	0	1	5	0	5	0	0	0
24	3	0	3	1	0	1	5	0	5	0	0	0
25	3	0	3	1	0	1	5	0	5	0	0	0
26	3	0	3	1	0	1	4	1	5	0	0	0
27	3	0	3	1	0	1	4	1	5	0	0	0
28	3	0	3	1	0	1	5	0	5	1	0	1
29	3	0	3	1	0	1	4	1	5	0	0	0
30	3	0	3	1	0	1	5	0	5	0	0	0
31	3	0	3	1	0	1	2	2	4	0	0	0
32	3	0	3	1	0	1	3	1	4	0	0	0
33	3	0	3	1	0	1	4	1	5	0	0	0
34	3	0	3	1	0	1	5	0	5	1	2	3
35	3	0	3	1	0	1	5	0	5	0	1	1
36	3	0	3	1	0	1	2	2	4	0	0	0
37	3	0	3	1	0	1	3	2	5	0	0	0
38	3	0	3	1	0	1	5	0	5	0	1	1
39	3	0	3	1	0	1	4	1	5	0	0	0
40	3	0	3	1	0	1	5	0	5	0	3	3
41	3	0	3	1	0	1	4	1	5	0	0	0
42	3	0	3	1	0	1	4	1	5	0	0	0
43	3	0	3	1	0	1	3	2	5	0	0	0
44	3	0	3	1	0	1	5	0	5	0	3	3
45	3	0	3	1	0	1	4	0	4	0	0	0
46	3	0	3	1	0	1	5	0	5	0	0	0
47	3	0	3	1	0	1	3	2	5	0	0	0
48	3	0	3	1	0	1	4	1	5	0	0	0
49	3	0	3	1	0	1	5	0	5	0	0	0
50	3	0	3	1	0	1	5	0	5	1	2	3

Table 153 1 CRUDES 5 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	1
xbar	3	0	3	0.88	0.1	0.98	3.14	1.3	4.44
max	3	0	3	1	1	1	5	4	5
sig	0	0	0	0.32826072	0.303046	0.14142136	1.21235	0.974	0.88433
sigxb	0	0	0	0.00656521	0.006061	0.00282843	0.02425	0.019	0.01769
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.1	0.02		1.3	0.56
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	3	2	5
2	3	0	3	0	1	1	2	2	4
3	3	0	3	1	0	1	1	4	5
4	3	0	3	1	0	1	3	2	5
5	3	0	3	1	0	1	3	2	5
6	3	0	3	1	0	1	5	0	5
7	3	0	3	1	0	1	1	3	4
8	3	0	3	1	0	1	3	1	4
9	3	0	3	1	0	1	5	0	5
10	3	0	3	1	0	1	4	1	5
11	3	0	3	1	0	1	4	0	4
12	3	0	3	0	1	1	0	1	1
13	3	0	3	1	0	1	3	0	3
14	3	0	3	1	0	1	4	1	5
15	3	0	3	1	0	1	3	2	5
16	3	0	3	1	0	1	3	1	4
17	3	0	3	1	0	1	3	2	5
18	3	0	3	1	0	1	3	2	5
19	3	0	3	1	0	1	5	0	5
20	3	0	3	1	0	1	3	2	5
21	3	0	3	1	0	1	2	2	4
22	3	0	3	1	0	1	4	1	5
23	3	0	3	1	0	1	2	2	4
24	3	0	3	1	0	1	4	0	4
25	3	0	3	1	0	1	4	1	5
26	3	0	3	1	0	1	4	1	5
27	3	0	3	1	0	1	2	2	4
28	3	0	3	1	0	1	3	2	5
29	3	0	3	1	0	1	3	1	4
30	3	0	3	0	1	1	2	2	4
31	3	0	3	1	0	1	4	1	5
32	3	0	3	1	0	1	5	0	5
33	3	0	3	1	0	1	1	0	1
34	3	0	3	1	0	1	5	0	5
35	3	0	3	1	0	1	5	0	5
36	3	0	3	0	0	0	2	2	4
37	3	0	3	1	0	1	3	1	4
38	3	0	3	1	0	1	4	0	4
39	3	0	3	1	0	1	4	1	5
40	3	0	3	1	0	1	4	1	5
41	3	0	3	1	0	1	3	1	4
42	3	0	3	1	0	1	3	2	5
43	3	0	3	1	0	1	3	1	4
44	3	0	3	1	0	1	5	0	5
45	3	0	3	1	0	1	2	3	5
46	3	0	3	1	0	1	1	3	4
47	3	0	3	1	0	1	4	1	5
48	3	0	3	1	0	1	2	2	4
49	3	0	3	0	1	1	3	2	5
50	3	0	3	1	0	1	3	2	5

Table 154 1 CRUDES 5 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	4	0	5	0	0	0
xbar	3	0	3	1	0	1	4.9	0.1	5	0.36	0.38	0.74
max	3	0	3	1	0	1	5	1	5	3	3	4
sig	0	0	0	0	0	0	0.30305	0.303	0	0.721676	0.7795865	1.337222
sigxb	0	0	0	0	0	0	0.00606	0.006	0	0.014434	0.0155917	0.026744
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.1	0		0.38	5.26
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	2	4
2	3	0	3	1	0	1	5	0	5	0	0	0
3	3	0	3	1	0	1	5	0	5	0	0	0
4	3	0	3	1	0	1	4	1	5	0	0	0
5	3	0	3	1	0	1	5	0	5	0	0	0
6	3	0	3	1	0	1	5	0	5	0	0	0
7	3	0	3	1	0	1	5	0	5	0	0	0
8	3	0	3	1	0	1	5	0	5	0	0	0
9	3	0	3	1	0	1	5	0	5	0	0	0
10	3	0	3	1	0	1	5	0	5	0	0	0
11	3	0	3	1	0	1	5	0	5	0	0	0
12	3	0	3	1	0	1	5	0	5	0	0	0
13	3	0	3	1	0	1	5	0	5	2	0	2
14	3	0	3	1	0	1	5	0	5	0	0	0
15	3	0	3	1	0	1	5	0	5	0	0	0
16	3	0	3	1	0	1	5	0	5	1	2	3
17	3	0	3	1	0	1	5	0	5	0	0	0
18	3	0	3	1	0	1	5	0	5	0	0	0
19	3	0	3	1	0	1	4	1	5	0	0	0
20	3	0	3	1	0	1	5	0	5	0	0	0
21	3	0	3	1	0	1	5	0	5	0	0	0
22	3	0	3	1	0	1	5	0	5	1	0	1
23	3	0	3	1	0	1	5	0	5	0	0	0
24	3	0	3	1	0	1	5	0	5	3	1	4
25	3	0	3	1	0	1	4	1	5	0	0	0
26	3	0	3	1	0	1	5	0	5	0	0	0
27	3	0	3	1	0	1	5	0	5	0	0	0
28	3	0	3	1	0	1	5	0	5	1	2	3
29	3	0	3	1	0	1	5	0	5	1	3	4
30	3	0	3	1	0	1	5	0	5	1	0	1
31	3	0	3	1	0	1	4	1	5	0	0	0
32	3	0	3	1	0	1	5	0	5	0	0	0
33	3	0	3	1	0	1	5	0	5	0	0	0
34	3	0	3	1	0	1	5	0	5	0	1	1
35	3	0	3	1	0	1	5	0	5	0	0	0
36	3	0	3	1	0	1	5	0	5	2	2	4
37	3	0	3	1	0	1	5	0	5	0	0	0
38	3	0	3	1	0	1	5	0	5	0	0	0
39	3	0	3	1	0	1	5	0	5	0	0	0
40	3	0	3	1	0	1	5	0	5	0	0	0
41	3	0	3	1	0	1	5	0	5	0	2	2
42	3	0	3	1	0	1	5	0	5	0	0	0
43	3	0	3	1	0	1	5	0	5	1	2	3
44	3	0	3	1	0	1	5	0	5	0	0	0
45	3	0	3	1	0	1	5	0	5	0	0	0
46	3	0	3	1	0	1	5	0	5	2	1	3
47	3	0	3	1	0	1	4	1	5	0	0	0
48	3	0	3	1	0	1	5	0	5	0	0	0
49	3	0	3	1	0	1	5	0	5	1	1	2
50	3	0	3	1	0	1	5	0	5	0	0	0

Table 155 1 CRUDES 5 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	0.98	0.7	1.68	0.08	0.14	0.22	0	0	0
max	3	3	3	1	1	1	0	0	0
sig	1.03981945	0.886405	1.37677529	0.27404752	0.35051	0.41845196	0	0	0
sigxb	0.02079639	0.017728	0.02753551	0.00548095	0.00701	0.00836904	0	0	0
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.7	1.32		0.14	0.78		0	5
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	1	1	2	0	0	0	0	0	0
4	1	2	3	0	1	1	0	0	0
5	2	0	2	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	2	0	2	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	3	0	3	0	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	1	2	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	2	1	3	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	3	0	3	1	0	1	0	0	0
20	2	0	2	0	1	1	0	0	0
21	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	1	2	3	0	0	0	0	0	0
25	2	1	3	1	0	1	0	0	0
26	0	2	2	0	0	0	0	0	0
27	1	2	3	0	1	1	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	3	3	0	0	0	0	0	0
30	0	2	2	0	1	1	0	0	0
31	0	0	0	0	0	0	0	0	0
32	2	0	2	1	0	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	1	2	3	0	1	1	0	0	0
35	1	1	2	0	0	0	0	0	0
36	1	2	3	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0
39	3	0	3	0	1	1	0	0	0
40	1	2	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	2	1	3	0	0	0	0	0	0
43	2	1	3	0	0	0	0	0	0
44	2	1	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	2	1	3	0	0	0	0	0	0
47	1	2	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 156 1 CRUDES 5 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.98	0	0.98	1.64	1.58	3.22	1.08	0.78	1.86
max	3	0	3	1	0	1	5	3	5	4	3	6
sig	0	0	0	0.14142136	0	0.14142136	1.38151	0.992	1.51577	1.006915	0.8873257	1.428714
sigxb	0	0	0	0.00282843	0	0.00282843	0.02763	0.02	0.03032	0.020138	0.0177465	0.028574
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0.02		1.58	1.78		0.78	4.14
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	4	1	5	1	3	4
2	3	0	3	1	0	1	1	3	4	1	0	1
3	3	0	3	1	0	1	4	1	5	3	1	4
4	3	0	3	1	0	1	1	2	3	2	0	2
5	3	0	3	1	0	1	1	2	3	1	1	2
6	3	0	3	1	0	1	1	3	4	0	0	0
7	3	0	3	1	0	1	2	3	5	3	0	3
8	3	0	3	1	0	1	2	1	3	1	1	2
9	3	0	3	1	0	1	0	1	1	1	1	2
10	3	0	3	1	0	1	1	0	1	0	0	0
11	3	0	3	0	0	0	0	0	0	0	0	0
12	3	0	3	1	0	1	0	2	2	2	0	2
13	3	0	3	1	0	1	2	3	5	2	2	4
14	3	0	3	1	0	1	2	2	4	4	2	6
15	3	0	3	1	0	1	3	0	3	1	0	1
16	3	0	3	1	0	1	4	1	5	3	0	3
17	3	0	3	1	0	1	1	1	2	1	1	2
18	3	0	3	1	0	1	2	2	4	2	0	2
19	3	0	3	1	0	1	2	2	4	1	1	2
20	3	0	3	1	0	1	2	3	5	0	1	1
21	3	0	3	1	0	1	0	2	2	0	0	0
22	3	0	3	1	0	1	5	0	5	1	3	4
23	3	0	3	1	0	1	2	2	4	1	3	4
24	3	0	3	1	0	1	4	1	5	1	1	2
25	3	0	3	1	0	1	3	2	5	1	2	3
26	3	0	3	1	0	1	0	1	1	0	0	0
27	3	0	3	1	0	1	0	0	0	0	0	0
28	3	0	3	1	0	1	3	0	3	0	2	2
29	3	0	3	1	0	1	0	3	3	2	0	2
30	3	0	3	1	0	1	1	3	4	2	1	3
31	3	0	3	1	0	1	1	1	2	0	1	1
32	3	0	3	1	0	1	0	2	2	0	0	0
33	3	0	3	1	0	1	0	3	3	1	0	1
34	3	0	3	1	0	1	1	1	2	0	0	0
35	3	0	3	1	0	1	0	1	1	2	1	3
36	3	0	3	1	0	1	3	1	4	1	1	2
37	3	0	3	1	0	1	0	2	2	0	0	0
38	3	0	3	1	0	1	0	3	3	1	1	2
39	3	0	3	1	0	1	2	2	4	1	1	2
40	3	0	3	1	0	1	1	0	1	1	1	2
41	3	0	3	1	0	1	2	2	4	0	0	0
42	3	0	3	1	0	1	2	3	5	2	1	3
43	3	0	3	1	0	1	4	1	5	2	1	3
44	3	0	3	1	0	1	0	2	2	0	0	0
45	3	0	3	1	0	1	1	1	2	2	0	2
46	3	0	3	1	0	1	1	1	2	0	1	1
47	3	0	3	1	0	1	3	2	5	2	0	2
48	3	0	3	1	0	1	3	2	5	0	2	2
49	3	0	3	1	0	1	2	0	2	0	0	0
50	3	0	3	1	0	1	3	2	5	2	2	4

Table 157 1 CRUDES 5 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	1	0	0	0	0	0	0
xbar	2.8	0.14	2.94	0.64	0.16	0.8	0.38	1.28	1.66
max	3	2	3	1	1	1	3	4	5
sig	0.67005939	0.452205	0.31363569	0.48487322	0.370328	0.40406102	0.63535	1.179	1.47924
sigxb	0.01340119	0.009044	0.00627271	0.00969746	0.007407	0.00808122	0.01271	0.024	0.02958
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.14	0.06		0.16	0.2		1.28	3.34
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	1	1
2	3	0	3	0	1	1	0	0	0
3	3	0	3	1	0	1	0	0	0
4	3	0	3	1	0	1	0	0	0
5	3	0	3	1	0	1	1	2	3
6	3	0	3	0	0	0	0	0	0
7	3	0	3	1	0	1	1	1	2
8	3	0	3	0	0	0	0	1	1
9	3	0	3	0	1	1	1	0	1
10	3	0	3	1	0	1	1	2	3
11	2	1	3	0	0	0	0	0	0
12	3	0	3	1	0	1	1	4	5
13	3	0	3	1	0	1	0	2	2
14	3	0	3	0	1	1	0	2	2
15	3	0	3	1	0	1	0	1	1
16	3	0	3	0	1	1	0	1	1
17	0	1	1	0	0	0	0	0	0
18	3	0	3	1	0	1	0	0	0
19	0	2	2	0	0	0	0	0	0
20	3	0	3	1	0	1	0	2	2
21	3	0	3	0	1	1	1	2	3
22	3	0	3	1	0	1	0	3	3
23	3	0	3	0	1	1	0	0	0
24	3	0	3	1	0	1	1	4	5
25	1	2	3	0	0	0	0	0	0
26	3	0	3	1	0	1	0	1	1
27	3	0	3	1	0	1	2	2	4
28	3	0	3	1	0	1	1	1	2
29	3	0	3	1	0	1	0	3	3
30	3	0	3	1	0	1	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	1	0	1	0	3	3
33	3	0	3	1	0	1	0	3	3
34	3	0	3	1	0	1	1	2	3
35	3	0	3	1	0	1	1	2	3
36	2	1	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	1	1
38	3	0	3	1	0	1	0	2	2
39	3	0	3	1	0	1	1	1	2
40	3	0	3	1	0	1	0	4	4
41	3	0	3	1	0	1	0	1	1
42	3	0	3	1	0	1	0	1	1
43	3	0	3	1	0	1	1	0	1
44	3	0	3	1	0	1	0	2	2
45	3	0	3	1	0	1	1	1	2
46	3	0	3	1	0	1	0	1	1
47	3	0	3	0	1	1	0	1	1
48	3	0	3	0	1	1	1	2	3
49	3	0	3	1	0	1	3	2	5
50	3	0	3	0	0	0	0	0	0

Table 158 1 CRUDES 5 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	2	0	4	0	0	0
xbar	3	0	3	1	0	1	4.42	0.54	4.96	1.04	0.68	1.72
max	3	0	3	1	0	1	5	2	5	4	3	5
sig	0	0	0	0	0	0	0.7848	0.706	0.19795	1.068281	0.7938539	1.457423
sigxb	0	0	0	0	0	0	0.0157	0.014	0.00396	0.021366	0.0158771	0.029148
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.54	0.04		0.68	4.28
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	2	4
2	3	0	3	1	0	1	5	0	5	1	1	2
3	3	0	3	1	0	1	4	1	5	0	0	0
4	3	0	3	1	0	1	3	2	5	1	1	2
5	3	0	3	1	0	1	2	2	4	0	0	0
6	3	0	3	1	0	1	4	1	5	0	0	0
7	3	0	3	1	0	1	4	1	5	0	1	1
8	3	0	3	1	0	1	5	0	5	2	2	4
9	3	0	3	1	0	1	4	1	5	1	2	3
10	3	0	3	1	0	1	5	0	5	1	1	2
11	3	0	3	1	0	1	5	0	5	2	2	4
12	3	0	3	1	0	1	3	1	4	0	0	0
13	3	0	3	1	0	1	4	1	5	0	0	0
14	3	0	3	1	0	1	5	0	5	3	1	4
15	3	0	3	1	0	1	3	2	5	0	0	0
16	3	0	3	1	0	1	4	1	5	0	0	0
17	3	0	3	1	0	1	5	0	5	0	0	0
18	3	0	3	1	0	1	5	0	5	0	1	1
19	3	0	3	1	0	1	5	0	5	3	1	4
20	3	0	3	1	0	1	5	0	5	1	0	1
21	3	0	3	1	0	1	4	1	5	2	0	2
22	3	0	3	1	0	1	4	1	5	0	1	1
23	3	0	3	1	0	1	4	1	5	1	0	1
24	3	0	3	1	0	1	5	0	5	3	2	5
25	3	0	3	1	0	1	3	2	5	1	0	1
26	3	0	3	1	0	1	4	1	5	2	3	5
27	3	0	3	1	0	1	5	0	5	0	1	1
28	3	0	3	1	0	1	5	0	5	4	0	4
29	3	0	3	1	0	1	5	0	5	1	1	2
30	3	0	3	1	0	1	3	2	5	0	0	0
31	3	0	3	1	0	1	5	0	5	1	1	2
32	3	0	3	1	0	1	5	0	5	1	0	1
33	3	0	3	1	0	1	5	0	5	1	1	2
34	3	0	3	1	0	1	5	0	5	0	2	2
35	3	0	3	1	0	1	5	0	5	2	1	3
36	3	0	3	1	0	1	5	0	5	1	0	1
37	3	0	3	1	0	1	5	0	5	1	0	1
38	3	0	3	1	0	1	5	0	5	1	2	3
39	3	0	3	1	0	1	5	0	5	3	0	3
40	3	0	3	1	0	1	5	0	5	0	1	1
41	3	0	3	1	0	1	4	1	5	1	0	1
42	3	0	3	1	0	1	4	1	5	1	1	2
43	3	0	3	1	0	1	5	0	5	0	0	0
44	3	0	3	1	0	1	4	1	5	0	0	0
45	3	0	3	1	0	1	3	2	5	0	1	1
46	3	0	3	1	0	1	5	0	5	3	0	3
47	3	0	3	1	0	1	5	0	5	2	0	2
48	3	0	3	1	0	1	5	0	5	2	0	2
49	3	0	3	1	0	1	5	0	5	1	1	2
50	3	0	3	1	0	1	4	1	5	0	0	0

Table 159 1 CRUDES 5 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.9	0.7	2.6	0.42	0.2	0.62	0.08	0.1	0.18
max	3	3	3	1	1	1	2	1	3
sig	1.14731274	0.886405	0.83299313	0.49856938	0.404061	0.49031435	0.3959	0.303	0.6289
sigxb	0.02294625	0.017728	0.01665986	0.00997139	0.008081	0.00980629	0.00792	0.006	0.01258
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.7	0.4		0.2	0.38		0.1	4.82
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	1	1
2	1	1	2	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	3	0	3	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	3	0	3	1	0	1	0	1	1
7	0	3	3	1	0	1	0	0	0
8	3	0	3	1	0	1	0	0	0
9	3	0	3	1	0	1	0	0	0
10	3	0	3	0	1	1	0	0	0
11	3	0	3	1	0	1	0	0	0
12	3	0	3	1	0	1	0	0	0
13	1	1	2	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	0	1	1	0	1	1	0	0	0
16	2	1	3	1	0	1	0	0	0
17	1	2	3	1	0	1	0	0	0
18	2	1	3	1	0	1	0	0	0
19	0	1	1	0	1	1	0	0	0
20	3	0	3	1	0	1	0	0	0
21	1	2	3	0	0	0	0	0	0
22	2	0	2	0	0	0	0	0	0
23	3	0	3	0	1	1	0	0	0
24	0	0	0	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0
27	1	1	2	0	0	0	0	0	0
28	2	1	3	0	1	1	0	0	0
29	2	1	3	1	0	1	0	0	0
30	1	2	3	0	0	0	0	0	0
31	3	0	3	1	0	1	0	0	0
32	2	1	3	0	1	1	0	0	0
33	1	2	3	0	1	1	0	0	0
34	3	0	3	1	0	1	0	1	1
35	1	2	3	1	0	1	0	0	0
36	3	0	3	1	0	1	2	1	3
37	2	1	3	1	0	1	0	0	0
38	0	3	3	0	1	1	0	0	0
39	3	0	3	1	0	1	0	0	0
40	3	0	3	0	0	0	0	0	0
41	1	2	3	0	0	0	0	0	0
42	2	0	2	1	0	1	0	0	0
43	3	0	3	1	0	1	0	0	0
44	3	0	3	1	0	1	2	1	3
45	3	0	3	1	0	1	0	0	0
46	3	0	3	0	0	0	0	0	0
47	3	0	3	0	1	1	0	0	0
48	1	1	2	0	0	0	0	0	0
49	1	2	3	0	0	0	0	0	0
50	2	1	3	0	0	0	0	0	0

Table 160 1 CRUDES 5 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	1	0	0	0
xbar	3	0	3	0.98	0	0.98	3.04	1.34	4.38	1.64	1	2.64
max	3	0	3	1	0	1	5	4	5	4	4	5
sig	0	0	0	0.14142136	0	0.14142136	1.38446	1.118	0.87808	1.064453	0.9689043	1.191124
sigxb	0	0	0	0.00282843	0	0.00282843	0.02769	0.022	0.01756	0.021289	0.0193781	0.023822
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0.02		1.34	0.62		1	3.36
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	3	2	5	1	2	3
2	3	0	3	0	0	0	2	3	5	1	0	1
3	3	0	3	1	0	1	3	2	5	2	2	4
4	3	0	3	1	0	1	5	0	5	2	0	2
5	3	0	3	1	0	1	5	0	5	1	2	3
6	3	0	3	1	0	1	3	0	3	2	1	3
7	3	0	3	1	0	1	3	1	4	0	1	1
8	3	0	3	1	0	1	1	3	4	1	0	1
9	3	0	3	1	0	1	4	1	5	2	1	3
10	3	0	3	1	0	1	2	1	3	1	1	2
11	3	0	3	1	0	1	3	2	5	3	0	3
12	3	0	3	1	0	1	2	1	3	0	1	1
13	3	0	3	1	0	1	2	2	4	3	1	4
14	3	0	3	1	0	1	5	0	5	2	0	2
15	3	0	3	1	0	1	5	0	5	2	2	4
16	3	0	3	1	0	1	5	0	5	1	3	4
17	3	0	3	1	0	1	2	1	3	1	1	2
18	3	0	3	1	0	1	1	3	4	3	1	4
19	3	0	3	1	0	1	5	0	5	2	2	4
20	3	0	3	1	0	1	3	2	5	0	1	1
21	3	0	3	1	0	1	4	1	5	2	1	3
22	3	0	3	1	0	1	2	3	5	3	0	3
23	3	0	3	1	0	1	1	4	5	0	0	0
24	3	0	3	1	0	1	0	1	1	0	0	0
25	3	0	3	1	0	1	4	0	4	1	3	4
26	3	0	3	1	0	1	5	0	5	3	0	3
27	3	0	3	1	0	1	4	1	5	2	0	2
28	3	0	3	1	0	1	4	1	5	2	0	2
29	3	0	3	1	0	1	4	0	4	3	1	4
30	3	0	3	1	0	1	2	2	4	1	1	2
31	3	0	3	1	0	1	4	0	4	3	0	3
32	3	0	3	1	0	1	3	2	5	3	1	4
33	3	0	3	1	0	1	2	2	4	2	1	3
34	3	0	3	1	0	1	4	1	5	2	2	4
35	3	0	3	1	0	1	3	2	5	1	0	1
36	3	0	3	1	0	1	4	1	5	0	1	1
37	3	0	3	1	0	1	1	2	3	2	0	2
38	3	0	3	1	0	1	5	0	5	2	0	2
39	3	0	3	1	0	1	4	1	5	2	1	3
40	3	0	3	1	0	1	2	3	5	3	1	4
41	3	0	3	1	0	1	1	4	5	0	3	3
42	3	0	3	1	0	1	3	1	4	2	0	2
43	3	0	3	1	0	1	5	0	5	0	4	4
44	3	0	3	1	0	1	3	1	4	0	2	2
45	3	0	3	1	0	1	3	2	5	2	1	3
46	3	0	3	1	0	1	3	1	4	2	1	3
47	3	0	3	1	0	1	4	1	5	3	2	5
48	3	0	3	1	0	1	1	2	3	1	1	2
49	3	0	3	1	0	1	1	3	4	4	0	4
50	3	0	3	1	0	1	2	1	3	1	1	2

Table 161 1 CRUDES 5 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	5	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	1	0	1	0	0	0
xbar	3	0	3	1	0	1	2.26	1.62	3.88
max	3	0	3	1	0	1	5	4	5
sig	0	0	0	0	0	0	1.46817	0.967	1.34983
sigxb	0	0	0	0	0	0	0.02936	0.019	0.027
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0	0		1.62	1.12
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	2	3	5
2	3	0	3	1	0	1	4	1	5
3	3	0	3	1	0	1	3	2	5
4	3	0	3	1	0	1	0	3	3
5	3	0	3	1	0	1	0	4	4
6	3	0	3	1	0	1	0	0	0
7	3	0	3	1	0	1	2	3	5
8	3	0	3	1	0	1	1	1	2
9	3	0	3	1	0	1	4	1	5
10	3	0	3	1	0	1	3	2	5
11	3	0	3	1	0	1	0	1	1
12	3	0	3	1	0	1	3	2	5
13	3	0	3	1	0	1	0	1	1
14	3	0	3	1	0	1	3	2	5
15	3	0	3	1	0	1	3	2	5
16	3	0	3	1	0	1	2	3	5
17	3	0	3	1	0	1	0	3	3
18	3	0	3	1	0	1	1	3	4
19	3	0	3	1	0	1	1	1	2
20	3	0	3	1	0	1	3	2	5
21	3	0	3	1	0	1	1	2	3
22	3	0	3	1	0	1	1	3	4
23	3	0	3	1	0	1	2	1	3
24	3	0	3	1	0	1	0	1	1
25	3	0	3	1	0	1	4	1	5
26	3	0	3	1	0	1	1	3	4
27	3	0	3	1	0	1	4	0	4
28	3	0	3	1	0	1	4	1	5
29	3	0	3	1	0	1	2	1	3
30	3	0	3	1	0	1	3	1	4
31	3	0	3	1	0	1	4	1	5
32	3	0	3	1	0	1	1	2	3
33	3	0	3	1	0	1	3	2	5
34	3	0	3	1	0	1	2	2	4
35	3	0	3	1	0	1	3	2	5
36	3	0	3	1	0	1	4	1	5
37	3	0	3	1	0	1	3	0	3
38	3	0	3	1	0	1	4	1	5
39	3	0	3	1	0	1	5	0	5
40	3	0	3	1	0	1	1	1	2
41	3	0	3	1	0	1	1	2	3
42	3	0	3	1	0	1	4	1	5
43	3	0	3	1	0	1	0	3	3
44	3	0	3	1	0	1	2	1	3
45	3	0	3	1	0	1	5	0	5
46	3	0	3	1	0	1	3	2	5
47	3	0	3	1	0	1	3	1	4
48	3	0	3	1	0	1	3	2	5
49	3	0	3	1	0	1	3	2	5
50	3	0	3	1	0	1	2	1	3

Table 162 1 CRUDES 5 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	5	6								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	4	0	5	0	0	0
xbar	3	0	3	1	0	1	4.84	0.16	5	1.68	0.86	2.54
max	3	0	3	1	0	1	5	1	5	5	5	6
sig	0	0	0	0	0	0	0.37033	0.37	0	1.219568	1.0881552	1.528104
sigxb	0	0	0	0	0	0	0.00741	0.007	0	0.024391	0.0217631	0.030562
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.16	0		0.86	3.46
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	0	5	2	3	5
2	3	0	3	1	0	1	5	0	5	1	0	1
3	3	0	3	1	0	1	5	0	5	1	2	3
4	3	0	3	1	0	1	5	0	5	2	1	3
5	3	0	3	1	0	1	5	0	5	2	0	2
6	3	0	3	1	0	1	5	0	5	1	0	1
7	3	0	3	1	0	1	5	0	5	3	0	3
8	3	0	3	1	0	1	4	1	5	2	0	2
9	3	0	3	1	0	1	5	0	5	1	2	3
10	3	0	3	1	0	1	5	0	5	0	0	0
11	3	0	3	1	0	1	5	0	5	2	0	2
12	3	0	3	1	0	1	5	0	5	4	1	5
13	3	0	3	1	0	1	5	0	5	2	3	5
14	3	0	3	1	0	1	5	0	5	5	0	5
15	3	0	3	1	0	1	5	0	5	1	5	6
16	3	0	3	1	0	1	5	0	5	0	1	1
17	3	0	3	1	0	1	5	0	5	1	1	2
18	3	0	3	1	0	1	5	0	5	1	0	1
19	3	0	3	1	0	1	5	0	5	1	1	2
20	3	0	3	1	0	1	5	0	5	2	0	2
21	3	0	3	1	0	1	5	0	5	3	0	3
22	3	0	3	1	0	1	5	0	5	1	1	2
23	3	0	3	1	0	1	5	0	5	1	1	2
24	3	0	3	1	0	1	5	0	5	1	2	3
25	3	0	3	1	0	1	5	0	5	0	2	2
26	3	0	3	1	0	1	5	0	5	2	1	3
27	3	0	3	1	0	1	5	0	5	1	0	1
28	3	0	3	1	0	1	4	1	5	1	2	3
29	3	0	3	1	0	1	5	0	5	3	1	4
30	3	0	3	1	0	1	5	0	5	4	2	6
31	3	0	3	1	0	1	4	1	5	0	0	0
32	3	0	3	1	0	1	4	1	5	2	2	4
33	3	0	3	1	0	1	5	0	5	3	0	3
34	3	0	3	1	0	1	5	0	5	0	1	1
35	3	0	3	1	0	1	5	0	5	0	0	0
36	3	0	3	1	0	1	5	0	5	3	1	4
37	3	0	3	1	0	1	5	0	5	2	0	2
38	3	0	3	1	0	1	4	1	5	2	0	2
39	3	0	3	1	0	1	4	1	5	1	1	2
40	3	0	3	1	0	1	5	0	5	1	0	1
41	3	0	3	1	0	1	5	0	5	1	0	1
42	3	0	3	1	0	1	5	0	5	4	0	4
43	3	0	3	1	0	1	5	0	5	1	3	4
44	3	0	3	1	0	1	4	1	5	3	0	3
45	3	0	3	1	0	1	4	1	5	0	1	1
46	3	0	3	1	0	1	5	0	5	2	1	3
47	3	0	3	1	0	1	5	0	5	3	0	3
48	3	0	3	1	0	1	5	0	5	3	1	4
49	3	0	3	1	0	1	5	0	5	0	0	0
50	3	0	3	1	0	1	5	0	5	2	0	2

Table 163 1 CRUDES 5 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.3	0.56	1.86	0.04	0.12	0.16	0.04	0.12	0.16
max	3	3	3	1	1	1	2	3	3
sig	1.21638474	0.760236	1.34027107	0.19794866	0.328261	0.37032804	0.28284	0.521	0.58414
sigxb	0.02432769	0.015205	0.02680542	0.00395897	0.006565	0.00740656	0.00566	0.01	0.01168
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.56	1.14		0.12	0.84		0.12	5.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	2	1	3	0	0	0	0	0	0
3	2	1	3	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	0	1	1	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	3	0	3	1	0	1	2	0	2
11	0	0	0	0	0	0	0	0	0
12	1	2	3	0	1	1	0	0	0
13	0	1	1	0	0	0	0	0	0
14	2	1	3	0	0	0	0	0	0
15	0	2	2	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	3	0	3	0	1	1	0	0	0
18	3	0	3	0	0	0	0	0	0
19	0	3	3	0	0	0	0	0	0
20	3	0	3	0	1	1	0	1	1
21	2	1	3	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	3	0	3	1	0	1	0	2	2
25	3	0	3	0	0	0	0	0	0
26	1	1	2	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	1	1	2	0	0	0	0	0	0
29	1	0	1	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0
32	2	1	3	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0
35	1	1	2	0	0	0	0	0	0
36	2	1	3	0	0	0	0	0	0
37	1	2	3	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0
39	3	0	3	0	1	1	0	3	3
40	1	2	3	0	0	0	0	0	0
41	2	0	2	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	2	1	3	0	0	0	0	0	0
44	3	0	3	0	1	1	0	0	0
45	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0
47	2	1	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 164 1 CRUDES 6 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	1	0	3	0	0	0
xbar	3	0	3	1	0	1	5.04	0.62	5.66	1	0.86	1.86
max	3	0	3	1	0	1	6	3	6	5	3	7
sig	0	0	0	0	0	0	1.51132	0.967	0.77222	1.428571	0.9691149	2.09966
sigxb	0	0	0	0	0	0	0.03023	0.019	0.01544	0.028571	0.0193823	0.041993
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.62	0.34		0.86	5.14
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	0	0	0
2	3	0	3	1	0	1	6	0	6	1	1	2
3	3	0	3	1	0	1	6	0	6	0	1	1
4	3	0	3	1	0	1	6	0	6	3	1	4
5	3	0	3	1	0	1	6	0	6	2	2	4
6	3	0	3	1	0	1	6	0	6	0	1	1
7	3	0	3	1	0	1	4	1	5	0	0	0
8	3	0	3	1	0	1	5	1	6	0	0	0
9	3	0	3	1	0	1	3	3	6	0	0	0
10	3	0	3	1	0	1	6	0	6	1	1	2
11	3	0	3	1	0	1	6	0	6	4	2	6
12	3	0	3	1	0	1	6	0	6	5	0	5
13	3	0	3	1	0	1	5	1	6	0	0	0
14	3	0	3	1	0	1	6	0	6	1	3	4
15	3	0	3	1	0	1	6	0	6	1	1	2
16	3	0	3	1	0	1	6	0	6	4	2	6
17	3	0	3	1	0	1	6	0	6	1	1	2
18	3	0	3	1	0	1	5	1	6	0	0	0
19	3	0	3	1	0	1	6	0	6	0	1	1
20	3	0	3	1	0	1	6	0	6	0	0	0
21	3	0	3	1	0	1	5	1	6	0	0	0
22	3	0	3	1	0	1	6	0	6	1	2	3
23	3	0	3	1	0	1	1	2	3	0	0	0
24	3	0	3	1	0	1	6	0	6	2	3	5
25	3	0	3	1	0	1	6	0	6	2	1	3
26	3	0	3	1	0	1	2	3	5	0	0	0
27	3	0	3	1	0	1	4	2	6	0	0	0
28	3	0	3	1	0	1	6	0	6	1	2	3
29	3	0	3	1	0	1	1	2	3	0	0	0
30	3	0	3	1	0	1	5	1	6	0	0	0
31	3	0	3	1	0	1	4	2	6	0	0	0
32	3	0	3	1	0	1	6	0	6	4	1	5
33	3	0	3	1	0	1	6	0	6	3	3	6
34	3	0	3	1	0	1	6	0	6	0	2	2
35	3	0	3	1	0	1	6	0	6	3	1	4
36	3	0	3	1	0	1	6	0	6	0	2	2
37	3	0	3	1	0	1	6	0	6	4	3	7
38	3	0	3	1	0	1	2	3	5	0	0	0
39	3	0	3	1	0	1	6	0	6	2	0	2
40	3	0	3	1	0	1	5	1	6	0	0	0
41	3	0	3	1	0	1	3	1	4	0	0	0
42	3	0	3	1	0	1	4	0	4	0	0	0
43	3	0	3	1	0	1	2	3	5	0	0	0
44	3	0	3	1	0	1	6	0	6	0	1	1
45	3	0	3	1	0	1	6	0	6	0	0	0
46	3	0	3	1	0	1	2	2	4	0	0	0
47	3	0	3	1	0	1	6	0	6	0	1	1
48	3	0	3	1	0	1	6	0	6	1	1	2
49	3	0	3	1	0	1	4	1	5	1	1	2
50	3	0	3	1	0	1	6	0	6	3	2	5

Table 165 1 CRUDES 6 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	2	0	3	0	0	0	0	0	0
xbar	2.98	0.02	3	0.46	0.28	0.74	1.76	1.8	3.56
max	3	1	3	1	1	1	5	5	6
sig	0.14142136	0.141421	0	0.50345743	0.453557	0.4430875	1.34862	1.195	1.69224
sigxb	0.00282843	0.002828	0	0.01006915	0.009071	0.00886175	0.02697	0.024	0.03384
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.02	0		0.28	0.26		1.8	2.44
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	2	1	3
2	3	0	3	1	0	1	0	2	2
3	3	0	3	1	0	1	1	4	5
4	3	0	3	0	1	1	2	1	3
5	3	0	3	0	0	0	3	2	5
6	3	0	3	0	1	1	0	2	2
7	3	0	3	0	0	0	0	3	3
8	3	0	3	1	0	1	3	0	3
9	3	0	3	0	1	1	2	2	4
10	3	0	3	1	0	1	1	2	3
11	3	0	3	1	0	1	1	1	2
12	2	1	3	0	0	0	0	0	0
13	3	0	3	0	0	0	2	1	3
14	3	0	3	0	0	0	1	0	1
15	3	0	3	1	0	1	1	1	2
16	3	0	3	1	0	1	0	3	3
17	3	0	3	1	0	1	4	2	6
18	3	0	3	1	0	1	3	3	6
19	3	0	3	0	0	0	1	2	3
20	3	0	3	0	0	0	1	0	1
21	3	0	3	1	0	1	4	2	6
22	3	0	3	0	1	1	3	1	4
23	3	0	3	1	0	1	1	4	5
24	3	0	3	0	1	1	2	1	3
25	3	0	3	1	0	1	2	2	4
26	3	0	3	0	1	1	0	2	2
27	3	0	3	0	1	1	3	2	5
28	3	0	3	0	0	0	4	2	6
29	3	0	3	1	0	1	1	2	3
30	3	0	3	1	0	1	3	3	6
31	3	0	3	0	1	1	2	3	5
32	3	0	3	1	0	1	1	1	2
33	3	0	3	0	0	0	0	0	0
34	3	0	3	1	0	1	2	1	3
35	3	0	3	1	0	1	4	1	5
36	3	0	3	1	0	1	0	1	1
37	3	0	3	1	0	1	0	1	1
38	3	0	3	0	1	1	2	0	2
39	3	0	3	0	1	1	2	3	5
40	3	0	3	1	0	1	2	2	4
41	3	0	3	1	0	1	2	3	5
42	3	0	3	0	1	1	0	2	2
43	3	0	3	0	1	1	3	2	5
44	3	0	3	0	1	1	3	0	3
45	3	0	3	1	0	1	5	1	6
46	3	0	3	0	0	0	2	3	5
47	3	0	3	0	1	1	2	3	5
48	3	0	3	0	0	0	4	1	5
49	3	0	3	0	0	0	0	5	5
50	3	0	3	1	0	1	1	4	5

Table 166 1 CRUDES 6 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	3	0	6	0	0	0
xbar	3	0	3	1	0	1	5.92	0.08	6	1.22	0.84	2.06
max	3	0	3	1	0	1	6	3	6	6	5	6
sig	0	0	0	0	0	0	0.44447	0.444	0	1.515767	0.9553288	1.952602
sigxb	0	0	0	0	0	0	0.00889	0.009	0	0.030315	0.0191066	0.039052
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.08	0		0.84	4.94
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	0	0	0
2	3	0	3	1	0	1	6	0	6	1	1	2
3	3	0	3	1	0	1	6	0	6	0	1	1
4	3	0	3	1	0	1	6	0	6	3	1	4
5	3	0	3	1	0	1	6	0	6	2	2	4
6	3	0	3	1	0	1	6	0	6	0	1	1
7	3	0	3	1	0	1	6	0	6	0	0	0
8	3	0	3	1	0	1	6	0	6	0	2	2
9	3	0	3	1	0	1	6	0	6	0	0	0
10	3	0	3	1	0	1	6	0	6	1	1	2
11	3	0	3	1	0	1	6	0	6	0	0	0
12	3	0	3	1	0	1	6	0	6	0	0	0
13	3	0	3	1	0	1	6	0	6	0	2	2
14	3	0	3	1	0	1	6	0	6	0	1	1
15	3	0	3	1	0	1	6	0	6	0	1	1
16	3	0	3	1	0	1	6	0	6	1	1	2
17	3	0	3	1	0	1	5	1	6	0	0	0
18	3	0	3	1	0	1	3	3	6	0	0	0
19	3	0	3	1	0	1	6	0	6	0	0	0
20	3	0	3	1	0	1	6	0	6	0	0	0
21	3	0	3	1	0	1	6	0	6	0	0	0
22	3	0	3	1	0	1	6	0	6	3	1	4
23	3	0	3	1	0	1	6	0	6	0	1	1
24	3	0	3	1	0	1	6	0	6	2	3	5
25	3	0	3	1	0	1	6	0	6	6	0	6
26	3	0	3	1	0	1	6	0	6	0	0	0
27	3	0	3	1	0	1	6	0	6	1	2	3
28	3	0	3	1	0	1	6	0	6	0	0	0
29	3	0	3	1	0	1	6	0	6	0	0	0
30	3	0	3	1	0	1	6	0	6	3	0	3
31	3	0	3	1	0	1	6	0	6	4	1	5
32	3	0	3	1	0	1	6	0	6	1	5	6
33	3	0	3	1	0	1	6	0	6	1	0	1
34	3	0	3	1	0	1	6	0	6	4	1	5
35	3	0	3	1	0	1	6	0	6	2	0	2
36	3	0	3	1	0	1	6	0	6	0	0	0
37	3	0	3	1	0	1	6	0	6	2	1	3
38	3	0	3	1	0	1	6	0	6	3	1	4
39	3	0	3	1	0	1	6	0	6	1	1	2
40	3	0	3	1	0	1	6	0	6	1	1	2
41	3	0	3	1	0	1	6	0	6	3	1	4
42	3	0	3	1	0	1	6	0	6	0	0	0
43	3	0	3	1	0	1	6	0	6	4	2	6
44	3	0	3	1	0	1	6	0	6	0	1	1
45	3	0	3	1	0	1	6	0	6	4	1	5
46	3	0	3	1	0	1	6	0	6	3	1	4
47	3	0	3	1	0	1	6	0	6	2	2	4
48	3	0	3	1	0	1	6	0	6	2	1	3
49	3	0	3	1	0	1	6	0	6	0	0	0
50	3	0	3	1	0	1	6	0	6	1	1	2

Table 167 1 CRUDES 6 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.4	0.42	2.82	0.52	0.12	0.64	0.44	0.92	1.36
max	3	2	4	4	1	4	3	4	5
sig	1.01015254	0.730949	0.59556182	0.70681811	0.328261	0.69282032	0.78662	1.158	1.60051
sigxb	0.02020305	0.014619	0.01191124	0.01413636	0.006565	0.01385641	0.01573	0.023	0.03201
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	0.18		0.12	0.36		0.92	4.64
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	2	2	0	0	0	0	0	0
2	3	0	3	1	0	1	0	1	1
3	3	0	3	0	0	0	0	0	0
4	3	0	3	1	0	1	0	0	0
5	1	2	3	0	0	0	0	0	0
6	3	0	3	1	0	1	0	2	2
7	3	0	3	1	0	1	1	1	2
8	3	0	3	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	1	2	3	0	0	0	0	0	0
12	1	2	3	0	0	0	0	0	0
13	3	0	3	1	0	1	0	0	0
14	1	2	3	0	0	0	0	0	0
15	3	0	3	0	0	0	2	0	2
16	3	0	3	0	0	0	0	0	0
17	3	0	3	4	0	4	0	1	1
18	3	1	4	1	0	1	0	3	3
19	3	0	3	0	1	1	0	0	0
20	3	0	3	1	0	1	2	2	4
21	0	1	1	0	1	1	0	0	0
22	2	1	3	0	0	0	0	0	0
23	0	2	2	0	0	0	0	0	0
24	3	0	3	1	0	1	2	1	3
25	2	0	2	0	0	0	0	0	0
26	3	0	3	1	0	1	0	2	2
27	3	0	3	1	0	1	1	1	2
28	3	0	3	1	0	1	0	1	1
29	3	0	3	0	1	1	0	1	1
30	0	0	0	0	0	0	0	0	0
31	2	1	3	0	0	0	0	0	0
32	3	0	3	1	0	1	2	3	5
33	3	0	3	1	0	1	1	3	4
34	3	0	3	1	0	1	0	4	4
35	3	0	3	0	1	1	0	2	2
36	3	0	3	1	0	1	1	3	4
37	1	1	2	0	0	0	0	0	0
38	3	0	3	1	0	1	0	3	3
39	3	0	3	1	0	1	2	1	3
40	3	0	3	1	0	1	1	0	1
41	1	1	2	0	0	0	0	0	0
42	3	0	3	0	0	0	0	1	1
43	3	0	3	0	0	0	0	0	0
44	3	0	3	1	0	1	0	3	3
45	3	0	3	1	0	1	3	2	5
46	3	0	3	1	0	1	1	2	3
47	1	2	3	0	1	1	0	0	0
48	3	0	3	0	0	0	0	0	0
49	3	0	3	0	1	1	1	1	2
50	3	0	3	1	0	1	2	2	4

Table 168 1 CRUDES 6 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	1	0	2	0	0	0
xbar	3	0	3	1	0	1	5.4	0.36	5.76	1.5	0.98	2.48
max	3	0	3	1	0	1	6	3	6	5	3	6
sig	0	0	0	0	0	0	1.27775	0.749	0.74396	1.631951	0.9997959	2.215345
sigxb	0	0	0	0	0	0	0.02556	0.015	0.01488	0.032639	0.0199959	0.044307
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.36	0.24		0.98	4.52
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	0	0	0
2	3	0	3	1	0	1	6	0	6	1	2	3
3	3	0	3	1	0	1	6	0	6	1	2	3
4	3	0	3	1	0	1	6	0	6	4	1	5
5	3	0	3	1	0	1	6	0	6	1	2	3
6	3	0	3	1	0	1	5	0	5	0	0	0
7	3	0	3	1	0	1	4	1	5	0	0	0
8	3	0	3	1	0	1	6	0	6	1	3	4
9	3	0	3	1	0	1	3	2	5	0	0	0
10	3	0	3	1	0	1	6	0	6	4	2	6
11	3	0	3	1	0	1	6	0	6	4	2	6
12	3	0	3	1	0	1	5	1	6	0	0	0
13	3	0	3	1	0	1	5	1	6	0	0	0
14	3	0	3	1	0	1	6	0	6	1	3	4
15	3	0	3	1	0	1	6	0	6	1	1	2
16	3	0	3	1	0	1	6	0	6	4	2	6
17	3	0	3	1	0	1	6	0	6	1	1	2
18	3	0	3	1	0	1	4	1	5	0	0	0
19	3	0	3	1	0	1	5	1	6	0	0	0
20	3	0	3	1	0	1	5	1	6	0	0	0
21	3	0	3	1	0	1	6	0	6	1	0	1
22	3	0	3	1	0	1	1	2	3	0	0	0
23	3	0	3	1	0	1	6	0	6	2	3	5
24	3	0	3	1	0	1	6	0	6	1	0	1
25	3	0	3	1	0	1	6	0	6	3	0	3
26	3	0	3	1	0	1	5	1	6	0	1	1
27	3	0	3	1	0	1	3	3	6	0	0	0
28	3	0	3	1	0	1	6	0	6	0	1	1
29	3	0	3	1	0	1	6	0	6	4	1	5
30	3	0	3	1	0	1	1	1	2	0	0	0
31	3	0	3	1	0	1	6	0	6	1	3	4
32	3	0	3	1	0	1	6	0	6	3	2	5
33	3	0	3	1	0	1	6	0	6	3	1	4
34	3	0	3	1	0	1	2	3	5	0	0	0
35	3	0	3	1	0	1	6	0	6	4	1	5
36	3	0	3	1	0	1	6	0	6	1	1	2
37	3	0	3	1	0	1	6	0	6	4	2	6
38	3	0	3	1	0	1	6	0	6	4	1	5
39	3	0	3	1	0	1	6	0	6	3	1	4
40	3	0	3	1	0	1	6	0	6	3	3	6
41	3	0	3	1	0	1	6	0	6	0	1	1
42	3	0	3	1	0	1	6	0	6	4	1	5
43	3	0	3	1	0	1	6	0	6	0	1	1
44	3	0	3	1	0	1	6	0	6	0	0	0
45	3	0	3	1	0	1	6	0	6	5	0	5
46	3	0	3	1	0	1	6	0	6	2	1	3
47	3	0	3	1	0	1	6	0	6	0	0	0
48	3	0	3	1	0	1	6	0	6	1	2	3
49	3	0	3	1	0	1	6	0	6	0	0	0
50	3	0	3	1	0	1	6	0	6	3	1	4

Table 169 1 CRUDES 6 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	1	0	3
xbar	3	0	3	0.9	0.08	0.98	3.84	1.66	5.5
max	3	0	3	1	1	1	6	4	6
sig	0	0	0	0.30304576	0.274048	0.14142136	1.29929	1.118	0.7354
sigxb	0	0	0	0.00606092	0.005481	0.00282843	0.02599	0.022	0.01471
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.08	0.02		1.66	0.5
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	3	3	6
2	3	0	3	1	0	1	5	1	6
3	3	0	3	1	0	1	5	1	6
4	3	0	3	1	0	1	4	2	6
5	3	0	3	1	0	1	4	2	6
6	3	0	3	1	0	1	3	2	5
7	3	0	3	1	0	1	3	3	6
8	3	0	3	1	0	1	3	3	6
9	3	0	3	1	0	1	3	3	6
10	3	0	3	0	0	0	3	2	5
11	3	0	3	1	0	1	6	0	6
12	3	0	3	1	0	1	5	1	6
13	3	0	3	1	0	1	5	1	6
14	3	0	3	1	0	1	1	4	5
15	3	0	3	1	0	1	2	4	6
16	3	0	3	1	0	1	5	0	5
17	3	0	3	1	0	1	3	2	5
18	3	0	3	1	0	1	3	2	5
19	3	0	3	1	0	1	4	1	5
20	3	0	3	1	0	1	4	2	6
21	3	0	3	1	0	1	4	1	5
22	3	0	3	1	0	1	2	3	5
23	3	0	3	0	1	1	1	4	5
24	3	0	3	1	0	1	4	2	6
25	3	0	3	0	1	1	3	2	5
26	3	0	3	1	0	1	2	1	3
27	3	0	3	1	0	1	4	2	6
28	3	0	3	1	0	1	4	1	5
29	3	0	3	1	0	1	5	0	5
30	3	0	3	1	0	1	4	2	6
31	3	0	3	1	0	1	5	1	6
32	3	0	3	1	0	1	5	0	5
33	3	0	3	1	0	1	4	1	5
34	3	0	3	1	0	1	2	3	5
35	3	0	3	1	0	1	5	1	6
36	3	0	3	1	0	1	4	2	6
37	3	0	3	1	0	1	3	3	6
38	3	0	3	1	0	1	5	1	6
39	3	0	3	1	0	1	4	2	6
40	3	0	3	1	0	1	5	0	5
41	3	0	3	0	1	1	6	0	6
42	3	0	3	1	0	1	3	1	4
43	3	0	3	1	0	1	5	1	6
44	3	0	3	0	1	1	5	1	6
45	3	0	3	1	0	1	3	3	6
46	3	0	3	1	0	1	4	2	6
47	3	0	3	1	0	1	6	0	6
48	3	0	3	1	0	1	4	2	6
49	3	0	3	1	0	1	1	2	3
50	3	0	3	1	0	1	6	0	6

Table 170 1 CRUDES 6 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	5	0	6	0	0	0
xbar	3	0	3	1	0	1	5.96	0.04	6	1.16	1.24	2.4
max	3	0	3	1	0	1	6	1	6	4	4	7
sig	0	0	0	0	0	0	0.19795	0.198	0	1.20136	1.1349728	2.060315
sigxb	0	0	0	0	0	0	0.00396	0.004	0	0.024027	0.0226995	0.041206
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.04	0		1.24	4.6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	0	0	0
2	3	0	3	1	0	1	6	0	6	1	2	3
3	3	0	3	1	0	1	6	0	6	1	2	3
4	3	0	3	1	0	1	6	0	6	4	1	5
5	3	0	3	1	0	1	6	0	6	1	2	3
6	3	0	3	1	0	1	6	0	6	0	0	0
7	3	0	3	1	0	1	6	0	6	2	2	4
8	3	0	3	1	0	1	6	0	6	0	0	0
9	3	0	3	1	0	1	6	0	6	2	2	4
10	3	0	3	1	0	1	6	0	6	2	3	5
11	3	0	3	1	0	1	6	0	6	0	2	2
12	3	0	3	1	0	1	6	0	6	0	0	0
13	3	0	3	1	0	1	6	0	6	2	1	3
14	3	0	3	1	0	1	6	0	6	1	2	3
15	3	0	3	1	0	1	6	0	6	0	0	0
16	3	0	3	1	0	1	5	1	6	0	0	0
17	3	0	3	1	0	1	6	0	6	0	0	0
18	3	0	3	1	0	1	5	1	6	0	0	0
19	3	0	3	1	0	1	6	0	6	0	0	0
20	3	0	3	1	0	1	6	0	6	0	0	0
21	3	0	3	1	0	1	6	0	6	2	0	2
22	3	0	3	1	0	1	6	0	6	1	3	4
23	3	0	3	1	0	1	6	0	6	0	2	2
24	3	0	3	1	0	1	6	0	6	3	2	5
25	3	0	3	1	0	1	6	0	6	4	3	7
26	3	0	3	1	0	1	6	0	6	1	2	3
27	3	0	3	1	0	1	6	0	6	0	0	0
28	3	0	3	1	0	1	6	0	6	1	1	2
29	3	0	3	1	0	1	6	0	6	0	0	0
30	3	0	3	1	0	1	6	0	6	2	1	3
31	3	0	3	1	0	1	6	0	6	0	0	0
32	3	0	3	1	0	1	6	0	6	0	0	0
33	3	0	3	1	0	1	6	0	6	1	1	2
34	3	0	3	1	0	1	6	0	6	0	0	0
35	3	0	3	1	0	1	6	0	6	3	4	7
36	3	0	3	1	0	1	6	0	6	0	3	3
37	3	0	3	1	0	1	6	0	6	3	2	5
38	3	0	3	1	0	1	6	0	6	0	0	0
39	3	0	3	1	0	1	6	0	6	3	2	5
40	3	0	3	1	0	1	6	0	6	1	2	3
41	3	0	3	1	0	1	6	0	6	3	2	5
42	3	0	3	1	0	1	6	0	6	3	1	4
43	3	0	3	1	0	1	6	0	6	1	1	2
44	3	0	3	1	0	1	6	0	6	2	1	3
45	3	0	3	1	0	1	6	0	6	0	0	0
46	3	0	3	1	0	1	6	0	6	1	3	4
47	3	0	3	1	0	1	6	0	6	1	1	2
48	3	0	3	1	0	1	6	0	6	2	1	3
49	3	0	3	1	0	1	6	0	6	2	2	4
50	3	0	3	1	0	1	6	0	6	2	3	5

Table 171 1 CRUDES 6 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.22	0.82	2.04	0.1	0.18	0.28	0	0.02	0.02
max	3	3	3	1	1	1	0	1	1
sig	1.21705566	0.962353	1.17733702	0.30304576	0.388088	0.45355737	0	0.141	0.14142
sigxb	0.02434111	0.019247	0.02354674	0.00606092	0.007762	0.00907115	0	0.003	0.00283
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.82	0.96		0.18	0.72		0.02	5.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	2	2	0	0	0	0	0	0
2	2	1	3	0	0	0	0	0	0
3	0	2	2	0	0	0	0	0	0
4	2	1	3	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	2	1	3	0	0	0	0	0	0
7	0	1	1	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	0	1	1	0	0	0	0	0	0
10	0	3	3	0	0	0	0	0	0
11	3	0	3	1	0	1	0	0	0
12	2	1	3	0	0	0	0	0	0
13	0	2	2	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	2	1	3	1	0	1	0	0	0
18	2	0	2	0	0	0	0	0	0
19	2	1	3	0	1	1	0	0	0
20	1	1	2	0	0	0	0	0	0
21	3	0	3	0	1	1	0	0	0
22	0	0	0	0	0	0	0	0	0
23	2	1	3	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0
25	0	2	2	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	3	0	3	0	1	1	0	0	0
28	0	0	0	0	0	0	0	0	0
29	2	0	2	0	1	1	0	0	0
30	3	0	3	1	0	1	0	0	0
31	1	2	3	1	0	1	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	2	2	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	3	3	0	0	0	0	0	0
37	2	1	3	0	0	0	0	0	0
38	2	0	2	0	0	0	0	0	0
39	3	0	3	0	1	1	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	0	0	0	0	0	0
42	3	0	3	0	1	1	0	0	0
43	0	2	2	0	0	0	0	0	0
44	0	3	3	0	1	1	0	0	0
45	3	0	3	0	1	1	0	1	1
46	0	3	3	0	0	0	0	0	0
47	1	1	2	0	1	1	0	0	0
48	1	1	2	1	0	1	0	0	0
49	2	1	3	0	0	0	0	0	0
50	1	0	1	0	0	0	0	0	0

Table 172 1 CRUDES 6 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0	0	0	0
xbar	3	0	3	0.98	0	0.98	2.5	1.92	4.42	1.52	1.1	2.62
max	3	0	3	1	0	1	5	4	6	5	3	7
sig	0	0	0	0.14142136	0	0.14142136	1.52864	1.14	1.49952	1.388583	0.9313146	1.724848
sigxb	0	0	0	0.00282843	0	0.00282843	0.03057	0.023	0.02999	0.027772	0.0186263	0.034497
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0.02		1.92	1.58		1.1	4.38
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	1	2	3	0	0	0
2	3	0	3	1	0	1	4	0	4	1	3	4
3	3	0	3	1	0	1	0	3	3	0	1	1
4	3	0	3	0	0	0	0	0	0	0	0	0
5	3	0	3	1	0	1	1	3	4	2	1	3
6	3	0	3	1	0	1	1	1	2	1	0	1
7	3	0	3	1	0	1	2	2	4	2	1	3
8	3	0	3	1	0	1	4	2	6	3	1	4
9	3	0	3	1	0	1	1	3	4	1	0	1
10	3	0	3	1	0	1	4	2	6	2	3	5
11	3	0	3	1	0	1	3	1	4	0	0	0
12	3	0	3	1	0	1	2	3	5	0	2	2
13	3	0	3	1	0	1	5	1	6	5	0	5
14	3	0	3	1	0	1	5	0	5	2	2	4
15	3	0	3	1	0	1	3	1	4	2	2	4
16	3	0	3	1	0	1	1	1	2	0	1	1
17	3	0	3	1	0	1	0	0	0	0	2	2
18	3	0	3	1	0	1	2	3	5	2	1	3
19	3	0	3	1	0	1	5	0	5	4	1	5
20	3	0	3	1	0	1	3	1	4	0	1	1
21	3	0	3	1	0	1	3	2	5	2	0	2
22	3	0	3	1	0	1	1	3	4	2	1	3
23	3	0	3	1	0	1	2	3	5	1	1	2
24	3	0	3	1	0	1	2	4	6	2	1	3
25	3	0	3	1	0	1	4	1	5	3	2	5
26	3	0	3	1	0	1	1	2	3	0	1	1
27	3	0	3	1	0	1	1	3	4	0	2	2
28	3	0	3	1	0	1	0	1	1	1	1	2
29	3	0	3	1	0	1	3	3	6	0	0	0
30	3	0	3	1	0	1	1	2	3	3	0	3
31	3	0	3	1	0	1	2	3	5	2	2	4
32	3	0	3	1	0	1	5	0	5	2	2	4
33	3	0	3	1	0	1	1	2	3	0	2	2
34	3	0	3	1	0	1	4	2	6	5	2	7
35	3	0	3	1	0	1	2	3	5	0	0	0
36	3	0	3	1	0	1	0	4	4	0	0	0
37	3	0	3	1	0	1	2	3	5	1	1	2
38	3	0	3	1	0	1	5	1	6	4	1	5
39	3	0	3	1	0	1	2	3	5	3	0	3
40	3	0	3	1	0	1	5	0	5	3	3	6
41	3	0	3	1	0	1	3	1	4	1	2	3
42	3	0	3	1	0	1	3	3	6	1	1	2
43	3	0	3	1	0	1	2	3	5	1	0	1
44	3	0	3	1	0	1	4	2	6	4	0	4
45	3	0	3	1	0	1	4	1	5	1	1	2
46	3	0	3	1	0	1	4	2	6	2	3	5
47	3	0	3	1	0	1	3	2	5	2	1	3
48	3	0	3	1	0	1	3	3	6	1	2	3
49	3	0	3	1	0	1	3	3	6	2	0	2
50	3	0	3	1	0	1	3	2	5	0	1	1

Table 173 1 CRUDES 6 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	1
xbar	3	0	3	0.86	0.12	0.98	1.42	2.24	3.66
max	3	0	3	1	1	1	4	5	6
sig	0	0	0	0.35050983	0.328261	0.14142136	1.01197	1.364	1.42299
sigxb	0	0	0	0.0070102	0.006565	0.00282843	0.02024	0.027	0.02846
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.12	0.02		2.24	2.34
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	5	5
2	3	0	3	1	0	1	1	2	3
3	3	0	3	0	1	1	1	0	1
4	3	0	3	1	0	1	2	2	4
5	3	0	3	1	0	1	2	3	5
6	3	0	3	1	0	1	0	5	5
7	3	0	3	0	1	1	1	1	2
8	3	0	3	1	0	1	3	2	5
9	3	0	3	1	0	1	0	4	4
10	3	0	3	1	0	1	2	4	6
11	3	0	3	1	0	1	2	3	5
12	3	0	3	1	0	1	2	2	4
13	3	0	3	1	0	1	2	3	5
14	3	0	3	1	0	1	1	3	4
15	3	0	3	1	0	1	2	2	4
16	3	0	3	1	0	1	3	2	5
17	3	0	3	1	0	1	4	0	4
18	3	0	3	1	0	1	1	3	4
19	3	0	3	1	0	1	2	2	4
20	3	0	3	1	0	1	3	2	5
21	3	0	3	1	0	1	1	3	4
22	3	0	3	1	0	1	1	3	4
23	3	0	3	0	1	1	1	3	4
24	3	0	3	1	0	1	2	4	6
25	3	0	3	1	0	1	1	2	3
26	3	0	3	1	0	1	1	2	3
27	3	0	3	0	1	1	3	1	4
28	3	0	3	1	0	1	0	2	2
29	3	0	3	1	0	1	1	4	5
30	3	0	3	1	0	1	2	1	3
31	3	0	3	1	0	1	0	3	3
32	3	0	3	1	0	1	2	3	5
33	3	0	3	1	0	1	1	2	3
34	3	0	3	1	0	1	2	3	5
35	3	0	3	1	0	1	2	0	2
36	3	0	3	1	0	1	0	5	5
37	3	0	3	1	0	1	0	1	1
38	3	0	3	0	0	0	0	2	2
39	3	0	3	1	0	1	4	0	4
40	3	0	3	0	1	1	0	1	1
41	3	0	3	1	0	1	1	1	2
42	3	0	3	1	0	1	1	1	2
43	3	0	3	1	0	1	1	1	2
44	3	0	3	1	0	1	2	1	3
45	3	0	3	1	0	1	2	3	5
46	3	0	3	1	0	1	1	4	5
47	3	0	3	1	0	1	2	4	6
48	3	0	3	1	0	1	1	1	2
49	3	0	3	0	1	1	1	0	1
50	3	0	3	1	0	1	1	1	2

Table 174 1 CRUDES 6 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	3	0	6	0	0	0
xbar	3	0	3	1	0	1	5.72	0.28	6	1.84	1.18	3.02
max	3	0	3	1	0	1	6	3	6	5	3	6
sig	0	0	0	0	0	0	0.60744	0.607	0	1.330337	0.9409071	1.406835
sigxb	0	0	0	0	0	0	0.01215	0.012	0	0.026607	0.0188181	0.028137
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.28	0		1.18	3.98
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	1	1	2
2	3	0	3	1	0	1	6	0	6	0	2	2
3	3	0	3	1	0	1	6	0	6	4	1	5
4	3	0	3	1	0	1	6	0	6	2	0	2
5	3	0	3	1	0	1	6	0	6	0	0	0
6	3	0	3	1	0	1	6	0	6	1	2	3
7	3	0	3	1	0	1	6	0	6	1	2	3
8	3	0	3	1	0	1	5	1	6	1	0	1
9	3	0	3	1	0	1	6	0	6	0	2	2
10	3	0	3	1	0	1	6	0	6	2	3	5
11	3	0	3	1	0	1	6	0	6	2	1	3
12	3	0	3	1	0	1	4	2	6	1	0	1
13	3	0	3	1	0	1	5	1	6	1	0	1
14	3	0	3	1	0	1	6	0	6	0	2	2
15	3	0	3	1	0	1	5	1	6	3	0	3
16	3	0	3	1	0	1	6	0	6	3	1	4
17	3	0	3	1	0	1	5	1	6	0	2	2
18	3	0	3	1	0	1	6	0	6	2	1	3
19	3	0	3	1	0	1	6	0	6	5	1	6
20	3	0	3	1	0	1	6	0	6	3	0	3
21	3	0	3	1	0	1	6	0	6	3	2	5
22	3	0	3	1	0	1	6	0	6	2	1	3
23	3	0	3	1	0	1	6	0	6	0	3	3
24	3	0	3	1	0	1	6	0	6	1	2	3
25	3	0	3	1	0	1	6	0	6	1	1	2
26	3	0	3	1	0	1	6	0	6	3	0	3
27	3	0	3	1	0	1	6	0	6	2	2	4
28	3	0	3	1	0	1	3	3	6	1	1	2
29	3	0	3	1	0	1	6	0	6	4	1	5
30	3	0	3	1	0	1	6	0	6	5	1	6
31	3	0	3	1	0	1	6	0	6	3	1	4
32	3	0	3	1	0	1	6	0	6	0	1	1
33	3	0	3	1	0	1	6	0	6	2	0	2
34	3	0	3	1	0	1	5	1	6	1	1	2
35	3	0	3	1	0	1	6	0	6	3	2	5
36	3	0	3	1	0	1	6	0	6	1	1	2
37	3	0	3	1	0	1	5	1	6	2	1	3
38	3	0	3	1	0	1	6	0	6	3	0	3
39	3	0	3	1	0	1	5	1	6	1	3	4
40	3	0	3	1	0	1	6	0	6	1	3	4
41	3	0	3	1	0	1	6	0	6	2	1	3
42	3	0	3	1	0	1	6	0	6	2	1	3
43	3	0	3	1	0	1	5	1	6	1	2	3
44	3	0	3	1	0	1	6	0	6	1	1	2
45	3	0	3	1	0	1	6	0	6	3	1	4
46	3	0	3	1	0	1	6	0	6	4	0	4
47	3	0	3	1	0	1	6	0	6	1	0	1
48	3	0	3	1	0	1	5	1	6	4	2	6
49	3	0	3	1	0	1	6	0	6	1	3	4
50	3	0	3	1	0	1	6	0	6	2	0	2

Table 175 1 CRUDES 6 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.12	0.42	2.54	0.5	0.18	0.68	0.12	0.42	0.54
max	3	2	3	1	1	1	2	3	4
sig	1.13641039	0.672795	0.99406401	0.50507627	0.388088	0.47121207	0.38545	0.928	1.0919
sigxb	0.02272821	0.013456	0.01988128	0.01010153	0.007762	0.00942424	0.00771	0.019	0.02184
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.42	0.46		0.18	0.32		0.42	5.46
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	0	0	0
2	3	0	3	1	0	1	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	0	1	1	0	0	0
5	3	0	3	1	0	1	0	0	0
6	0	0	0	0	0	0	0	0	0
7	3	0	3	1	0	1	0	3	3
8	3	0	3	1	0	1	0	2	2
9	1	2	3	0	0	0	0	0	0
10	3	0	3	1	0	1	0	0	0
11	3	0	3	0	1	1	0	0	0
12	3	0	3	1	0	1	1	1	2
13	3	0	3	1	0	1	1	3	4
14	1	2	3	0	1	1	0	0	0
15	1	1	2	0	0	0	0	0	0
16	3	0	3	1	0	1	0	0	0
17	2	1	3	0	0	0	0	0	0
18	2	1	3	0	0	0	0	0	0
19	1	2	3	0	0	0	0	0	0
20	0	1	1	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	3	0	3	1	0	1	0	0	0
23	3	0	3	1	0	1	0	1	1
24	1	0	1	0	0	0	0	0	0
25	2	1	3	0	1	1	0	0	0
26	3	0	3	1	0	1	2	0	2
27	0	1	1	0	0	0	0	0	0
28	3	0	3	1	0	1	0	0	0
29	1	2	3	0	1	1	0	0	0
30	1	2	3	0	1	1	0	0	0
31	0	0	0	0	0	0	0	0	0
32	1	1	2	0	1	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	3	0	3	1	0	1	1	0	1
35	3	0	3	1	0	1	0	0	0
36	2	1	3	0	0	0	0	0	0
37	3	0	3	1	0	1	0	3	3
38	3	0	3	0	1	1	0	0	0
39	3	0	3	1	0	1	0	0	0
40	3	0	3	1	0	1	1	3	4
41	3	0	3	1	0	1	0	0	0
42	3	0	3	1	0	1	0	0	0
43	3	0	3	1	0	1	0	2	2
44	2	1	3	0	0	0	0	0	0
45	3	0	3	1	0	1	0	2	2
46	2	1	3	1	0	1	0	0	0
47	3	0	3	1	0	1	0	1	1
48	0	0	0	0	0	0	0	0	0
49	3	0	3	1	0	1	0	0	0
50	2	1	3	1	0	1	0	0	0

Table 176 1 CRUDES 6 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	1	0	1	0	0	0
xbar	3	0	3	1	0	1	3.96	1.6	5.56	2.14	1.36	3.5
max	3	0	3	1	0	1	6	4	6	6	4	6
sig	0	0	0	0	0	0	1.27711	1.05	0.92934	1.590918	1.0253919	1.593994
sigxb	0	0	0	0	0	0	0.02554	0.021	0.01859	0.031818	0.0205078	0.03188
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.6	0.44		1.36	3.5
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	5	1	6	2	0	2
2	3	0	3	1	0	1	5	0	5	0	1	1
3	3	0	3	1	0	1	4	2	6	3	2	5
4	3	0	3	1	0	1	4	2	6	2	2	4
5	3	0	3	1	0	1	5	1	6	4	1	5
6	3	0	3	1	0	1	6	0	6	1	2	3
7	3	0	3	1	0	1	4	2	6	1	1	2
8	3	0	3	1	0	1	3	3	6	2	3	5
9	3	0	3	1	0	1	3	2	5	4	1	5
10	3	0	3	1	0	1	3	3	6	2	1	3
11	3	0	3	1	0	1	5	1	6	1	2	3
12	3	0	3	1	0	1	3	3	6	2	0	2
13	3	0	3	1	0	1	4	2	6	1	3	4
14	3	0	3	1	0	1	2	3	5	0	2	2
15	3	0	3	1	0	1	2	4	6	2	3	5
16	3	0	3	1	0	1	3	2	5	2	2	4
17	3	0	3	1	0	1	6	0	6	3	2	5
18	3	0	3	1	0	1	1	0	1	0	0	0
19	3	0	3	1	0	1	1	4	5	1	1	2
20	3	0	3	1	0	1	5	1	6	6	0	6
21	3	0	3	1	0	1	5	1	6	2	2	4
22	3	0	3	1	0	1	5	1	6	5	1	6
23	3	0	3	1	0	1	2	1	3	1	1	2
24	3	0	3	1	0	1	6	0	6	2	2	4
25	3	0	3	1	0	1	4	1	5	5	0	5
26	3	0	3	1	0	1	4	2	6	1	2	3
27	3	0	3	1	0	1	5	1	6	4	2	6
28	3	0	3	1	0	1	2	2	4	2	1	3
29	3	0	3	1	0	1	3	3	6	1	3	4
30	3	0	3	1	0	1	4	2	6	3	1	4
31	3	0	3	1	0	1	5	1	6	1	4	5
32	3	0	3	1	0	1	2	2	4	0	0	0
33	3	0	3	1	0	1	5	1	6	3	2	5
34	3	0	3	1	0	1	4	2	6	0	1	1
35	3	0	3	1	0	1	4	2	6	2	0	2
36	3	0	3	1	0	1	6	0	6	5	0	5
37	3	0	3	1	0	1	4	2	6	5	0	5
38	3	0	3	1	0	1	4	1	5	2	1	3
39	3	0	3	1	0	1	4	2	6	2	2	4
40	3	0	3	1	0	1	4	1	5	5	0	5
41	3	0	3	1	0	1	4	1	5	1	1	2
42	3	0	3	1	0	1	5	1	6	3	1	4
43	3	0	3	1	0	1	6	0	6	4	0	4
44	3	0	3	1	0	1	4	2	6	1	1	2
45	3	0	3	1	0	1	4	2	6	1	2	3
46	3	0	3	1	0	1	4	1	5	0	3	3
47	3	0	3	1	0	1	5	1	6	3	2	5
48	3	0	3	1	0	1	4	2	6	1	2	3
49	3	0	3	1	0	1	2	4	6	0	0	0
50	3	0	3	1	0	1	4	2	6	3	2	5

Table 177 1 CRUDES 6 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	6	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	1	0	1	0	0	3
xbar	3	0	3	1	0	1	3.52	1.76	5.28
max	3	0	3	1	0	1	6	5	6
sig	0	0	0	0	0	0	1.31304	0.981	1.01096
sigxb	0	0	0	0	0	0	0.02626	0.02	0.02022
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0	0		1.76	0.72
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	5	1	6
2	3	0	3	1	0	1	5	1	6
3	3	0	3	1	0	1	4	2	6
4	3	0	3	1	0	1	6	0	6
5	3	0	3	1	0	1	5	1	6
6	3	0	3	1	0	1	6	0	6
7	3	0	3	1	0	1	0	5	5
8	3	0	3	1	0	1	4	2	6
9	3	0	3	1	0	1	4	1	5
10	3	0	3	1	0	1	4	2	6
11	3	0	3	1	0	1	4	2	6
12	3	0	3	1	0	1	4	2	6
13	3	0	3	1	0	1	4	2	6
14	3	0	3	1	0	1	4	0	4
15	3	0	3	1	0	1	3	3	6
16	3	0	3	1	0	1	3	0	3
17	3	0	3	1	0	1	4	2	6
18	3	0	3	1	0	1	3	1	4
19	3	0	3	1	0	1	4	2	6
20	3	0	3	1	0	1	4	1	5
21	3	0	3	1	0	1	4	2	6
22	3	0	3	1	0	1	3	3	6
23	3	0	3	1	0	1	5	1	6
24	3	0	3	1	0	1	4	2	6
25	3	0	3	1	0	1	5	1	6
26	3	0	3	1	0	1	3	2	5
27	3	0	3	1	0	1	4	2	6
28	3	0	3	1	0	1	2	1	3
29	3	0	3	1	0	1	2	1	3
30	3	0	3	1	0	1	2	3	5
31	3	0	3	1	0	1	3	1	4
32	3	0	3	1	0	1	4	2	6
33	3	0	3	1	0	1	1	2	3
34	3	0	3	1	0	1	3	2	5
35	3	0	3	1	0	1	5	1	6
36	3	0	3	1	0	1	2	3	5
37	3	0	3	1	0	1	4	2	6
38	3	0	3	1	0	1	3	1	4
39	3	0	3	1	0	1	4	2	6
40	3	0	3	1	0	1	1	2	3
41	3	0	3	1	0	1	3	3	6
42	3	0	3	1	0	1	1	4	5
43	3	0	3	1	0	1	4	2	6
44	3	0	3	1	0	1	5	1	6
45	3	0	3	1	0	1	5	1	6
46	3	0	3	1	0	1	3	2	5
47	3	0	3	1	0	1	3	2	5
48	3	0	3	1	0	1	1	3	4
49	3	0	3	1	0	1	4	2	6
50	3	0	3	1	0	1	3	2	5

Table 178 1 CRUDES 6 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	6	7								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	5	0	6	0	0	0
xbar	3	0	3	1	0	1	5.84	0.16	6	2.34	1.58	3.92
max	3	0	3	1	0	1	6	1	6	4	4	7
sig	0	0	0	0	0	0	0.37033	0.37	0	1.09935	1.2468736	1.45462
sigxb	0	0	0	0	0	0	0.00741	0.007	0	0.021987	0.0249375	0.029092
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.16	0		1.58	3.08
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	2	0	2
2	3	0	3	1	0	1	5	1	6	1	1	2
3	3	0	3	1	0	1	6	0	6	2	1	3
4	3	0	3	1	0	1	6	0	6	1	1	2
5	3	0	3	1	0	1	6	0	6	2	4	6
6	3	0	3	1	0	1	6	0	6	4	3	7
7	3	0	3	1	0	1	6	0	6	4	0	4
8	3	0	3	1	0	1	6	0	6	3	0	3
9	3	0	3	1	0	1	6	0	6	2	4	6
10	3	0	3	1	0	1	6	0	6	3	1	4
11	3	0	3	1	0	1	5	1	6	1	3	4
12	3	0	3	1	0	1	6	0	6	2	3	5
13	3	0	3	1	0	1	6	0	6	2	4	6
14	3	0	3	1	0	1	6	0	6	1	3	4
15	3	0	3	1	0	1	6	0	6	4	1	5
16	3	0	3	1	0	1	6	0	6	2	1	3
17	3	0	3	1	0	1	6	0	6	4	0	4
18	3	0	3	1	0	1	6	0	6	2	3	5
19	3	0	3	1	0	1	6	0	6	3	1	4
20	3	0	3	1	0	1	6	0	6	3	3	6
21	3	0	3	1	0	1	6	0	6	2	1	3
22	3	0	3	1	0	1	6	0	6	3	1	4
23	3	0	3	1	0	1	6	0	6	3	1	4
24	3	0	3	1	0	1	5	1	6	0	0	0
25	3	0	3	1	0	1	6	0	6	4	2	6
26	3	0	3	1	0	1	6	0	6	4	2	6
27	3	0	3	1	0	1	5	1	6	2	1	3
28	3	0	3	1	0	1	6	0	6	2	2	4
29	3	0	3	1	0	1	6	0	6	4	1	5
30	3	0	3	1	0	1	6	0	6	2	1	3
31	3	0	3	1	0	1	6	0	6	2	4	6
32	3	0	3	1	0	1	6	0	6	1	2	3
33	3	0	3	1	0	1	5	1	6	1	2	3
34	3	0	3	1	0	1	6	0	6	3	1	4
35	3	0	3	1	0	1	6	0	6	3	2	5
36	3	0	3	1	0	1	6	0	6	1	2	3
37	3	0	3	1	0	1	5	1	6	3	0	3
38	3	0	3	1	0	1	6	0	6	1	4	5
39	3	0	3	1	0	1	5	1	6	3	1	4
40	3	0	3	1	0	1	6	0	6	2	0	2
41	3	0	3	1	0	1	6	0	6	1	1	2
42	3	0	3	1	0	1	6	0	6	4	0	4
43	3	0	3	1	0	1	6	0	6	4	2	6
44	3	0	3	1	0	1	5	1	6	2	2	4
45	3	0	3	1	0	1	6	0	6	2	1	3
46	3	0	3	1	0	1	6	0	6	3	1	4
47	3	0	3	1	0	1	6	0	6	2	0	2
48	3	0	3	1	0	1	6	0	6	2	3	5
49	3	0	3	1	0	1	6	0	6	0	2	2
50	3	0	3	1	0	1	6	0	6	3	0	3

Table 179 1 CRUDES 6 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.82	0.54	2.36	0.08	0.12	0.2	0.04	0.26	0.3
max	3	3	3	1	1	1	1	3	4
sig	1.18992368	0.838122	1.17386506	0.27404752	0.328261	0.40406102	0.19795	0.664	0.81441
sigxb	0.02379847	0.016762	0.0234773	0.00548095	0.006565	0.00808122	0.00396	0.013	0.01629
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.54	0.64		0.12	0.8		0.26	6.7
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0	0	0	0
2	1	2	3	0	0	0	0	0	0
3	3	0	3	0	0	0	0	2	2
4	2	0	2	0	0	0	0	0	0
5	3	0	3	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	3	0	3	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	1	2	3	0	0	0	0	0	0
12	2	1	3	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0
14	2	1	3	1	0	1	0	0	0
15	3	0	3	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	1	2	3	0	0	0	0	0	0
18	1	0	1	0	0	0	0	0	0
19	2	1	3	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	1	2	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	2	2
25	2	1	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	1	1	2	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	3	0	3	0	0	0	0	1	1
30	2	1	3	0	0	0	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	1	1	0	1	1
33	3	0	3	0	1	1	0	0	0
34	0	3	3	0	0	0	0	0	0
35	3	0	3	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0
38	3	0	3	1	0	1	1	3	4
39	0	0	0	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	3	0	3	1	0	1	1	2	3
43	1	2	3	0	0	0	0	1	1
44	3	0	3	1	0	1	0	1	1
45	1	2	3	0	0	0	0	0	0
46	2	1	3	0	1	1	0	0	0
47	0	0	0	0	0	0	0	0	0
48	3	0	3	0	1	1	0	0	0
49	2	0	2	0	1	1	0	0	0
50	0	0	0	0	0	0	0	0	0

Table 180 1 CRUDES 7 LCS-r0 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	2	0	4	0	0	0
xbar	3	0	3	0.98	0.02	1	6.6	0.28	6.88	1.52	1.3	2.82
max	3	0	3	1	1	1	7	3	7	5	4	7
sig	0	0	0	0.14142136	0.141421	0	0.94761	0.671	0.4798	1.265556	1.1473127	1.996834
sigxb	0	0	0	0.00282843	0.002828	0	0.01895	0.013	0.0096	0.025311	0.0229463	0.039937
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.02	0		0.28	0.12		1.3	5.18
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	2	3	5
2	3	0	3	1	0	1	7	0	7	2	4	6
3	3	0	3	1	0	1	7	0	7	3	3	6
4	3	0	3	1	0	1	7	0	7	3	3	6
5	3	0	3	1	0	1	7	0	7	4	3	7
6	3	0	3	1	0	1	7	0	7	1	1	2
7	3	0	3	1	0	1	7	0	7	1	1	2
8	3	0	3	0	1	1	2	2	4	0	0	0
9	3	0	3	1	0	1	7	0	7	1	2	3
10	3	0	3	1	0	1	7	0	7	0	0	0
11	3	0	3	1	0	1	7	0	7	5	2	7
12	3	0	3	1	0	1	7	0	7	3	0	3
13	3	0	3	1	0	1	6	0	6	0	0	0
14	3	0	3	1	0	1	6	1	7	0	0	0
15	3	0	3	1	0	1	6	1	7	0	0	0
16	3	0	3	1	0	1	7	0	7	3	2	5
17	3	0	3	1	0	1	7	0	7	1	2	3
18	3	0	3	1	0	1	6	0	6	0	0	0
19	3	0	3	1	0	1	5	2	7	1	0	1
20	3	0	3	1	0	1	7	0	7	2	2	4
21	3	0	3	1	0	1	7	0	7	2	0	2
22	3	0	3	1	0	1	7	0	7	3	2	5
23	3	0	3	1	0	1	7	0	7	0	2	2
24	3	0	3	1	0	1	7	0	7	1	1	2
25	3	0	3	1	0	1	7	0	7	3	2	5
26	3	0	3	1	0	1	7	0	7	1	1	2
27	3	0	3	1	0	1	7	0	7	1	3	4
28	3	0	3	1	0	1	7	0	7	0	1	1
29	3	0	3	1	0	1	7	0	7	3	0	3
30	3	0	3	1	0	1	7	0	7	1	3	4
31	3	0	3	1	0	1	7	0	7	2	3	5
32	3	0	3	1	0	1	7	0	7	2	0	2
33	3	0	3	1	0	1	7	0	7	1	0	1
34	3	0	3	1	0	1	7	0	7	2	1	3
35	3	0	3	1	0	1	7	0	7	0	1	1
36	3	0	3	1	0	1	7	0	7	1	2	3
37	3	0	3	1	0	1	7	0	7	3	1	4
38	3	0	3	1	0	1	6	1	7	0	1	1
39	3	0	3	1	0	1	6	1	7	0	0	0
40	3	0	3	1	0	1	5	1	6	0	0	0
41	3	0	3	1	0	1	4	3	7	1	0	1
42	3	0	3	1	0	1	7	0	7	2	2	4
43	3	0	3	1	0	1	7	0	7	4	0	4
44	3	0	3	1	0	1	7	0	7	1	2	3
45	3	0	3	1	0	1	7	0	7	1	1	2
46	3	0	3	1	0	1	7	0	7	1	1	2
47	3	0	3	1	0	1	7	0	7	3	1	4
48	3	0	3	1	0	1	5	2	7	2	2	4
49	3	0	3	1	0	1	7	0	7	1	1	2
50	3	0	3	1	0	1	7	0	7	2	3	5

Table 181 1 CRUDES 7 LCS-r1 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	1
xbar	3	0	3	0.52	0.26	0.78	2.16	2.48	4.64
max	3	0	3	1	1	1	6	6	7
sig	0	0	0	0.50467205	0.443087	0.41845196	1.48956	1.282	1.60051
sigxb	0	0	0	0.01009344	0.008862	0.00836904	0.02979	0.026	0.03201
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.26	0.22		2.48	2.36
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	3	3	6
2	3	0	3	1	0	1	0	2	2
3	3	0	3	1	0	1	5	0	5
4	3	0	3	0	0	0	2	2	4
5	3	0	3	1	0	1	5	1	6
6	3	0	3	1	0	1	4	1	5
7	3	0	3	0	1	1	3	2	5
8	3	0	3	1	0	1	3	3	6
9	3	0	3	1	0	1	3	3	6
10	3	0	3	0	0	0	0	1	1
11	3	0	3	1	0	1	3	3	6
12	3	0	3	0	0	0	1	3	4
13	3	0	3	0	1	1	1	1	2
14	3	0	3	1	0	1	1	1	2
15	3	0	3	0	1	1	4	2	6
16	3	0	3	0	1	1	1	3	4
17	3	0	3	0	1	1	0	6	6
18	3	0	3	0	1	1	6	1	7
19	3	0	3	0	1	1	2	1	3
20	3	0	3	1	0	1	4	3	7
21	3	0	3	0	0	0	2	5	7
22	3	0	3	0	0	0	3	2	5
23	3	0	3	0	0	0	1	3	4
24	3	0	3	0	0	0	1	3	4
25	3	0	3	0	1	1	2	1	3
26	3	0	3	1	0	1	1	4	5
27	3	0	3	1	0	1	4	1	5
28	3	0	3	0	0	0	0	4	4
29	3	0	3	0	1	1	1	4	5
30	3	0	3	1	0	1	2	4	6
31	3	0	3	1	0	1	0	2	2
32	3	0	3	0	0	0	2	2	4
33	3	0	3	1	0	1	3	3	6
34	3	0	3	0	0	0	0	1	1
35	3	0	3	1	0	1	3	2	5
36	3	0	3	1	0	1	1	2	3
37	3	0	3	0	0	0	2	1	3
38	3	0	3	1	0	1	4	3	7
39	3	0	3	1	0	1	2	4	6
40	3	0	3	1	0	1	3	1	4
41	3	0	3	1	0	1	3	3	6
42	3	0	3	0	1	1	3	2	5
43	3	0	3	1	0	1	3	4	7
44	3	0	3	0	1	1	1	3	4
45	3	0	3	1	0	1	3	1	4
46	3	0	3	1	0	1	3	4	7
47	3	0	3	0	1	1	0	4	4
48	3	0	3	0	1	1	0	4	4
49	3	0	3	1	0	1	2	2	4
50	3	0	3	1	0	1	2	3	5

Table 182 1 CRUDES 7 LCS-r2 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	5	0	6	0	0	0
xbar	3	0	3	1	0	1	6.94	0.04	6.98	2.02	1.2	3.22
max	3	0	3	1	0	1	7	1	7	7	4	7
sig	0	0	0	0	0	0	0.31364	0.198	0.14142	1.834922	1.2289036	2.30607
sigxb	0	0	0	0	0	0	0.00627	0.004	0.00283	0.036698	0.0245781	0.046121
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.04	0.02		1.2	4.78
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	2	3	5
2	3	0	3	1	0	1	7	0	7	2	4	6
3	3	0	3	1	0	1	7	0	7	3	3	6
4	3	0	3	1	0	1	7	0	7	3	3	6
5	3	0	3	1	0	1	7	0	7	4	3	7
6	3	0	3	1	0	1	7	0	7	1	1	2
7	3	0	3	1	0	1	7	0	7	1	1	2
8	3	0	3	1	0	1	5	1	6	0	0	0
9	3	0	3	1	0	1	7	0	7	5	2	7
10	3	0	3	1	0	1	7	0	7	1	1	2
11	3	0	3	1	0	1	7	0	7	7	0	7
12	3	0	3	1	0	1	7	0	7	2	2	4
13	3	0	3	1	0	1	7	0	7	0	0	0
14	3	0	3	1	0	1	7	0	7	0	0	0
15	3	0	3	1	0	1	7	0	7	0	0	0
16	3	0	3	1	0	1	7	0	7	6	0	6
17	3	0	3	1	0	1	7	0	7	5	0	5
18	3	0	3	1	0	1	7	0	7	2	1	3
19	3	0	3	1	0	1	7	0	7	3	1	4
20	3	0	3	1	0	1	6	1	7	0	0	0
21	3	0	3	1	0	1	7	0	7	1	2	3
22	3	0	3	1	0	1	7	0	7	0	0	0
23	3	0	3	1	0	1	7	0	7	2	0	2
24	3	0	3	1	0	1	7	0	7	3	4	7
25	3	0	3	1	0	1	7	0	7	1	1	2
26	3	0	3	1	0	1	7	0	7	5	0	5
27	3	0	3	1	0	1	7	0	7	5	2	7
28	3	0	3	1	0	1	7	0	7	0	1	1
29	3	0	3	1	0	1	7	0	7	0	0	0
30	3	0	3	1	0	1	7	0	7	3	2	5
31	3	0	3	1	0	1	7	0	7	1	2	3
32	3	0	3	1	0	1	7	0	7	2	1	3
33	3	0	3	1	0	1	7	0	7	0	1	1
34	3	0	3	1	0	1	7	0	7	1	1	2
35	3	0	3	1	0	1	7	0	7	2	0	2
36	3	0	3	1	0	1	7	0	7	0	2	2
37	3	0	3	1	0	1	7	0	7	4	1	5
38	3	0	3	1	0	1	7	0	7	2	0	2
39	3	0	3	1	0	1	7	0	7	1	4	5
40	3	0	3	1	0	1	7	0	7	1	2	3
41	3	0	3	1	0	1	7	0	7	0	1	1
42	3	0	3	1	0	1	7	0	7	5	0	5
43	3	0	3	1	0	1	7	0	7	3	2	5
44	3	0	3	1	0	1	7	0	7	2	0	2
45	3	0	3	1	0	1	7	0	7	1	0	1
46	3	0	3	1	0	1	7	0	7	1	3	4
47	3	0	3	1	0	1	7	0	7	0	0	0
48	3	0	3	1	0	1	7	0	7	3	1	4
49	3	0	3	1	0	1	7	0	7	1	0	1
50	3	0	3	1	0	1	7	0	7	4	2	6

Table 183 1 CRUDES 7 LCS-r3 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.82	0.12	2.94	0.58	0.16	0.74	0.6	1.08	1.68
max	3	2	3	1	1	1	4	4	7
sig	0.56024776	0.38545	0.42426407	0.49856938	0.370328	0.4430875	0.9689	1.158	1.81198
sigxb	0.01120496	0.007709	0.00848528	0.00997139	0.007407	0.00886175	0.01938	0.023	0.03624
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.12	0.06		0.16	0.26		1.08	5.32
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	0	1	1
2	1	2	3	0	0	0	0	0	0
3	3	0	3	0	1	1	0	0	0
4	3	0	3	0	1	1	0	0	0
5	3	0	3	0	0	0	0	0	0
6	3	0	3	1	0	1	1	2	3
7	3	0	3	0	0	0	0	0	0
8	3	0	3	1	0	1	0	1	1
9	3	0	3	1	0	1	1	2	3
10	3	0	3	1	0	1	0	0	0
11	3	0	3	0	1	1	0	2	2
12	2	1	3	0	0	0	0	0	0
13	3	0	3	1	0	1	2	2	4
14	3	0	3	1	0	1	0	1	1
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	0	0	0	0	0
17	3	0	3	1	0	1	3	0	3
18	2	1	3	0	1	1	0	0	0
19	3	0	3	0	0	0	0	0	0
20	3	0	3	0	1	1	0	1	1
21	3	0	3	1	0	1	0	0	0
22	3	0	3	0	1	1	0	0	0
23	3	0	3	1	0	1	2	1	3
24	3	0	3	1	0	1	1	0	1
25	3	0	3	0	0	0	0	0	0
26	3	0	3	1	0	1	0	1	1
27	3	0	3	1	0	1	1	3	4
28	3	0	3	0	1	1	0	2	2
29	3	0	3	1	0	1	0	2	2
30	3	0	3	1	0	1	2	2	4
31	3	0	3	1	0	1	2	2	4
32	3	0	3	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	2	1	3	0	0	0	0	0	0
35	3	0	3	1	0	1	4	3	7
36	3	0	3	1	0	1	3	3	6
37	3	0	3	1	0	1	0	1	1
38	0	0	0	0	0	0	0	0	0
39	3	0	3	1	0	1	1	1	2
40	3	0	3	1	0	1	1	2	3
41	3	0	3	1	0	1	0	0	0
42	3	0	3	1	0	1	1	2	3
43	3	0	3	1	0	1	1	4	5
44	3	0	3	1	0	1	0	0	0
45	3	0	3	1	0	1	1	2	3
46	3	0	3	1	0	1	0	2	2
47	3	0	3	1	0	1	2	1	3
48	3	0	3	0	1	1	0	2	2
49	3	0	3	1	0	1	0	4	4
50	3	0	3	0	0	0	1	2	3

Table 184 1 CRUDES 7 LCS-r4 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	4	0	6	0	0	0
xbar	3	0	3	1	0	1	6.68	0.26	6.94	2.16	1.16	3.32
max	3	0	3	1	0	1	7	2	7	7	4	7
sig	0	0	0	0	0	0	0.74066	0.6	0.2399	1.844573	1.0758955	2.280709
sigxb	0	0	0	0	0	0	0.01481	0.012	0.0048	0.036891	0.0215179	0.045614
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.26	0.06		1.16	4.68
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	2	3	5
2	3	0	3	1	0	1	7	0	7	2	4	6
3	3	0	3	1	0	1	7	0	7	3	3	6
4	3	0	3	1	0	1	7	0	7	3	3	6
5	3	0	3	1	0	1	7	0	7	4	3	7
6	3	0	3	1	0	1	7	0	7	1	1	2
7	3	0	3	1	0	1	5	2	7	0	0	0
8	3	0	3	1	0	1	7	0	7	7	0	7
9	3	0	3	1	0	1	7	0	7	4	1	5
10	3	0	3	1	0	1	7	0	7	3	1	4
11	3	0	3	1	0	1	7	0	7	4	1	5
12	3	0	3	1	0	1	7	0	7	0	3	3
13	3	0	3	1	0	1	7	0	7	0	0	0
14	3	0	3	1	0	1	5	1	6	0	0	0
15	3	0	3	1	0	1	5	1	6	0	2	2
16	3	0	3	1	0	1	7	0	7	1	2	3
17	3	0	3	1	0	1	5	2	7	1	0	1
18	3	0	3	1	0	1	7	0	7	4	0	4
19	3	0	3	1	0	1	6	1	7	0	0	0
20	3	0	3	1	0	1	7	0	7	0	0	0
21	3	0	3	1	0	1	6	1	7	1	0	1
22	3	0	3	1	0	1	7	0	7	0	0	0
23	3	0	3	1	0	1	7	0	7	3	2	5
24	3	0	3	1	0	1	7	0	7	5	1	6
25	3	0	3	1	0	1	7	0	7	0	0	0
26	3	0	3	1	0	1	7	0	7	2	2	4
27	3	0	3	1	0	1	7	0	7	4	2	6
28	3	0	3	1	0	1	7	0	7	1	1	2
29	3	0	3	1	0	1	7	0	7	3	1	4
30	3	0	3	1	0	1	7	0	7	0	2	2
31	3	0	3	1	0	1	7	0	7	2	1	3
32	3	0	3	1	0	1	5	2	7	0	0	0
33	3	0	3	1	0	1	7	0	7	1	1	2
34	3	0	3	1	0	1	6	1	7	1	2	3
35	3	0	3	1	0	1	7	0	7	3	1	4
36	3	0	3	1	0	1	7	0	7	3	2	5
37	3	0	3	1	0	1	7	0	7	4	1	5
38	3	0	3	1	0	1	7	0	7	3	2	5
39	3	0	3	1	0	1	7	0	7	1	2	3
40	3	0	3	1	0	1	7	0	7	5	2	7
41	3	0	3	1	0	1	7	0	7	1	1	2
42	3	0	3	1	0	1	7	0	7	5	1	6
43	3	0	3	1	0	1	7	0	7	3	0	3
44	3	0	3	1	0	1	7	0	7	2	0	2
45	3	0	3	1	0	1	4	2	6	0	0	0
46	3	0	3	1	0	1	7	0	7	2	2	4
47	3	0	3	1	0	1	7	0	7	4	0	4
48	3	0	3	1	0	1	7	0	7	5	1	6
49	3	0	3	1	0	1	7	0	7	5	1	6
50	3	0	3	1	0	1	7	0	7	0	0	0

Table 185 1 CRUDES 7 LCS-r5 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	1	2	0	5
xbar	3	0	3	0.96	0.04	1	4.74	1.98	6.72
max	3	0	3	1	1	1	7	5	7
sig	0	0	0	0.19794866	0.197949	0	1.20898	1.169	0.53605
sigxb	0	0	0	0.00395897	0.003959	0	0.02418	0.023	0.01072
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.04	0		1.98	0.28
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	0	1	1	5	2	7
2	3	0	3	1	0	1	7	0	7
3	3	0	3	1	0	1	5	1	6
4	3	0	3	1	0	1	2	4	6
5	3	0	3	1	0	1	7	0	7
6	3	0	3	1	0	1	5	2	7
7	3	0	3	1	0	1	4	3	7
8	3	0	3	1	0	1	5	1	6
9	3	0	3	1	0	1	4	2	6
10	3	0	3	1	0	1	4	2	6
11	3	0	3	1	0	1	6	1	7
12	3	0	3	1	0	1	6	1	7
13	3	0	3	1	0	1	5	2	7
14	3	0	3	1	0	1	4	1	5
15	3	0	3	1	0	1	5	2	7
16	3	0	3	1	0	1	6	1	7
17	3	0	3	1	0	1	5	2	7
18	3	0	3	1	0	1	7	0	7
19	3	0	3	1	0	1	5	2	7
20	3	0	3	1	0	1	5	1	6
21	3	0	3	1	0	1	6	1	7
22	3	0	3	1	0	1	3	2	5
23	3	0	3	1	0	1	4	3	7
24	3	0	3	1	0	1	5	2	7
25	3	0	3	1	0	1	5	2	7
26	3	0	3	1	0	1	2	5	7
27	3	0	3	1	0	1	5	2	7
28	3	0	3	1	0	1	3	4	7
29	3	0	3	1	0	1	4	2	6
30	3	0	3	1	0	1	6	1	7
31	3	0	3	1	0	1	5	2	7
32	3	0	3	1	0	1	6	1	7
33	3	0	3	1	0	1	4	3	7
34	3	0	3	1	0	1	4	3	7
35	3	0	3	1	0	1	5	2	7
36	3	0	3	1	0	1	5	1	6
37	3	0	3	1	0	1	4	2	6
38	3	0	3	1	0	1	3	4	7
39	3	0	3	1	0	1	5	2	7
40	3	0	3	1	0	1	4	3	7
41	3	0	3	1	0	1	6	1	7
42	3	0	3	1	0	1	2	5	7
43	3	0	3	1	0	1	6	1	7
44	3	0	3	1	0	1	3	4	7
45	3	0	3	1	0	1	6	1	7
46	3	0	3	1	0	1	5	2	7
47	3	0	3	1	0	1	5	2	7
48	3	0	3	1	0	1	5	2	7
49	3	0	3	0	1	1	4	3	7
50	3	0	3	1	0	1	5	1	6

Table 186 1 CRUDES 7 LCS-r6 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	7	0	7	0	0	0
xbar	3	0	3	1	0	1	7	0	7	2.06	1.32	3.38
max	3	0	3	1	0	1	7	0	7	6	4	8
sig	0	0	0	0	0	0	0	0	0	1.788968	1.1682885	2.406539
sigxb	0	0	0	0	0	0	0	0	0	0.035779	0.0233658	0.048131
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0	0		1.32	4.62
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	2	3	5
2	3	0	3	1	0	1	7	0	7	2	4	6
3	3	0	3	1	0	1	7	0	7	3	3	6
4	3	0	3	1	0	1	7	0	7	3	3	6
5	3	0	3	1	0	1	7	0	7	4	3	7
6	3	0	3	1	0	1	7	0	7	1	1	2
7	3	0	3	1	0	1	7	0	7	0	0	0
8	3	0	3	1	0	1	7	0	7	3	0	3
9	3	0	3	1	0	1	7	0	7	0	0	0
10	3	0	3	1	0	1	7	0	7	1	0	1
11	3	0	3	1	0	1	7	0	7	4	2	6
12	3	0	3	1	0	1	7	0	7	4	2	6
13	3	0	3	1	0	1	7	0	7	4	1	5
14	3	0	3	1	0	1	7	0	7	0	0	0
15	3	0	3	1	0	1	7	0	7	0	0	0
16	3	0	3	1	0	1	7	0	7	1	1	2
17	3	0	3	1	0	1	7	0	7	3	2	5
18	3	0	3	1	0	1	7	0	7	0	0	0
19	3	0	3	1	0	1	7	0	7	2	2	4
20	3	0	3	1	0	1	7	0	7	6	2	8
21	3	0	3	1	0	1	7	0	7	2	3	5
22	3	0	3	1	0	1	7	0	7	3	3	6
23	3	0	3	1	0	1	7	0	7	4	3	7
24	3	0	3	1	0	1	7	0	7	3	0	3
25	3	0	3	1	0	1	7	0	7	3	0	3
26	3	0	3	1	0	1	7	0	7	0	0	0
27	3	0	3	1	0	1	7	0	7	3	1	4
28	3	0	3	1	0	1	7	0	7	4	1	5
29	3	0	3	1	0	1	7	0	7	0	1	1
30	3	0	3	1	0	1	7	0	7	0	1	1
31	3	0	3	1	0	1	7	0	7	2	1	3
32	3	0	3	1	0	1	7	0	7	1	3	4
33	3	0	3	1	0	1	7	0	7	3	2	5
34	3	0	3	1	0	1	7	0	7	0	0	0
35	3	0	3	1	0	1	7	0	7	0	0	0
36	3	0	3	1	0	1	7	0	7	3	1	4
37	3	0	3	1	0	1	7	0	7	0	0	0
38	3	0	3	1	0	1	7	0	7	0	0	0
39	3	0	3	1	0	1	7	0	7	6	1	7
40	3	0	3	1	0	1	7	0	7	2	2	4
41	3	0	3	1	0	1	7	0	7	6	0	6
42	3	0	3	1	0	1	7	0	7	2	2	4
43	3	0	3	1	0	1	7	0	7	1	1	2
44	3	0	3	1	0	1	7	0	7	0	2	2
45	3	0	3	1	0	1	7	0	7	2	0	2
46	3	0	3	1	0	1	7	0	7	5	1	6
47	3	0	3	1	0	1	7	0	7	2	2	4
48	3	0	3	1	0	1	7	0	7	0	3	3
49	3	0	3	1	0	1	7	0	7	3	2	5
50	3	0	3	1	0	1	7	0	7	0	1	1

Table 187 1 CRUDES 7 LCS-r7 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	1.88	0.36	2.24	0.24	0.2	0.44	0.02	0.14	0.16
max	3	2	3	1	1	1	1	4	4
sig	1.15422914	0.597956	1.15281377	0.43141911	0.404061	0.50142654	0.14142	0.639	0.65027
sigxb	0.02308458	0.011959	0.02305628	0.00862838	0.008081	0.01002853	0.00283	0.013	0.01301
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.36	0.76		0.2	0.56		0.14	6.84
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	1	0	1	0	0	0
3	3	0	3	1	0	1	0	0	0
4	0	0	0	0	0	0	0	0	0
5	1	1	2	0	0	0	0	0	0
6	3	0	3	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	2	0	2	0	0	0	0	0	0
12	2	1	3	0	1	1	0	0	0
13	2	1	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	1	0	1	0	2	2
16	3	0	3	0	0	0	0	0	0
17	0	1	1	0	0	0	0	0	0
18	2	1	3	0	1	1	0	0	0
19	2	0	2	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	3	0	3	1	0	1	0	4	4
22	2	1	3	0	1	1	0	0	0
23	0	0	0	0	0	0	0	0	0
24	2	0	2	0	0	0	0	0	0
25	2	0	2	0	0	0	0	0	0
26	2	0	2	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	1	1	0	0	0
29	3	0	3	0	1	1	0	0	0
30	2	1	3	1	0	1	0	0	0
31	2	1	3	0	1	1	0	0	0
32	3	0	3	1	0	1	0	0	0
33	1	2	3	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	1	0	1	0	0	0
36	0	0	0	0	0	0	0	0	0
37	3	0	3	0	1	1	0	0	0
38	3	0	3	1	0	1	0	1	1
39	1	2	3	0	0	0	0	0	0
40	3	0	3	0	1	1	0	0	0
41	2	0	2	0	1	1	0	0	0
42	3	0	3	0	1	1	0	0	0
43	3	0	3	1	0	1	0	0	0
44	2	1	3	0	0	0	0	0	0
45	3	0	3	1	0	1	0	0	0
46	3	0	3	0	0	0	0	0	0
47	3	0	3	1	0	1	0	0	0
48	0	2	2	0	0	0	0	0	0
49	2	0	2	0	0	0	0	0	0
50	3	0	3	1	0	1	1	0	1

Table 188 1 CRUDES 7 LCS-r8 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	0	0	2	0	0	0
xbar	3	0	3	1	0	1	3.88	2.02	5.9	2.26	1.36	3.62
max	3	0	3	1	0	1	7	6	7	6	5	8
sig	0	0	0	0	0	0	1.76866	1.348	1.12938	1.601148	1.3211003	1.926083
sigxb	0	0	0	0	0	0	0.03537	0.027	0.02259	0.032023	0.026422	0.038522
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		2.02	1.1		1.36	4.38
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	1	7	3	0	3
2	3	0	3	1	0	1	6	1	7	4	1	5
3	3	0	3	1	0	1	4	2	6	3	0	3
4	3	0	3	1	0	1	3	3	6	1	5	6
5	3	0	3	1	0	1	4	1	5	1	1	2
6	3	0	3	1	0	1	5	0	5	0	0	0
7	3	0	3	1	0	1	2	3	5	2	0	2
8	3	0	3	1	0	1	7	0	7	3	0	3
9	3	0	3	1	0	1	0	5	5	1	0	1
10	3	0	3	1	0	1	4	2	6	2	1	3
11	3	0	3	1	0	1	3	3	6	1	1	2
12	3	0	3	1	0	1	1	4	5	3	1	4
13	3	0	3	1	0	1	2	3	5	1	0	1
14	3	0	3	1	0	1	5	2	7	5	1	6
15	3	0	3	1	0	1	6	0	6	4	1	5
16	3	0	3	1	0	1	5	2	7	1	2	3
17	3	0	3	1	0	1	2	2	4	2	1	3
18	3	0	3	1	0	1	5	2	7	4	3	7
19	3	0	3	1	0	1	2	3	5	0	5	5
20	3	0	3	1	0	1	4	3	7	2	3	5
21	3	0	3	1	0	1	4	2	6	6	0	6
22	3	0	3	1	0	1	5	1	6	2	1	3
23	3	0	3	1	0	1	2	5	7	2	1	3
24	3	0	3	1	0	1	7	0	7	4	1	5
25	3	0	3	1	0	1	1	2	3	0	1	1
26	3	0	3	1	0	1	6	1	7	6	2	8
27	3	0	3	1	0	1	2	0	2	1	0	1
28	3	0	3	1	0	1	1	4	5	1	0	1
29	3	0	3	1	0	1	5	2	7	1	2	3
30	3	0	3	1	0	1	6	0	6	2	1	3
31	3	0	3	1	0	1	5	1	6	4	1	5
32	3	0	3	1	0	1	0	6	6	0	3	3
33	3	0	3	1	0	1	3	1	4	1	3	4
34	3	0	3	1	0	1	3	2	5	1	0	1
35	3	0	3	1	0	1	6	1	7	2	2	4
36	3	0	3	1	0	1	3	2	5	1	1	2
37	3	0	3	1	0	1	5	2	7	5	2	7
38	3	0	3	1	0	1	4	1	5	2	0	2
39	3	0	3	1	0	1	2	4	6	0	2	2
40	3	0	3	1	0	1	4	2	6	5	2	7
41	3	0	3	1	0	1	5	2	7	4	1	5
42	3	0	3	1	0	1	3	3	6	1	1	2
43	3	0	3	1	0	1	3	3	6	2	0	2
44	3	0	3	1	0	1	5	2	7	4	0	4
45	3	0	3	1	0	1	5	2	7	3	3	6
46	3	0	3	1	0	1	6	1	7	3	2	5
47	3	0	3	1	0	1	5	2	7	3	3	6
48	3	0	3	1	0	1	3	2	5	2	0	2
49	3	0	3	1	0	1	5	1	6	1	3	4
50	3	0	3	1	0	1	4	2	6	1	4	5

Table 189 1 CRUDES 7 LCS-r9 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	0.9	0.08	0.98	1.74	2.52	4.26
max	3	0	3	1	1	1	4	6	7
sig	0	0	0	0.30304576	0.274048	0.14142136	1.32187	1.432	1.84954
sigxb	0	0	0	0.00606092	0.005481	0.00282843	0.02644	0.029	0.03699
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0.08	0.02		2.52	2.74
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	4	1	5
2	3	0	3	1	0	1	0	1	1
3	3	0	3	1	0	1	4	2	6
4	3	0	3	1	0	1	1	6	7
5	3	0	3	1	0	1	4	2	6
6	3	0	3	1	0	1	1	2	3
7	3	0	3	0	1	1	2	2	4
8	3	0	3	1	0	1	4	3	7
9	3	0	3	1	0	1	2	4	6
10	3	0	3	1	0	1	2	3	5
11	3	0	3	1	0	1	1	3	4
12	3	0	3	1	0	1	1	4	5
13	3	0	3	1	0	1	2	2	4
14	3	0	3	1	0	1	1	5	6
15	3	0	3	1	0	1	2	3	5
16	3	0	3	1	0	1	3	4	7
17	3	0	3	1	0	1	1	2	3
18	3	0	3	1	0	1	4	3	7
19	3	0	3	0	1	1	0	1	1
20	3	0	3	1	0	1	1	5	6
21	3	0	3	0	1	1	1	2	3
22	3	0	3	1	0	1	0	4	4
23	3	0	3	1	0	1	3	1	4
24	3	0	3	1	0	1	4	1	5
25	3	0	3	1	0	1	3	2	5
26	3	0	3	1	0	1	0	3	3
27	3	0	3	0	0	0	0	0	0
28	3	0	3	1	0	1	3	3	6
29	3	0	3	1	0	1	4	3	7
30	3	0	3	1	0	1	1	3	4
31	3	0	3	1	0	1	1	3	4
32	3	0	3	1	0	1	2	2	4
33	3	0	3	1	0	1	3	2	5
34	3	0	3	1	0	1	0	5	5
35	3	0	3	1	0	1	0	4	4
36	3	0	3	1	0	1	3	3	6
37	3	0	3	1	0	1	0	0	0
38	3	0	3	0	1	1	0	0	0
39	3	0	3	1	0	1	2	4	6
40	3	0	3	1	0	1	2	1	3
41	3	0	3	1	0	1	2	1	3
42	3	0	3	1	0	1	2	1	3
43	3	0	3	1	0	1	2	2	4
44	3	0	3	1	0	1	1	2	3
45	3	0	3	1	0	1	3	3	6
46	3	0	3	1	0	1	1	1	2
47	3	0	3	1	0	1	1	4	5
48	3	0	3	1	0	1	1	2	3
49	3	0	3	1	0	1	2	1	3
50	3	0	3	1	0	1	0	5	5

Table 190 1 CRUDES 7 LCS-r10 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	4	0	6	0	0	0
xbar	3	0	3	1	0	1	6.72	0.24	6.96	2.38	1.76	4.14
max	3	0	3	1	0	1	7	2	7	6	5	8
sig	0	0	0	0	0	0	0.64015	0.517	0.19795	1.510372	1.2866663	1.714405
sigxb	0	0	0	0	0	0	0.0128	0.01	0.00396	0.030207	0.0257333	0.034288
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.24	0.04		1.76	3.86
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	3	0	3
2	3	0	3	1	0	1	7	0	7	3	1	4
3	3	0	3	1	0	1	7	0	7	3	1	4
4	3	0	3	1	0	1	7	0	7	2	0	2
5	3	0	3	1	0	1	6	1	7	0	0	0
6	3	0	3	1	0	1	7	0	7	2	1	3
7	3	0	3	1	0	1	7	0	7	2	1	3
8	3	0	3	1	0	1	7	0	7	5	0	5
9	3	0	3	1	0	1	7	0	7	1	0	1
10	3	0	3	1	0	1	6	1	7	1	1	2
11	3	0	3	1	0	1	7	0	7	3	2	5
12	3	0	3	1	0	1	7	0	7	0	3	3
13	3	0	3	1	0	1	7	0	7	1	2	3
14	3	0	3	1	0	1	6	1	7	1	1	2
15	3	0	3	1	0	1	7	0	7	3	3	6
16	3	0	3	1	0	1	7	0	7	3	1	4
17	3	0	3	1	0	1	7	0	7	1	4	5
18	3	0	3	1	0	1	7	0	7	2	4	6
19	3	0	3	1	0	1	7	0	7	3	1	4
20	3	0	3	1	0	1	7	0	7	2	2	4
21	3	0	3	1	0	1	7	0	7	3	2	5
22	3	0	3	1	0	1	6	1	7	1	3	4
23	3	0	3	1	0	1	7	0	7	2	2	4
24	3	0	3	1	0	1	7	0	7	3	3	6
25	3	0	3	1	0	1	7	0	7	5	1	6
26	3	0	3	1	0	1	7	0	7	0	3	3
27	3	0	3	1	0	1	7	0	7	2	3	5
28	3	0	3	1	0	1	7	0	7	5	1	6
29	3	0	3	1	0	1	7	0	7	0	2	2
30	3	0	3	1	0	1	7	0	7	1	1	2
31	3	0	3	1	0	1	7	0	7	4	0	4
32	3	0	3	1	0	1	7	0	7	3	2	5
33	3	0	3	1	0	1	6	1	7	2	1	3
34	3	0	3	1	0	1	7	0	7	3	3	6
35	3	0	3	1	0	1	5	2	7	2	1	3
36	3	0	3	1	0	1	6	1	7	1	1	2
37	3	0	3	1	0	1	7	0	7	0	3	3
38	3	0	3	1	0	1	4	2	6	2	1	3
39	3	0	3	1	0	1	7	0	7	5	1	6
40	3	0	3	1	0	1	7	0	7	4	2	6
41	3	0	3	1	0	1	6	1	7	2	2	4
42	3	0	3	1	0	1	7	0	7	2	5	7
43	3	0	3	1	0	1	7	0	7	2	2	4
44	3	0	3	1	0	1	5	1	6	3	0	3
45	3	0	3	1	0	1	7	0	7	5	3	8
46	3	0	3	1	0	1	7	0	7	6	1	7
47	3	0	3	1	0	1	7	0	7	3	4	7
48	3	0	3	1	0	1	7	0	7	3	3	6
49	3	0	3	1	0	1	7	0	7	4	0	4
50	3	0	3	1	0	1	7	0	7	0	4	4

Table 191 1 CRUDES 7 LCS-r11 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0	0	0	0
xbar	2.58	0.26	2.84	0.66	0.22	0.88	0.38	0.62	1
max	3	2	3	1	1	1	3	3	5
sig	0.75835483	0.527218	0.6180945	0.47851812	0.418452	0.32826072	0.75295	0.967	1.60357
sigxb	0.0151671	0.010544	0.01236189	0.00957036	0.008369	0.00656521	0.01506	0.019	0.03207
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0.26	0.16		0.22	0.12		0.62	6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0	0	0	0
2	3	0	3	1	0	1	0	0	0
3	2	1	3	0	1	1	0	0	0
4	3	0	3	1	0	1	0	0	0
5	3	0	3	1	0	1	2	3	5
6	0	0	0	0	0	0	0	0	0
7	1	2	3	0	1	1	0	0	0
8	3	0	3	1	0	1	1	2	3
9	3	0	3	1	0	1	0	0	0
10	3	0	3	1	0	1	0	1	1
11	3	0	3	1	0	1	0	0	0
12	3	0	3	1	0	1	1	3	4
13	3	0	3	1	0	1	3	2	5
14	1	2	3	0	1	1	0	0	0
15	3	0	3	0	1	1	0	0	0
16	2	1	3	1	0	1	0	0	0
17	3	0	3	1	0	1	2	1	3
18	2	1	3	0	1	1	0	0	0
19	2	1	3	0	1	1	0	0	0
20	3	0	3	1	0	1	0	0	0
21	3	0	3	1	0	1	1	3	4
22	2	0	2	0	1	1	0	0	0
23	2	1	3	0	0	0	0	0	0
24	2	1	3	0	0	0	0	0	0
25	2	1	3	1	0	1	0	0	0
26	2	1	3	0	0	0	0	0	0
27	3	0	3	1	0	1	0	0	0
28	3	0	3	1	0	1	1	1	2
29	3	0	3	1	0	1	0	0	0
30	3	0	3	1	0	1	2	3	5
31	2	0	2	0	1	1	0	0	0
32	3	0	3	1	0	1	0	0	0
33	3	0	3	1	0	1	0	0	0
34	3	0	3	1	0	1	0	1	1
35	3	0	3	0	0	0	0	0	0
36	3	0	3	1	0	1	0	0	0
37	2	1	3	0	1	1	0	0	0
38	3	0	3	1	0	1	1	2	3
39	3	0	3	1	0	1	0	0	0
40	3	0	3	1	0	1	2	2	4
41	3	0	3	1	0	1	0	2	2
42	3	0	3	1	0	1	0	0	0
43	3	0	3	1	0	1	0	0	0
44	3	0	3	1	0	1	1	1	2
45	3	0	3	1	0	1	0	1	1
46	3	0	3	0	1	1	0	0	0
47	3	0	3	1	0	1	2	1	3
48	3	0	3	0	1	1	0	0	0
49	3	0	3	1	0	1	0	1	1
50	3	0	3	1	0	1	0	1	1

Table 192 1 CRUDES 7 LCS-r12 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	1	0	4	0	0	0
xbar	3	0	3	1	0	1	5.12	1.58	6.7	3.26	1.42	4.68
max	3	0	3	1	0	1	7	5	7	7	4	8
sig	0	0	0	0	0	0	1.40901	1.311	0.61445	1.759058	1.1264899	1.62179
sigxb	0	0	0	0	0	0	0.02818	0.026	0.01229	0.035181	0.0225298	0.032436
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		1.58	0.3		1.42	3.32
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	6	0	6	3	0	3
2	3	0	3	1	0	1	6	0	6	1	3	4
3	3	0	3	1	0	1	5	2	7	7	0	7
4	3	0	3	1	0	1	5	2	7	5	1	6
5	3	0	3	1	0	1	6	1	7	4	1	5
6	3	0	3	1	0	1	5	2	7	3	1	4
7	3	0	3	1	0	1	6	0	6	3	0	3
8	3	0	3	1	0	1	7	0	7	3	2	5
9	3	0	3	1	0	1	5	2	7	1	2	3
10	3	0	3	1	0	1	6	1	7	5	3	8
11	3	0	3	1	0	1	3	4	7	0	4	4
12	3	0	3	1	0	1	5	2	7	2	2	4
13	3	0	3	1	0	1	4	2	6	1	1	2
14	3	0	3	1	0	1	7	0	7	3	3	6
15	3	0	3	1	0	1	5	2	7	3	1	4
16	3	0	3	1	0	1	4	2	6	1	4	5
17	3	0	3	1	0	1	5	2	7	3	1	4
18	3	0	3	1	0	1	1	3	4	0	0	0
19	3	0	3	1	0	1	6	1	7	6	1	7
20	3	0	3	1	0	1	6	0	6	4	1	5
21	3	0	3	1	0	1	5	2	7	5	1	6
22	3	0	3	1	0	1	4	3	7	3	2	5
23	3	0	3	1	0	1	6	0	6	6	1	7
24	3	0	3	1	0	1	7	0	7	7	0	7
25	3	0	3	1	0	1	6	1	7	4	2	6
26	3	0	3	1	0	1	7	0	7	6	0	6
27	3	0	3	1	0	1	6	1	7	4	1	5
28	3	0	3	1	0	1	4	2	6	1	1	2
29	3	0	3	1	0	1	5	1	6	2	1	3
30	3	0	3	1	0	1	2	5	7	3	0	3
31	3	0	3	1	0	1	6	1	7	6	1	7
32	3	0	3	1	0	1	5	2	7	4	1	5
33	3	0	3	1	0	1	4	3	7	1	1	2
34	3	0	3	1	0	1	6	1	7	4	2	6
35	3	0	3	1	0	1	6	1	7	3	1	4
36	3	0	3	1	0	1	7	0	7	6	0	6
37	3	0	3	1	0	1	4	3	7	3	3	6
38	3	0	3	1	0	1	4	3	7	1	4	5
39	3	0	3	1	0	1	7	0	7	3	0	3
40	3	0	3	1	0	1	6	1	7	3	2	5
41	3	0	3	1	0	1	3	4	7	3	0	3
42	3	0	3	1	0	1	4	3	7	4	1	5
43	3	0	3	1	0	1	3	4	7	2	2	4
44	3	0	3	1	0	1	3	3	6	4	2	6
45	3	0	3	1	0	1	7	0	7	2	1	3
46	3	0	3	1	0	1	4	3	7	3	1	4
47	3	0	3	1	0	1	4	1	5	5	1	6
48	3	0	3	1	0	1	5	2	7	3	3	6
49	3	0	3	1	0	1	7	0	7	1	3	4
50	3	0	3	1	0	1	6	1	7	3	2	5

Table 193 1 CRUDES 7 LCS-r13 Data Spreadsheet

	starting values for the run								
	amphibs	crudes	lcs	helo					
	3	1	7	0					
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs
min	3	0	3	1	0	1	2	0	5
xbar	3	0	3	1	0	1	4.7	1.7	6.4
max	3	0	3	1	0	1	7	3	7
sig	0	0	0	0	0	0	1.12938	0.953	0.72843
sigxb	0	0	0	0	0	0	0.02259	0.019	0.01457
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost
xbar		0	0		0	0		1.7	0.6
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs
1	3	0	3	1	0	1	4	2	6
2	3	0	3	1	0	1	4	3	7
3	3	0	3	1	0	1	5	2	7
4	3	0	3	1	0	1	3	2	5
5	3	0	3	1	0	1	4	2	6
6	3	0	3	1	0	1	6	1	7
7	3	0	3	1	0	1	6	1	7
8	3	0	3	1	0	1	6	1	7
9	3	0	3	1	0	1	4	3	7
10	3	0	3	1	0	1	7	0	7
11	3	0	3	1	0	1	3	2	5
12	3	0	3	1	0	1	5	1	6
13	3	0	3	1	0	1	5	2	7
14	3	0	3	1	0	1	4	2	6
15	3	0	3	1	0	1	5	1	6
16	3	0	3	1	0	1	4	3	7
17	3	0	3	1	0	1	5	2	7
18	3	0	3	1	0	1	4	3	7
19	3	0	3	1	0	1	6	0	6
20	3	0	3	1	0	1	4	3	7
21	3	0	3	1	0	1	4	3	7
22	3	0	3	1	0	1	3	2	5
23	3	0	3	1	0	1	6	0	6
24	3	0	3	1	0	1	5	1	6
25	3	0	3	1	0	1	5	1	6
26	3	0	3	1	0	1	6	1	7
27	3	0	3	1	0	1	5	2	7
28	3	0	3	1	0	1	6	0	6
29	3	0	3	1	0	1	2	3	5
30	3	0	3	1	0	1	4	3	7
31	3	0	3	1	0	1	6	1	7
32	3	0	3	1	0	1	4	3	7
33	3	0	3	1	0	1	6	1	7
34	3	0	3	1	0	1	4	3	7
35	3	0	3	1	0	1	6	1	7
36	3	0	3	1	0	1	5	1	6
37	3	0	3	1	0	1	5	2	7
38	3	0	3	1	0	1	4	2	6
39	3	0	3	1	0	1	4	2	6
40	3	0	3	1	0	1	5	1	6
41	3	0	3	1	0	1	3	2	5
42	3	0	3	1	0	1	4	3	7
43	3	0	3	1	0	1	5	2	7
44	3	0	3	1	0	1	6	1	7
45	3	0	3	1	0	1	6	1	7
46	3	0	3	1	0	1	6	1	7
47	3	0	3	1	0	1	5	1	6
48	3	0	3	1	0	1	2	3	5
49	3	0	3	1	0	1	5	0	5
50	3	0	3	1	0	1	4	2	6

Table 194 1 CRUDES 7 LCS-r14 Data Spreadsheet

	starting values for the run											
	amphibs	crudes	lcs	helo								
	3	1	7	8								
	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	1	6	0	7	0	0	1
xbar	3	0	3	1	0	1	6.92	0.08	7	2.78	1.78	4.56
max	3	0	3	1	0	1	7	1	7	6	5	8
sig	0	0	0	0	0	0	0.27405	0.274	0	1.488596	1.2170557	1.500476
sigxb	0	0	0	0	0	0	0.00548	0.005	0	0.029772	0.0243411	0.03001
		amphib inj	amphibs lost		crudes inj	crudes lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0	0		0.08	0		1.78	3.44
run	amphib alive	amphib inj	total amphib	crudes alive	crudes inj	total crudes	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	7	0	7	3	1	4
2	3	0	3	1	0	1	7	0	7	4	2	6
3	3	0	3	1	0	1	7	0	7	1	3	4
4	3	0	3	1	0	1	7	0	7	1	3	4
5	3	0	3	1	0	1	7	0	7	3	1	4
6	3	0	3	1	0	1	7	0	7	1	2	3
7	3	0	3	1	0	1	7	0	7	4	1	5
8	3	0	3	1	0	1	7	0	7	4	2	6
9	3	0	3	1	0	1	7	0	7	2	4	6
10	3	0	3	1	0	1	7	0	7	4	2	6
11	3	0	3	1	0	1	7	0	7	3	3	6
12	3	0	3	1	0	1	7	0	7	4	0	4
13	3	0	3	1	0	1	6	1	7	3	4	7
14	3	0	3	1	0	1	7	0	7	3	3	6
15	3	0	3	1	0	1	7	0	7	4	0	4
16	3	0	3	1	0	1	6	1	7	3	1	4
17	3	0	3	1	0	1	7	0	7	2	1	3
18	3	0	3	1	0	1	7	0	7	1	2	3
19	3	0	3	1	0	1	7	0	7	5	1	6
20	3	0	3	1	0	1	7	0	7	3	1	4
21	3	0	3	1	0	1	7	0	7	3	0	3
22	3	0	3	1	0	1	6	1	7	1	2	3
23	3	0	3	1	0	1	7	0	7	1	2	3
24	3	0	3	1	0	1	7	0	7	3	1	4
25	3	0	3	1	0	1	6	1	7	3	3	6
26	3	0	3	1	0	1	7	0	7	4	2	6
27	3	0	3	1	0	1	7	0	7	4	2	6
28	3	0	3	1	0	1	7	0	7	1	4	5
29	3	0	3	1	0	1	7	0	7	4	0	4
30	3	0	3	1	0	1	7	0	7	5	0	5
31	3	0	3	1	0	1	7	0	7	0	3	3
32	3	0	3	1	0	1	7	0	7	1	3	4
33	3	0	3	1	0	1	7	0	7	3	5	8
34	3	0	3	1	0	1	7	0	7	2	2	4
35	3	0	3	1	0	1	7	0	7	1	2	3
36	3	0	3	1	0	1	7	0	7	1	3	4
37	3	0	3	1	0	1	7	0	7	6	1	7
38	3	0	3	1	0	1	7	0	7	5	0	5
39	3	0	3	1	0	1	7	0	7	2	1	3
40	3	0	3	1	0	1	7	0	7	3	3	6
41	3	0	3	1	0	1	7	0	7	0	1	1
42	3	0	3	1	0	1	7	0	7	1	1	2
43	3	0	3	1	0	1	7	0	7	2	1	3
44	3	0	3	1	0	1	7	0	7	3	2	5
45	3	0	3	1	0	1	7	0	7	6	1	7
46	3	0	3	1	0	1	7	0	7	3	0	3
47	3	0	3	1	0	1	7	0	7	5	2	7
48	3	0	3	1	0	1	7	0	7	2	3	5
49	3	0	3	1	0	1	7	0	7	3	1	4
50	3	0	3	1	0	1	7	0	7	3	1	4

Table 195 1 CRUDES 7 LCS-r15 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	2	2						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.54	0.34	2.88	0.74	0.44	1.18	0	0	0
max	3	3	3	2	2	2	0	0	0
sig	0.83812229	0.658074	0.47979587	0.75078	0.644	0.82536	0	0	0
sigxb	0.01676245	0.013161	0.00959592	0.01502	0.013	0.01651	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.34	0.12		0.44	0.82		0	2
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	0	2	0	0	0
2	0	0	0	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	2	0	2	0	0	0
5	3	0	3	1	0	1	0	0	0
6	3	0	3	1	1	2	0	0	0
7	3	0	3	1	0	1	0	0	0
8	3	0	3	1	0	1	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	2	0	2	0	0	0
11	0	2	2	0	1	1	0	0	0
12	3	0	3	0	2	2	0	0	0
13	3	0	3	0	2	2	0	0	0
14	3	0	3	1	1	2	0	0	0
15	3	0	3	1	1	2	0	0	0
16	3	0	3	0	1	1	0	0	0
17	2	1	3	1	0	1	0	0	0
18	3	0	3	0	1	1	0	0	0
19	3	0	3	2	0	2	0	0	0
20	2	1	3	1	0	1	0	0	0
21	3	0	3	2	0	2	0	0	0
22	2	1	3	0	2	2	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	2	0	2	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	0	1	1	0	0	0
27	2	1	3	0	0	0	0	0	0
28	1	1	2	0	0	0	0	0	0
29	3	0	3	1	0	1	0	0	0
30	2	1	3	1	0	1	0	0	0
31	3	0	3	1	0	1	0	0	0
32	2	1	3	0	0	0	0	0	0
33	2	1	3	1	0	1	0	0	0
34	2	0	2	0	0	0	0	0	0
35	3	0	3	1	1	2	0	0	0
36	3	0	3	2	0	2	0	0	0
37	3	0	3	2	0	2	0	0	0
38	0	3	3	0	1	1	0	0	0
39	3	0	3	2	0	2	0	0	0
40	1	2	3	0	0	0	0	0	0
41	3	0	3	1	0	1	0	0	0
42	2	1	3	0	0	0	0	0	0
43	3	0	3	0	2	2	0	0	0
44	2	1	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	3	0	3	1	1	2	0	0	0
47	3	0	3	1	1	2	0	0	0
48	3	0	3	1	1	2	0	0	0
49	3	0	3	1	1	2	0	0	0
50	3	0	3	1	1	2	0	0	0

Table 196 0 CRUDES 2 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.02	0.04	0.06	0	0	0
max	1	1	2	0	0	0
sig	0.14142136	0.197949	0.31363569	0	0	0
sigxb	0.00282843	0.003959	0.00627271	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.04	2.94		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	1	1	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	1	1	2	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 197 0 CRUDES 3 LCS-r0 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	1.66	0.7	2.36	0.06	0	0.06	0	0	0
max	3	2	3	3	0	3	0	0	0
sig	1.17125434	0.707107	1.00529212	0.42426	0	0.42426	0	0	0
sigxb	0.02342509	0.014142	0.02010584	0.00849	0	0.00849	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.7	0.64		0	2.94		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	1	1	0	0	0	0	0	0
5	0	2	2	0	0	0	0	0	0
6	1	2	3	0	0	0	0	0	0
7	1	1	2	0	0	0	0	0	0
8	3	0	3	3	0	3	0	0	0
9	2	0	2	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	0	0	0	0	0
17	2	1	3	0	0	0	0	0	0
18	2	1	3	0	0	0	0	0	0
19	0	2	2	0	0	0	0	0	0
20	1	1	2	0	0	0	0	0	0
21	2	1	3	0	0	0	0	0	0
22	1	2	3	0	0	0	0	0	0
23	2	1	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	2	1	3	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	0	1	1	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	2	1	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	0	0	0	0	0
34	0	2	2	0	0	0	0	0	0
35	3	0	3	0	0	0	0	0	0
36	1	1	2	0	0	0	0	0	0
37	1	2	3	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	1	2	3	0	0	0	0	0	0
40	2	1	3	0	0	0	0	0	0
41	0	1	1	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0
43	1	1	2	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0
47	1	1	2	0	0	0	0	0	0
48	0	1	1	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 198 0 CRUDES 3 LCS-r1 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.66	0.74	1.4	0.02	0.1	0.12
max	3	3	3	1	2	2
sig	0.96065454	0.943506	1.29362645	0.14142	0.364	0.38545
sigxb	0.01921309	0.01887	0.02587253	0.00283	0.007	0.00771
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.74	1.6		0.1	2.88
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	1	1	0	0	0
2	0	0	0	0	0	0
3	2	0	2	0	0	0
4	3	0	3	0	0	0
5	2	1	3	0	0	0
6	1	0	1	0	0	0
7	0	0	0	0	0	0
8	2	1	3	0	0	0
9	2	1	3	0	1	1
10	1	2	3	0	0	0
11	1	2	3	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	2	1	3	0	0	0
15	0	1	1	0	0	0
16	1	0	1	0	1	1
17	0	0	0	0	0	0
18	2	0	2	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	3	3	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	2	2	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	1	1	2	0	0	0
29	0	2	2	0	0	0
30	2	1	3	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	2	2	0	0	0
34	0	3	3	0	0	0
35	0	2	2	0	0	0
36	0	0	0	0	0	0
37	0	2	2	0	1	1
38	2	1	3	0	0	0
39	0	3	3	0	0	0
40	0	0	0	0	0	0
41	0	1	1	0	0	0
42	1	1	2	0	0	0
43	3	0	3	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	3	0	3	0	0	0
47	1	2	3	0	2	2
48	1	1	2	1	0	1
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 199 0 CRUDES 3 LCS-r2 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.7	0.2	2.9	0.64	0.62	1.26	0	0	0
max	3	3	3	3	3	3	0	0	0
sig	0.70710678	0.534522	0.46291005	1.10213	0.855	1.2586	0	0	0
sigxb	0.01414214	0.01069	0.0092582	0.02204	0.017	0.02517	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.2	0.1		0.62	1.74		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	3	3	0	0	0
2	3	0	3	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	0	3	3	0	0	0
5	3	0	3	0	0	0	0	0	0
6	3	0	3	0	0	0	0	0	0
7	3	0	3	1	1	2	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	0	1	1	0	0	0
10	3	0	3	3	0	3	0	0	0
11	3	0	3	0	1	1	0	0	0
12	3	0	3	2	0	2	0	0	0
13	3	0	3	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0
17	2	0	2	0	0	0	0	0	0
18	2	1	3	0	1	1	0	0	0
19	3	0	3	0	0	0	0	0	0
20	3	0	3	1	2	3	0	0	0
21	3	0	3	0	0	0	0	0	0
22	3	0	3	3	0	3	0	0	0
23	2	1	3	0	0	0	0	0	0
24	3	0	3	0	1	1	0	0	0
25	3	0	3	3	0	3	0	0	0
26	3	0	3	3	0	3	0	0	0
27	3	0	3	1	0	1	0	0	0
28	1	1	2	0	0	0	0	0	0
29	3	0	3	3	0	3	0	0	0
30	3	0	3	0	1	1	0	0	0
31	3	0	3	0	2	2	0	0	0
32	3	0	3	0	2	2	0	0	0
33	3	0	3	3	0	3	0	0	0
34	3	0	3	2	1	3	0	0	0
35	2	1	3	0	0	0	0	0	0
36	3	0	3	0	2	2	0	0	0
37	2	1	3	0	0	0	0	0	0
38	0	3	3	0	0	0	0	0	0
39	3	0	3	3	0	3	0	0	0
40	3	0	3	0	1	1	0	0	0
41	3	0	3	2	1	3	0	0	0
42	3	0	3	0	1	1	0	0	0
43	3	0	3	0	1	1	0	0	0
44	2	1	3	0	0	0	0	0	0
45	2	1	3	0	0	0	0	0	0
46	3	0	3	0	1	1	0	0	0
47	3	0	3	0	0	0	0	0	0
48	3	0	3	1	2	3	0	0	0
49	3	0	3	1	2	3	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 200 0 CRUDES 3 LCS-r3 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.28	0.26	0.54	0	0.02	0.02
max	3	2	3	0	1	1
sig	0.70101967	0.59966	1.09189967	0	0.141	0.14142
sigxb	0.01402039	0.011993	0.02183799	0	0.003	0.00283
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.26	2.46		0.02	2.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	3	0	3	0	1	1
3	0	0	0	0	0	0
4	1	1	2	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	1	1	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	2	1	3	0	0	0
11	1	2	3	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	1	2	3	0	0	0
21	1	2	3	0	0	0
22	0	0	0	0	0	0
23	1	2	3	0	0	0
24	0	1	1	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	1	1	2	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	3	0	3	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 201 0 CRUDES 3 LCS-r4 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.44	0.3	2.74	0.62	0.26	0.88	0.02	0	0.02
max	3	2	3	3	2	3	1	0	1
sig	0.99303698	0.580288	0.77748942	0.94524	0.487	1.11831	0.141421	0	0.141421
sigxb	0.01986074	0.011606	0.01554979	0.0189	0.01	0.02237	0.002828	0	0.002828
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.3	0.26		0.26	2.12		0	2.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	0	1	0	0	0
2	3	0	3	3	0	3	1	0	1
3	3	0	3	3	0	3	0	0	0
4	3	0	3	1	1	2	0	0	0
5	3	0	3	1	1	2	0	0	0
6	3	0	3	2	1	3	0	0	0
7	0	1	1	0	0	0	0	0	0
8	3	0	3	3	0	3	0	0	0
9	3	0	3	0	0	0	0	0	0
10	3	0	3	3	0	3	0	0	0
11	3	0	3	1	0	1	0	0	0
12	3	0	3	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0
14	3	0	3	0	1	1	0	0	0
15	2	1	3	0	0	0	0	0	0
16	3	0	3	1	0	1	0	0	0
17	3	0	3	1	0	1	0	0	0
18	2	1	3	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	3	0	3	1	1	2	0	0	0
21	3	0	3	0	0	0	0	0	0
22	3	0	3	2	0	2	0	0	0
23	3	0	3	2	1	3	0	0	0
24	3	0	3	2	1	3	0	0	0
25	3	0	3	0	1	1	0	0	0
26	0	0	0	0	0	0	0	0	0
27	2	1	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0
30	0	2	2	0	0	0	0	0	0
31	1	1	2	0	0	0	0	0	0
32	3	0	3	1	0	1	0	0	0
33	1	2	3	0	0	0	0	0	0
34	3	0	3	0	1	1	0	0	0
35	3	0	3	0	2	2	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	2	1	3	0	0	0	0	0	0
39	3	0	3	0	0	0	0	0	0
40	1	2	3	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	3	0	3	1	1	2	0	0	0
43	3	0	3	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0
45	3	0	3	1	0	1	0	0	0
46	2	1	3	0	0	0	0	0	0
47	3	0	3	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0
50	3	0	3	1	1	2	0	0	0

Table 202 0 CRUDES 3 LCS-r5 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.12	0.42	2.54	0.24	0.46	0.7
max	3	2	3	2	2	3
sig	1.18906583	0.702474	0.93043769	0.47638	0.676	0.99488
sigxb	0.02378132	0.014049	0.01860875	0.00953	0.014	0.0199
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.42	0.46		0.46	2.3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	3	0	3	0	1	1
3	1	2	3	0	0	0
4	2	1	3	0	0	0
5	0	2	2	0	0	0
6	3	0	3	1	1	2
7	3	0	3	0	1	1
8	3	0	3	0	1	1
9	2	1	3	0	0	0
10	1	0	1	0	0	0
11	2	1	3	0	0	0
12	0	1	1	0	0	0
13	3	0	3	0	0	0
14	3	0	3	0	0	0
15	3	0	3	0	1	1
16	3	0	3	0	2	2
17	1	2	3	0	0	0
18	3	0	3	0	0	0
19	3	0	3	1	2	3
20	3	0	3	0	0	0
21	3	0	3	1	1	2
22	3	0	3	0	0	0
23	3	0	3	0	0	0
24	3	0	3	1	2	3
25	2	1	3	0	0	0
26	3	0	3	1	0	1
27	1	1	2	0	0	0
28	3	0	3	2	1	3
29	3	0	3	0	0	0
30	1	2	3	0	0	0
31	2	1	3	0	0	0
32	3	0	3	1	0	1
33	3	0	3	1	0	1
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	3	0	3	1	2	3
37	3	0	3	0	1	1
38	0	0	0	0	0	0
39	3	0	3	1	1	2
40	0	2	2	0	0	0
41	3	0	3	0	0	0
42	0	1	1	0	0	0
43	3	0	3	1	2	3
44	2	1	3	0	0	0
45	0	2	2	0	0	0
46	3	0	3	0	1	1
47	2	0	2	0	1	1
48	3	0	3	0	0	0
49	3	0	3	0	1	1
50	3	0	3	0	1	1

Table 203 0 CRUDES 3 LCS-r6 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0
xbar	2.98	0.02	3	1.96	0.74	2.7	0	0	0
max	3	1	3	3	3	3	0	0	0
sig	0.14142136	0.141421	0	0.92494	0.751	0.7354	0	0	0
sigxb	0.00282843	0.002828	0	0.0185	0.015	0.01471	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0		0.74	0.3		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	1	3	0	0	0
2	3	0	3	3	0	3	0	0	0
3	3	0	3	3	0	3	0	0	0
4	3	0	3	1	0	1	0	0	0
5	3	0	3	1	2	3	0	0	0
6	3	0	3	2	1	3	0	0	0
7	3	0	3	2	1	3	0	0	0
8	2	1	3	0	0	0	0	0	0
9	3	0	3	3	0	3	0	0	0
10	3	0	3	2	1	3	0	0	0
11	3	0	3	1	1	2	0	0	0
12	3	0	3	1	0	1	0	0	0
13	3	0	3	2	1	3	0	0	0
14	3	0	3	0	3	3	0	0	0
15	3	0	3	1	2	3	0	0	0
16	3	0	3	2	1	3	0	0	0
17	3	0	3	2	1	3	0	0	0
18	3	0	3	0	2	2	0	0	0
19	3	0	3	2	1	3	0	0	0
20	3	0	3	1	1	2	0	0	0
21	3	0	3	1	2	3	0	0	0
22	3	0	3	2	0	2	0	0	0
23	3	0	3	2	1	3	0	0	0
24	3	0	3	3	0	3	0	0	0
25	3	0	3	3	0	3	0	0	0
26	3	0	3	2	1	3	0	0	0
27	3	0	3	2	1	3	0	0	0
28	3	0	3	2	1	3	0	0	0
29	3	0	3	3	0	3	0	0	0
30	3	0	3	3	0	3	0	0	0
31	3	0	3	2	1	3	0	0	0
32	3	0	3	3	0	3	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	2	1	3	0	0	0
35	3	0	3	3	0	3	0	0	0
36	3	0	3	2	1	3	0	0	0
37	3	0	3	1	1	2	0	0	0
38	3	0	3	3	0	3	0	0	0
39	3	0	3	2	1	3	0	0	0
40	3	0	3	3	0	3	0	0	0
41	3	0	3	3	0	3	0	0	0
42	3	0	3	2	1	3	0	0	0
43	3	0	3	3	0	3	0	0	0
44	3	0	3	1	2	3	0	0	0
45	3	0	3	2	1	3	0	0	0
46	3	0	3	3	0	3	0	0	0
47	3	0	3	3	0	3	0	0	0
48	3	0	3	2	1	3	0	0	0
49	3	0	3	1	2	3	0	0	0
50	3	0	3	3	0	3	0	0	0

Table 204 0 CRUDES 3 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.02	0.08	0.1	0	0	0
max	1	2	2	0	0	0
sig	0.14142136	0.340468	0.41649656	0	0	0
sigxb	0.00282843	0.006809	0.00832993	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.08	2.9		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	2	2	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	1	1	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	1	1	2	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 205 0 CRUDES 3 LCS-r8 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	1.76	0.56	2.32	0.04	0.04	0.08	0.02	0.02	0.04
max	3	3	3	1	2	3	1	1	1
sig	1.22157476	0.760236	1.09619006	0.19795	0.283	0.44447	0.141421	0.1414214	0.197949
sigxb	0.0244315	0.015205	0.0219238	0.00396	0.006	0.00889	0.002828	0.0028284	0.003959
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.56	0.68		0.04	2.92		0.02	2.96
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	0	2	2	0	0	0	0	0	0
2	1	1	2	0	0	0	0	0	0
3	1	1	2	0	0	0	0	0	0
4	2	1	3	0	0	0	0	0	0
5	3	0	3	1	0	1	0	0	0
6	0	1	1	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	1	2	3	0	1	1
10	1	1	2	0	0	0	0	0	0
11	2	1	3	0	0	0	0	0	0
12	3	0	3	0	0	0	1	0	1
13	3	0	3	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	1	2	3	0	0	0	0	0	0
17	1	2	3	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	3	0	3	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	3	0	3	0	0	0	0	0	0
22	3	0	3	0	0	0	0	0	0
23	0	3	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	2	1	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	1	1	2	0	0	0	0	0	0
29	0	2	2	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	1	0	1	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	2	1	3	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	1	2	3	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	0	1	1	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
43	2	1	3	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	2	1	3	0	0	0	0	0	0
47	3	0	3	0	0	0	0	0	0
48	2	1	3	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0
50	2	0	2	0	0	0	0	0	0

Table 206 0 CRUDES 3 LCS-r9 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.78	0.78	1.56	0	0	0
max	3	3	3	0	0	0
sig	0.99570506	0.932191	1.34255316	0	0	0
sigxb	0.0199141	0.018644	0.02685106	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.78	1.44		0	3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	1	2	3	0	0	0
2	2	1	3	0	0	0
3	0	0	0	0	0	0
4	2	0	2	0	0	0
5	0	0	0	0	0	0
6	2	1	3	0	0	0
7	0	0	0	0	0	0
8	3	0	3	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	1	1	2	0	0	0
13	1	2	3	0	0	0
14	0	0	0	0	0	0
15	1	2	3	0	0	0
16	1	2	3	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	1	1	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	3	3	0	0	0
24	0	2	2	0	0	0
25	1	1	2	0	0	0
26	2	1	3	0	0	0
27	2	1	3	0	0	0
28	0	1	1	0	0	0
29	3	0	3	0	0	0
30	1	1	2	0	0	0
31	0	3	3	0	0	0
32	0	0	0	0	0	0
33	3	0	3	0	0	0
34	2	0	2	0	0	0
35	0	0	0	0	0	0
36	1	2	3	0	0	0
37	0	1	1	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	2	1	3	0	0	0
41	2	1	3	0	0	0
42	2	0	2	0	0	0
43	2	1	3	0	0	0
44	0	2	2	0	0	0
45	0	3	3	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	2	2	0	0	0
49	0	0	0	0	0	0
50	2	1	3	0	0	0

Table 207 0 CRUDES 3 LCS-r10 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0
xbar	2.74	0.26	3	0.38	0.38	0.76	0.04	0	0.04
max	4	2	4	3	2	3	2	0	2
sig	0.56460208	0.486973	0.20203051	0.75295	0.697	1.0214	0.282843	0	0.282843
sigxb	0.01129204	0.009739	0.00404061	0.01506	0.014	0.02043	0.005657	0	0.005657
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.26	0		0.38	2.24		0	2.96
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0
2	3	0	3	1	2	3	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	0	0	0	0	0	0
5	3	0	3	1	2	3	0	0	0
6	3	0	3	0	2	2	0	0	0
7	3	0	3	3	0	3	0	0	0
8	3	0	3	0	0	0	0	0	0
9	2	1	3	0	1	1	0	0	0
10	2	1	3	1	0	1	0	0	0
11	3	0	3	1	0	1	0	0	0
12	3	0	3	0	0	0	0	0	0
13	2	1	3	0	0	0	0	0	0
14	2	1	3	0	0	0	0	0	0
15	3	0	3	0	1	1	0	0	0
16	3	0	3	1	0	1	0	0	0
17	3	0	3	0	0	0	0	0	0
18	2	1	3	0	2	2	0	0	0
19	2	1	3	0	0	0	0	0	0
20	3	0	3	0	2	2	0	0	0
21	3	0	3	0	1	1	0	0	0
22	3	0	3	0	0	0	0	0	0
23	3	0	3	0	2	2	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	2	1	3	0	0	0
26	2	1	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0
30	3	0	3	0	0	0	0	0	0
31	2	1	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	1	0	1	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	2	0	2	0	0	0
36	3	0	3	0	1	1	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	1	1	2	0	0	0
40	3	0	3	0	0	0	0	0	0
41	2	1	3	0	1	1	0	0	0
42	2	1	3	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0
44	3	0	3	3	0	3	2	0	2
45	4	0	4	1	0	1	0	0	0
46	3	0	3	1	0	1	0	0	0
47	1	1	2	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0
50	1	2	3	0	0	0	0	0	0

Table 208 0 CRUDES 3 LCS-r11 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.14	0.14	0.28	0	0.02	0.02
max	3	2	3	0	1	1
sig	0.49528388	0.452205	0.80913156	0	0.141	0.14142
sigxb	0.00990568	0.009044	0.01618263	0	0.003	0.00283
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.14	2.72		0.02	2.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	1	1	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	1	1	2	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	3	0	3	0	1	1
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	1	2	3	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	1	2	3	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	1	1	2	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 209 0 CRUDES 3 LCS-r12 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.42	0.28	2.7	0.38	0.36	0.74	0.02	0.06	0.08
max	3	2	3	3	2	3	1	2	2
sig	0.94954339	0.607437	0.78895436	0.75295	0.663	1.0844	0.141421	0.3136357	0.340468
sigxb	0.01899087	0.012149	0.01577909	0.01506	0.013	0.02169	0.002828	0.0062727	0.006809
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.28	0.3		0.36	2.26		0.06	2.92
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	2	1	3	0	0	0	0	0	0
4	3	0	3	1	0	1	0	0	0
5	3	0	3	1	2	3	0	0	0
6	1	2	3	0	0	0	0	0	0
7	3	0	3	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	3	0	3	1	0	1	0	0	0
10	0	0	0	0	0	0	0	0	0
11	3	0	3	0	2	2	0	0	0
12	2	1	3	0	0	0	0	0	0
13	3	0	3	0	0	0	0	0	0
14	3	0	3	1	0	1	0	0	0
15	3	0	3	1	2	3	0	0	0
16	3	0	3	0	1	1	0	0	0
17	3	0	3	0	0	0	0	0	0
18	3	0	3	2	1	3	0	0	0
19	3	0	3	0	2	2	0	0	0
20	3	0	3	0	0	0	0	0	0
21	1	2	3	0	0	0	0	0	0
22	2	0	2	0	0	0	0	0	0
23	1	0	1	0	0	0	0	0	0
24	3	0	3	0	1	1	0	0	0
25	0	0	0	0	0	0	0	0	0
26	1	1	2	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	3	0	3	0	0	0	0	0	0
29	3	0	3	0	0	0	0	0	0
30	3	0	3	1	0	1	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	2	1	3	1	0	1
33	3	0	3	0	2	2	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	1	1	2	0	0	0
36	3	0	3	1	1	2	0	2	2
37	1	2	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	0	1	1	0	0	0
40	3	0	3	3	0	3	0	1	1
41	2	1	3	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0
44	1	1	2	0	0	0	0	0	0
45	2	1	3	0	0	0	0	0	0
46	3	0	3	0	0	0	0	0	0
47	3	0	3	1	1	2	0	0	0
48	2	0	2	0	0	0	0	0	0
49	1	2	3	0	0	0	0	0	0
50	3	0	3	3	0	3	0	0	0

Table 210 0 CRUDES 3 LCS-r13 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	3				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.22	0.32	2.54	0.42	0.28	0.7
max	3	2	3	3	2	3
sig	1.07456683	0.586933	0.97331749	0.75835	0.536	1.07381
sigxb	0.02149134	0.011739	0.01946635	0.01517	0.011	0.02148
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.32	0.46		0.28	2.3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	2	2
2	1	2	3	0	0	0
3	3	0	3	0	0	0
4	3	0	3	0	0	0
5	3	0	3	2	1	3
6	3	0	3	1	1	2
7	2	1	3	0	0	0
8	3	0	3	0	0	0
9	1	2	3	0	0	0
10	2	1	3	0	0	0
11	3	0	3	0	0	0
12	2	0	2	0	0	0
13	3	0	3	1	1	2
14	3	0	3	0	0	0
15	3	0	3	1	1	2
16	3	0	3	2	1	3
17	1	1	2	0	0	0
18	3	0	3	1	0	1
19	1	1	2	0	0	0
20	3	0	3	0	1	1
21	3	0	3	1	2	3
22	2	1	3	0	0	0
23	0	1	1	0	0	0
24	3	0	3	3	0	3
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	3	0	3	0	0	0
28	1	0	1	0	0	0
29	2	1	3	0	0	0
30	3	0	3	0	0	0
31	3	0	3	0	0	0
32	0	0	0	0	0	0
33	3	0	3	0	0	0
34	2	0	2	0	0	0
35	2	1	3	0	0	0
36	3	0	3	0	0	0
37	3	0	3	0	1	1
38	3	0	3	1	0	1
39	1	2	3	0	0	0
40	2	1	3	0	0	0
41	0	0	0	0	0	0
42	3	0	3	1	1	2
43	2	1	3	0	0	0
44	0	0	0	0	0	0
45	3	0	3	2	0	2
46	3	0	3	1	1	2
47	3	0	3	2	0	2
48	3	0	3	0	0	0
49	3	0	3	2	1	3
50	3	0	3	0	0	0

Table 211 0 CRUDES 3 LCS-r14 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	3	3						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	2.06	0.66	2.72	0.1	0.02	0.12
max	3	0	3	3	3	3	2	1	2
sig	0	0	0	0.99816	0.823	0.72955	0.364216	0.1414214	0.38545
sigxb	0	0	0	0.01996	0.016	0.01459	0.007284	0.0028284	0.007709
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.66	0.28		0.02	2.88
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	1	3	0	0	0
2	3	0	3	3	0	3	0	0	0
3	3	0	3	3	0	3	0	1	1
4	3	0	3	3	0	3	0	0	0
5	3	0	3	3	0	3	0	0	0
6	3	0	3	3	0	3	0	0	0
7	3	0	3	3	0	3	0	0	0
8	3	0	3	3	0	3	0	0	0
9	3	0	3	3	0	3	0	0	0
10	3	0	3	3	0	3	0	0	0
11	3	0	3	2	1	3	0	0	0
12	3	0	3	3	0	3	1	0	1
13	3	0	3	1	2	3	0	0	0
14	3	0	3	2	1	3	0	0	0
15	3	0	3	1	2	3	0	0	0
16	3	0	3	2	1	3	0	0	0
17	3	0	3	0	0	0	0	0	0
18	3	0	3	3	0	3	0	0	0
19	3	0	3	2	1	3	0	0	0
20	3	0	3	3	0	3	0	0	0
21	3	0	3	2	1	3	0	0	0
22	3	0	3	1	2	3	0	0	0
23	3	0	3	3	0	3	0	0	0
24	3	0	3	3	0	3	0	0	0
25	3	0	3	3	0	3	0	0	0
26	3	0	3	1	0	1	0	0	0
27	3	0	3	2	1	3	0	0	0
28	3	0	3	1	2	3	0	0	0
29	3	0	3	0	2	2	0	0	0
30	3	0	3	2	1	3	0	0	0
31	3	0	3	3	0	3	0	0	0
32	3	0	3	1	0	1	0	0	0
33	3	0	3	2	0	2	0	0	0
34	3	0	3	3	0	3	0	0	0
35	3	0	3	0	3	3	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	1	2	3	0	0	0
38	3	0	3	1	2	3	0	0	0
39	3	0	3	1	1	2	0	0	0
40	3	0	3	3	0	3	1	0	1
41	3	0	3	3	0	3	1	0	1
42	3	0	3	3	0	3	0	0	0
43	3	0	3	3	0	3	0	0	0
44	3	0	3	3	0	3	0	0	0
45	3	0	3	2	1	3	0	0	0
46	3	0	3	1	1	2	0	0	0
47	3	0	3	2	1	3	0	0	0
48	3	0	3	1	2	3	0	0	0
49	3	0	3	2	1	3	2	0	2
50	3	0	3	2	1	3	0	0	0

Table 212 0 CRUDES 3 LCS-r15 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.06	0.14	0.2	0	0	0
max	3	3	3	0	0	0
sig	0.42426407	0.534904	0.67005939	0	0	0
sigxb	0.00848528	0.010698	0.01340119	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.14	2.8		0	4
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	3	3	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	3	0	3	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	1	1	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	2	2	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	1	1	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 213 0 CRUDES 4 LCS-r0 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	2	0	0	0	0	0	0
xbar	2.72	0.22	2.94	0.46	0.3	0.76	0	0.02	0.02
max	3	3	3	4	3	4	0	1	1
sig	0.6074369	0.581694	0.23989794	0.99406	0.647	1.31801	0	0.1414214	0.141421
sigxb	0.01214874	0.011634	0.00479796	0.01988	0.013	0.02636	0	0.0028284	0.002828
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.22	0.06		0.3	3.24		0.02	3.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	1	2	0	0	0
2	3	0	3	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	4	0	4	0	1	1
5	2	1	3	0	0	0	0	0	0
6	3	0	3	2	1	3	0	0	0
7	3	0	3	0	0	0	0	0	0
8	2	0	2	0	0	0	0	0	0
9	2	0	2	0	0	0	0	0	0
10	2	1	3	0	0	0	0	0	0
11	3	0	3	1	1	2	0	0	0
12	3	0	3	0	0	0	0	0	0
13	3	0	3	0	0	0	0	0	0
14	3	0	3	0	0	0	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	0	0	0	0	0
17	3	0	3	4	0	4	0	0	0
18	2	1	3	0	1	1	0	0	0
19	3	0	3	1	0	1	0	0	0
20	3	0	3	1	0	1	0	0	0
21	0	3	3	0	0	0	0	0	0
22	2	1	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	0	0	0	0	0	0
27	3	0	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	1	2	3	0	0	0	0	0	0
30	3	0	3	0	1	1	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	1	2	3	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	0	0	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	2	1	3	0	0	0
40	3	0	3	1	0	1	0	0	0
41	2	1	3	0	0	0	0	0	0
42	3	0	3	0	3	3	0	0	0
43	2	0	2	0	0	0	0	0	0
44	3	0	3	3	1	4	0	0	0
45	3	0	3	2	2	4	0	0	0
46	3	0	3	0	1	1	0	0	0
47	3	0	3	0	0	0	0	0	0
48	3	0	3	0	0	0	0	0	0
49	3	0	3	0	0	0	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 214 0 CRUDES 4 LCS-r1 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.94	0.94	1.88	0.04	0.18	0.22
max	3	3	3	1	3	3
sig	1.03824813	0.912722	1.2394864	0.19795	0.629	0.64807
sigxb	0.02076496	0.018254	0.02478973	0.00396	0.013	0.01296
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.94	1.12		0.18	3.78
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0
2	2	1	3	0	2	2
3	0	2	2	0	0	0
4	2	1	3	0	3	3
5	0	0	0	0	0	0
6	3	0	3	0	0	0
7	1	2	3	0	0	0
8	2	1	3	0	0	0
9	0	0	0	0	0	0
10	1	1	2	0	2	2
11	0	0	0	0	0	0
12	1	1	2	0	0	0
13	1	2	3	0	0	0
14	0	0	0	0	0	0
15	3	0	3	0	0	0
16	1	1	2	0	0	0
17	1	2	3	0	0	0
18	0	2	2	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	2	2	0	0	0
22	1	1	2	0	0	0
23	1	1	2	0	0	0
24	0	3	3	0	0	0
25	0	2	2	0	0	0
26	2	1	3	0	0	0
27	0	0	0	0	0	0
28	1	1	2	0	0	0
29	0	1	1	0	0	0
30	2	1	3	0	0	0
31	2	1	3	0	0	0
32	1	2	3	0	0	0
33	1	1	2	0	0	0
34	3	0	3	1	0	1
35	0	0	0	0	0	0
36	2	0	2	0	2	2
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	1	1	0	0	0
40	3	0	3	0	0	0
41	0	2	2	0	0	0
42	3	0	3	0	0	0
43	0	3	3	0	0	0
44	0	0	0	0	0	0
45	1	2	3	1	0	1
46	2	1	3	0	0	0
47	2	1	3	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	3	3	0	0	0

Table 215 0 CRUDES 4 LCS-r2 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	2.32	1.08	3.4	0.02	0.06	0.08
max	3	0	3	4	4	4	1	2	3
sig	0	0	0	1.4769	1.066	1.12486	0.141421	0.3136357	0.444467
sigxb	0	0	0	0.02954	0.021	0.0225	0.002828	0.0062727	0.008889
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1.08	0.6		0.06	3.92
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	0	3	0	0	0
2	3	0	3	4	0	4	0	0	0
3	3	0	3	4	0	4	0	0	0
4	3	0	3	0	1	1	0	0	0
5	3	0	3	2	2	4	0	0	0
6	3	0	3	4	0	4	0	0	0
7	3	0	3	4	0	4	0	0	0
8	3	0	3	2	2	4	0	0	0
9	3	0	3	0	4	4	0	0	0
10	3	0	3	4	0	4	1	2	3
11	3	0	3	2	2	4	0	0	0
12	3	0	3	4	0	4	0	0	0
13	3	0	3	0	1	1	0	0	0
14	3	0	3	4	0	4	0	0	0
15	3	0	3	2	1	3	0	0	0
16	3	0	3	3	1	4	0	0	0
17	3	0	3	2	2	4	0	0	0
18	3	0	3	2	2	4	0	0	0
19	3	0	3	3	1	4	0	0	0
20	3	0	3	1	1	2	0	0	0
21	3	0	3	0	3	3	0	0	0
22	3	0	3	3	1	4	0	0	0
23	3	0	3	0	2	2	0	0	0
24	3	0	3	4	0	4	0	1	1
25	3	0	3	3	1	4	0	0	0
26	3	0	3	3	1	4	0	0	0
27	3	0	3	0	4	4	0	0	0
28	3	0	3	2	2	4	0	0	0
29	3	0	3	0	1	1	0	0	0
30	3	0	3	4	0	4	0	0	0
31	3	0	3	3	1	4	0	0	0
32	3	0	3	4	0	4	0	0	0
33	3	0	3	1	0	1	0	0	0
34	3	0	3	0	2	2	0	0	0
35	3	0	3	3	1	4	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	4	0	4	0	0	0
38	3	0	3	2	2	4	0	0	0
39	3	0	3	3	1	4	0	0	0
40	3	0	3	4	0	4	0	0	0
41	3	0	3	3	1	4	0	0	0
42	3	0	3	4	0	4	0	0	0
43	3	0	3	3	1	4	0	0	0
44	3	0	3	0	2	2	0	0	0
45	3	0	3	3	1	4	0	0	0
46	3	0	3	2	2	4	0	0	0
47	3	0	3	2	2	4	0	0	0
48	3	0	3	1	0	1	0	0	0
49	3	0	3	1	3	4	0	0	0
50	3	0	3	4	0	4	0	0	0

Table 216 0 CRUDES 4 LCS-r3 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.26	0.22	0.48	0	0	0
max	3	3	3	0	0	0
sig	0.72308861	0.615779	1.07361681	0	0	0
sigxb	0.01446177	0.012316	0.02147234	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.22	2.52		0	4
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	2	1	3	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	3	3	0	0	0
7	1	2	3	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	1	2	3	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	3	0	3	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	1	1	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	3	0	3	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	2	1	3	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	1	1	2	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 217 0 CRUDES 4 LCS-r4 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.92	0.02	2.94	1.58	1.04	2.62	0.04	0.08	0.12
max	3	1	3	4	4	4	1	2	3
sig	0.44446712	0.141421	0.42426407	1.40102	1.106	1.32311	0.197949	0.3404679	0.520596
sigxb	0.00888934	0.002828	0.00848528	0.02802	0.022	0.02646	0.003959	0.0068094	0.010412
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0.06		1.04	1.38		0.08	3.88
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	0	3	0	0	0
2	3	0	3	2	1	3	0	0	0
3	3	0	3	4	0	4	0	0	0
4	3	0	3	0	2	2	0	0	0
5	3	0	3	2	1	3	0	0	0
6	3	0	3	2	0	2	0	0	0
7	3	0	3	2	1	3	0	0	0
8	3	0	3	0	0	0	0	0	0
9	3	0	3	0	1	1	0	0	0
10	3	0	3	1	2	3	0	0	0
11	3	0	3	3	0	3	0	0	0
12	3	0	3	2	2	4	0	0	0
13	3	0	3	4	0	4	0	0	0
14	3	0	3	0	3	3	0	0	0
15	3	0	3	1	2	3	0	0	0
16	3	0	3	2	2	4	0	0	0
17	3	0	3	1	2	3	0	0	0
18	3	0	3	0	0	0	0	0	0
19	3	0	3	3	1	4	0	0	0
20	3	0	3	3	0	3	0	0	0
21	2	1	3	0	0	0	0	0	0
22	3	0	3	4	0	4	1	1	2
23	3	0	3	1	1	2	0	0	0
24	3	0	3	4	0	4	0	0	0
25	3	0	3	4	0	4	1	2	3
26	3	0	3	4	0	4	0	1	1
27	3	0	3	1	2	3	0	0	0
28	3	0	3	0	1	1	0	0	0
29	3	0	3	0	1	1	0	0	0
30	3	0	3	2	2	4	0	0	0
31	3	0	3	2	1	3	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	4	0	4	0	0	0
34	3	0	3	1	0	1	0	0	0
35	3	0	3	0	4	4	0	0	0
36	3	0	3	0	2	2	0	0	0
37	3	0	3	0	4	4	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	1	1	2	0	0	0
40	0	0	0	0	0	0	0	0	0
41	3	0	3	2	1	3	0	0	0
42	3	0	3	1	2	3	0	0	0
43	3	0	3	4	0	4	0	0	0
44	3	0	3	2	0	2	0	0	0
45	3	0	3	1	2	3	0	0	0
46	3	0	3	2	0	2	0	0	0
47	3	0	3	1	1	2	0	0	0
48	3	0	3	1	2	3	0	0	0
49	3	0	3	1	3	4	0	0	0
50	3	0	3	1	2	3	0	0	0

Table 218 0 CRUDES 4 LCS-r5 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.78	0.08	2.86	1.18	1.06	2.24
max	3	1	3	3	3	4
sig	0.67883454	0.274048	0.60642815	1.13731	0.913	1.45069
sigxb	0.01357669	0.005481	0.01212856	0.02275	0.018	0.02901
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.08	0.14		1.06	1.76
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	3	0	3	0	2	2
3	3	0	3	2	1	3
4	3	0	3	1	2	3
5	3	0	3	2	1	3
6	3	0	3	2	2	4
7	3	0	3	1	2	3
8	3	0	3	1	1	2
9	2	1	3	0	0	0
10	3	0	3	1	0	1
11	3	0	3	1	3	4
12	3	0	3	3	0	3
13	3	0	3	0	2	2
14	3	0	3	3	1	4
15	0	0	0	0	0	0
16	3	0	3	2	1	3
17	3	0	3	0	2	2
18	3	0	3	2	2	4
19	3	0	3	0	0	0
20	3	0	3	1	1	2
21	3	0	3	1	3	4
22	3	0	3	0	1	1
23	3	0	3	0	1	1
24	3	0	3	0	0	0
25	3	0	3	3	1	4
26	3	0	3	1	2	3
27	3	0	3	3	0	3
28	3	0	3	2	1	3
29	2	1	3	0	0	0
30	3	0	3	1	0	1
31	3	0	3	0	1	1
32	3	0	3	2	2	4
33	3	0	3	0	3	3
34	3	0	3	3	1	4
35	3	0	3	1	2	3
36	3	0	3	3	1	4
37	3	0	3	2	1	3
38	3	0	3	0	1	1
39	1	1	2	0	0	0
40	3	0	3	1	1	2
41	2	1	3	0	0	0
42	3	0	3	0	0	0
43	3	0	3	0	0	0
44	3	0	3	3	0	3
45	3	0	3	2	1	3
46	3	0	3	1	2	3
47	3	0	3	3	1	4
48	3	0	3	3	0	3
49	3	0	3	0	2	2
50	3	0	3	2	2	4

Table 219 0 CRUDES 4 LCS-r6 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	4	0	0	0
xbar	3	0	3	3.72	0.28	4	0.02	0.04	0.06
max	3	0	3	4	2	4	1	1	2
sig	0	0	0	0.57286	0.573	0	0.141421	0.1979487	0.313636
sigxb	0	0	0	0.01146	0.011	0	0.002828	0.003959	0.006273
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.28	0		0.04	3.94
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	1	4	0	0	0
2	3	0	3	4	0	4	0	0	0
3	3	0	3	4	0	4	0	0	0
4	3	0	3	4	0	4	0	0	0
5	3	0	3	4	0	4	0	0	0
6	3	0	3	4	0	4	0	0	0
7	3	0	3	4	0	4	1	1	2
8	3	0	3	4	0	4	0	0	0
9	3	0	3	4	0	4	0	0	0
10	3	0	3	4	0	4	0	0	0
11	3	0	3	4	0	4	0	0	0
12	3	0	3	2	2	4	0	0	0
13	3	0	3	4	0	4	0	0	0
14	3	0	3	4	0	4	0	0	0
15	3	0	3	4	0	4	0	0	0
16	3	0	3	4	0	4	0	0	0
17	3	0	3	3	1	4	0	0	0
18	3	0	3	3	1	4	0	0	0
19	3	0	3	4	0	4	0	0	0
20	3	0	3	4	0	4	0	0	0
21	3	0	3	4	0	4	0	0	0
22	3	0	3	4	0	4	0	0	0
23	3	0	3	4	0	4	0	0	0
24	3	0	3	4	0	4	0	0	0
25	3	0	3	4	0	4	0	1	1
26	3	0	3	2	2	4	0	0	0
27	3	0	3	4	0	4	0	0	0
28	3	0	3	4	0	4	0	0	0
29	3	0	3	3	1	4	0	0	0
30	3	0	3	4	0	4	0	0	0
31	3	0	3	3	1	4	0	0	0
32	3	0	3	4	0	4	0	0	0
33	3	0	3	4	0	4	0	0	0
34	3	0	3	3	1	4	0	0	0
35	3	0	3	4	0	4	0	0	0
36	3	0	3	3	1	4	0	0	0
37	3	0	3	4	0	4	0	0	0
38	3	0	3	4	0	4	0	0	0
39	3	0	3	2	2	4	0	0	0
40	3	0	3	4	0	4	0	0	0
41	3	0	3	4	0	4	0	0	0
42	3	0	3	4	0	4	0	0	0
43	3	0	3	4	0	4	0	0	0
44	3	0	3	4	0	4	0	0	0
45	3	0	3	4	0	4	0	0	0
46	3	0	3	3	1	4	0	0	0
47	3	0	3	4	0	4	0	0	0
48	3	0	3	4	0	4	0	0	0
49	3	0	3	4	0	4	0	0	0
50	3	0	3	4	0	4	0	0	0

Table 220 0 CRUDES 4 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.24	0.22	0.46	0	0	0
max	3	2	3	0	0	0
sig	0.68690373	0.581694	1.01438631	0	0	0
sigxb	0.01373807	0.011634	0.02028773	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.22	2.54		0	4
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	1	1	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	1	2	3	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	1	1	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	1	0	1	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	1	2	3	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	2	1	3	0	0	0
33	1	2	3	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	3	0	3	0	0	0
41	0	2	2	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	3	0	3	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 221 0 CRUDES 4 LCS-r8 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	0	0	0	0	0	0	0
xbar	2.58	0.24	2.82	0.38	0.36	0.74	0.14	0.14	0.28
max	3	3	3	3	2	4	2	2	3
sig	0.81039169	0.555492	0.59556182	0.77959	0.598	1.17473	0.452205	0.4045658	0.729551
sigxb	0.01620783	0.01111	0.01191124	0.01559	0.012	0.02349	0.009044	0.0080913	0.014591
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.24	0.18		0.36	3.26		0.14	3.72
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	2	1	3	0	0	0	0	0	0
2	3	0	3	0	0	0	0	0	0
3	3	0	3	0	0	0	0	0	0
4	3	0	3	2	0	2	0	1	1
5	3	0	3	0	0	0	0	0	0
6	2	1	3	0	0	0	0	0	0
7	3	0	3	0	0	0	0	0	0
8	2	1	3	0	0	0	0	0	0
9	3	0	3	0	0	0	1	0	1
10	3	0	3	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	3	0	3	2	1	3	0	0	0
14	3	0	3	1	1	2	2	0	2
15	3	0	3	0	0	0	0	0	0
16	3	0	3	0	1	1	0	0	0
17	3	0	3	2	1	3	2	1	3
18	2	0	2	0	0	0	0	0	0
19	2	1	3	0	0	0	0	0	0
20	3	0	3	1	1	2	0	0	0
21	0	1	1	0	0	0	0	0	0
22	0	3	3	0	0	0	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	0	0	0	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	0	1	1	0	0	0
27	3	0	3	0	0	0	0	0	0
28	2	1	3	0	0	0	0	0	0
29	1	0	1	0	0	0	0	0	0
30	2	1	3	0	0	0	0	0	0
31	3	0	3	2	1	3	0	1	1
32	3	0	3	0	0	0	0	0	0
33	3	0	3	2	1	3	0	0	0
34	3	0	3	0	0	0	0	0	0
35	3	0	3	0	1	1	0	0	0
36	3	0	3	1	1	2	0	0	0
37	3	0	3	1	2	3	1	1	2
38	3	0	3	0	0	0	0	0	0
39	2	1	3	0	0	0	0	0	0
40	3	0	3	0	0	0	0	0	0
41	2	0	2	0	0	0	0	0	0
42	3	0	3	3	0	3	0	0	0
43	3	0	3	0	0	0	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	2	2	4	1	2	3
46	3	0	3	0	1	1	0	0	0
47	3	0	3	0	0	0	0	0	0
48	3	0	3	0	1	1	0	1	1
49	2	1	3	0	0	0	0	0	0
50	3	0	3	0	2	2	0	0	0

Table 222 0 CRUDES 4 LCS-r9 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	1.6	0.68	2.28	0.02	0.14	0.16
max	3	3	3	1	2	3
sig	1.22890361	0.890769	1.17872293	0.14142	0.452	0.5481
sigxb	0.02457807	0.017815	0.02357446	0.00283	0.009	0.01096
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.68	0.72		0.14	3.84
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	2	2	0	0	0
2	1	2	3	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	2	0	2	0	0	0
7	3	0	3	0	0	0
8	3	0	3	0	0	0
9	3	0	3	0	2	2
10	0	3	3	0	0	0
11	0	2	2	0	0	0
12	3	0	3	1	2	3
13	2	1	3	0	0	0
14	2	1	3	0	0	0
15	3	0	3	0	0	0
16	1	2	3	0	0	0
17	0	0	0	0	0	0
18	0	1	1	0	0	0
19	3	0	3	0	0	0
20	1	2	3	0	0	0
21	2	1	3	0	0	0
22	2	1	3	0	0	0
23	3	0	3	0	0	0
24	0	0	0	0	0	0
25	3	0	3	0	1	1
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	3	0	3	0	0	0
29	1	2	3	0	0	0
30	3	0	3	0	1	1
31	3	0	3	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	3	0	3	0	0	0
35	2	1	3	0	0	0
36	2	1	3	0	0	0
37	1	2	3	0	0	0
38	3	0	3	0	0	0
39	0	2	2	0	0	0
40	2	0	2	0	0	0
41	1	2	3	0	0	0
42	2	1	3	0	0	0
43	3	0	3	0	1	1
44	3	0	3	0	0	0
45	1	2	3	0	0	0
46	3	0	3	0	0	0
47	1	2	3	0	0	0
48	1	0	1	0	0	0
49	2	1	3	0	0	0
50	3	0	3	0	0	0

Table 223 0 CRUDES 4 LCS-r10 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	2.62	0.78	3.4	0.18	0.24	0.42
max	3	0	3	4	3	4	2	1	2
sig	0	0	0	1.32311	0.91	0.85714	0.437526	0.4314191	0.609114
sigxb	0	0	0	0.02646	0.018	0.01714	0.008751	0.0086284	0.012182
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.78	0.6		0.24	3.58
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	2	4	0	0	0
2	3	0	3	0	2	2	0	0	0
3	3	0	3	4	0	4	1	0	1
4	3	0	3	4	0	4	0	1	1
5	3	0	3	3	0	3	0	0	0
6	3	0	3	4	0	4	1	1	2
7	3	0	3	4	0	4	0	0	0
8	3	0	3	3	0	3	0	0	0
9	3	0	3	4	0	4	1	0	1
10	3	0	3	3	1	4	1	0	1
11	3	0	3	3	1	4	0	0	0
12	3	0	3	3	0	3	1	1	2
13	3	0	3	3	1	4	0	0	0
14	3	0	3	3	1	4	1	0	1
15	3	0	3	2	1	3	0	0	0
16	3	0	3	0	2	2	0	0	0
17	3	0	3	4	0	4	0	0	0
18	3	0	3	3	0	3	0	1	1
19	3	0	3	3	1	4	0	0	0
20	3	0	3	3	0	3	0	0	0
21	3	0	3	4	0	4	0	0	0
22	3	0	3	4	0	4	0	0	0
23	3	0	3	4	0	4	0	1	1
24	3	0	3	2	2	4	0	1	1
25	3	0	3	4	0	4	2	0	2
26	3	0	3	4	0	4	0	0	0
27	3	0	3	1	3	4	0	0	0
28	3	0	3	4	0	4	0	0	0
29	3	0	3	3	1	4	0	1	1
30	3	0	3	1	2	3	0	0	0
31	3	0	3	4	0	4	0	0	0
32	3	0	3	4	0	4	1	0	1
33	3	0	3	1	2	3	0	0	0
34	3	0	3	2	0	2	0	0	0
35	3	0	3	1	2	3	0	0	0
36	3	0	3	2	1	3	0	0	0
37	3	0	3	2	2	4	0	1	1
38	3	0	3	0	0	0	0	0	0
39	3	0	3	3	0	3	0	1	1
40	3	0	3	1	1	2	0	0	0
41	3	0	3	4	0	4	0	1	1
42	3	0	3	4	0	4	0	0	0
43	3	0	3	4	0	4	0	1	1
44	3	0	3	2	2	4	0	0	0
45	3	0	3	2	0	2	0	0	0
46	3	0	3	3	1	4	0	1	1
47	3	0	3	1	2	3	0	0	0
48	3	0	3	1	2	3	0	0	0
49	3	0	3	0	2	2	0	0	0
50	3	0	3	1	2	3	0	0	0

Table 224 0 CRUDES 4 LCS-r11 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.8	0.26	1.06	0	0.04	0.04
max	3	2	3	0	2	2
sig	1.26168012	0.632778	1.37633053	0	0.283	0.28284
sigxb	0.0252336	0.012656	0.02752661	0	0.006	0.00566
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.26	1.94		0.04	3.96
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	1	0	1	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	3	0	3	0	0	0
13	3	0	3	0	0	0
14	0	0	0	0	0	0
15	3	0	3	0	0	0
16	3	0	3	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	1	1	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	1	2	3	0	0	0
24	3	0	3	0	0	0
25	0	0	0	0	0	0
26	2	1	3	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	2	2	0	0	0
30	0	2	2	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	3	0	3	0	0	0
35	0	0	0	0	0	0
36	1	2	3	0	0	0
37	3	0	3	0	2	2
38	0	2	2	0	0	0
39	3	0	3	0	0	0
40	3	0	3	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	2	1	3	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	3	0	3	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 225 0 CRUDES 4 LCS-r12 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0
xbar	2.94	0.04	2.98	1.58	1.14	2.72	0.26	0.3	0.56
max	3	1	3	4	3	4	2	3	3
sig	0.31363569	0.197949	0.14142136	1.19676	1.05	1.42914	0.527218	0.6144518	0.884331
sigxb	0.00627271	0.003959	0.00282843	0.02394	0.021	0.02858	0.010544	0.012289	0.017687
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.04	0.02		1.14	1.28		0.3	3.44
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	3	4	0	0	0
2	3	0	3	1	1	2	0	0	0
3	3	0	3	2	2	4	0	0	0
4	3	0	3	2	1	3	0	0	0
5	3	0	3	1	0	1	1	1	2
6	3	0	3	3	0	3	0	0	0
7	3	0	3	2	1	3	0	0	0
8	3	0	3	2	1	3	1	1	2
9	3	0	3	0	3	3	0	0	0
10	3	0	3	0	2	2	0	0	0
11	3	0	3	1	3	4	1	0	1
12	3	0	3	3	1	4	0	0	0
13	3	0	3	0	3	3	0	0	0
14	3	0	3	1	2	3	0	0	0
15	3	0	3	0	1	1	0	0	0
16	3	0	3	0	0	0	0	0	0
17	3	0	3	2	1	3	1	0	1
18	3	0	3	0	0	0	0	0	0
19	3	0	3	3	1	4	0	0	0
20	3	0	3	1	2	3	0	0	0
21	3	0	3	2	2	4	2	0	2
22	1	1	2	0	0	0	0	0	0
23	2	1	3	0	0	0	0	0	0
24	3	0	3	3	1	4	0	0	0
25	3	0	3	0	0	0	0	0	0
26	3	0	3	2	0	2	1	0	1
27	3	0	3	0	0	0	0	0	0
28	3	0	3	2	2	4	0	1	1
29	3	0	3	2	1	3	0	0	0
30	3	0	3	2	2	4	1	1	2
31	3	0	3	2	1	3	1	0	1
32	3	0	3	1	2	3	0	0	0
33	3	0	3	2	2	4	0	2	2
34	3	0	3	1	3	4	0	0	0
35	3	0	3	4	0	4	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	3	1	4	0	0	0
38	3	0	3	2	0	2	0	0	0
39	3	0	3	3	0	3	0	1	1
40	3	0	3	2	2	4	1	1	2
41	3	0	3	0	3	3	0	0	0
42	3	0	3	3	1	4	0	3	3
43	3	0	3	1	3	4	0	1	1
44	3	0	3	2	1	3	0	0	0
45	3	0	3	4	0	4	1	1	2
46	3	0	3	3	1	4	2	1	3
47	3	0	3	3	1	4	0	1	1
48	3	0	3	3	0	3	0	0	0
49	3	0	3	2	0	2	0	0	0
50	3	0	3	0	0	0	0	0	0

Table 226 0 CRUDES 4 LCS-r13 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	4				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	1	0	2	0	0	0
xbar	2.88	0.1	2.98	1.04	1.12	2.16
max	3	2	3	3	3	4
sig	0.43518703	0.416497	0.14142136	1.15987	0.94	1.47579
sigxb	0.00870374	0.00833	0.00282843	0.0232	0.019	0.02952
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.1	0.02		1.12	1.84
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	2	2	4
2	3	0	3	0	1	1
3	3	0	3	1	3	4
4	3	0	3	0	0	0
5	3	0	3	0	0	0
6	3	0	3	2	1	3
7	3	0	3	3	0	3
8	3	0	3	0	1	1
9	3	0	3	2	2	4
10	3	0	3	0	2	2
11	3	0	3	2	2	4
12	2	0	2	0	0	0
13	1	2	3	0	0	0
14	2	1	3	0	0	0
15	3	0	3	1	1	2
16	3	0	3	3	1	4
17	3	0	3	3	1	4
18	3	0	3	0	1	1
19	3	0	3	1	3	4
20	3	0	3	0	0	0
21	3	0	3	1	0	1
22	3	0	3	0	2	2
23	3	0	3	0	0	0
24	3	0	3	3	1	4
25	3	0	3	2	0	2
26	3	0	3	2	1	3
27	3	0	3	3	1	4
28	3	0	3	0	0	0
29	3	0	3	3	1	4
30	3	0	3	1	1	2
31	3	0	3	0	2	2
32	3	0	3	0	1	1
33	3	0	3	2	2	4
34	3	0	3	3	0	3
35	3	0	3	2	1	3
36	3	0	3	0	2	2
37	3	0	3	0	1	1
38	3	0	3	0	0	0
39	3	0	3	0	2	2
40	1	2	3	0	0	0
41	3	0	3	1	1	2
42	3	0	3	2	2	4
43	3	0	3	0	3	3
44	3	0	3	0	2	2
45	3	0	3	0	1	1
46	3	0	3	1	1	2
47	3	0	3	0	3	3
48	3	0	3	1	2	3
49	3	0	3	2	2	4
50	3	0	3	3	0	3

Table 227 0 CRUDES 4 LCS-r14 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	4	4						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	3.34	0.56	3.9	0.3	0.24	0.54
max	3	0	3	4	2	4	3	2	3
sig	0	0	0	0.79821	0.644	0.58029	0.677631	0.4763809	0.885484
sigxb	0	0	0	0.01596	0.013	0.01161	0.013553	0.0095276	0.01771
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.56	0.1		0.24	3.46
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	1	4	0	0	0
2	3	0	3	4	0	4	0	0	0
3	3	0	3	4	0	4	2	1	3
4	3	0	3	2	2	4	0	0	0
5	3	0	3	2	2	4	0	1	1
6	3	0	3	3	1	4	0	0	0
7	3	0	3	4	0	4	0	0	0
8	3	0	3	3	1	4	0	0	0
9	3	0	3	4	0	4	0	0	0
10	3	0	3	4	0	4	0	0	0
11	3	0	3	3	1	4	0	0	0
12	3	0	3	3	1	4	0	0	0
13	3	0	3	4	0	4	0	1	1
14	3	0	3	3	1	4	0	0	0
15	3	0	3	4	0	4	3	0	3
16	3	0	3	3	1	4	0	1	1
17	3	0	3	3	1	4	1	0	1
18	3	0	3	3	1	4	0	0	0
19	3	0	3	4	0	4	0	1	1
20	3	0	3	4	0	4	2	0	2
21	3	0	3	3	1	4	1	0	1
22	3	0	3	4	0	4	0	0	0
23	3	0	3	4	0	4	0	0	0
24	3	0	3	4	0	4	0	0	0
25	3	0	3	4	0	4	0	0	0
26	3	0	3	4	0	4	0	0	0
27	3	0	3	3	1	4	2	1	3
28	3	0	3	4	0	4	0	2	2
29	3	0	3	4	0	4	0	1	1
30	3	0	3	4	0	4	0	1	1
31	3	0	3	4	0	4	0	0	0
32	3	0	3	3	0	3	0	0	0
33	3	0	3	3	1	4	0	0	0
34	3	0	3	3	1	4	0	0	0
35	3	0	3	2	2	4	0	0	0
36	3	0	3	3	1	4	0	0	0
37	3	0	3	4	0	4	0	0	0
38	3	0	3	0	0	0	0	0	0
39	3	0	3	3	1	4	0	0	0
40	3	0	3	3	1	4	1	0	1
41	3	0	3	3	1	4	1	1	2
42	3	0	3	4	0	4	0	0	0
43	3	0	3	4	0	4	0	0	0
44	3	0	3	4	0	4	1	1	2
45	3	0	3	4	0	4	1	0	1
46	3	0	3	2	2	4	0	0	0
47	3	0	3	4	0	4	0	0	0
48	3	0	3	3	1	4	0	0	0
49	3	0	3	3	1	4	0	0	0
50	3	0	3	3	1	4	0	0	0

Table 228 0 CRUDES 4 LCS-r15 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.22	0.3	0.52	0.02	0	0.02
max	3	3	3	1	0	1
sig	0.61577892	0.735402	1.03490116	0.14142	0	0.14142
sigxb	0.01231558	0.014708	0.02069802	0.00283	0	0.00283
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.3	2.48		0	4.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	1	1	2	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	1	1	2	0	0	0
16	0	3	3	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	2	1	3	0	0	0
25	0	1	1	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	3	3	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	1	2	3	0	0	0
45	0	2	2	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	1	1	2	1	0	1
49	2	0	2	0	0	0
50	0	0	0	0	0	0

Table 229 0 CRUDES 5 LCS-r0 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0
xbar	2.94	0.04	2.98	1.76	0.9	2.66	0.14	0.14	0.28
max	3	1	3	5	4	5	2	2	3
sig	0.31363569	0.197949	0.14142136	1.82455	1.035	2.06635	0.495284	0.4045658	0.729551
sigxb	0.00627271	0.003959	0.00282843	0.03649	0.021	0.04133	0.009906	0.0080913	0.014591
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.04	0.02		0.9	2.34		0.14	4.72
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	4	5	0	0	0
2	3	0	3	4	1	5	1	0	1
3	3	0	3	1	1	2	0	0	0
4	3	0	3	3	1	4	0	1	1
5	3	0	3	2	1	3	0	0	0
6	1	1	2	0	0	0	0	0	0
7	2	1	3	0	0	0	0	0	0
8	3	0	3	4	1	5	0	0	0
9	3	0	3	2	2	4	0	0	0
10	3	0	3	0	0	0	0	0	0
11	3	0	3	0	0	0	0	0	0
12	3	0	3	0	0	0	0	0	0
13	3	0	3	3	1	4	0	0	0
14	3	0	3	4	1	5	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	4	1	5	0	0	0
17	3	0	3	2	2	4	0	0	0
18	3	0	3	3	1	4	0	0	0
19	3	0	3	5	0	5	0	2	2
20	3	0	3	5	0	5	2	1	3
21	3	0	3	2	1	3	0	0	0
22	3	0	3	0	0	0	0	0	0
23	3	0	3	2	1	3	0	0	0
24	3	0	3	5	0	5	0	1	1
25	3	0	3	3	1	4	0	0	0
26	3	0	3	0	2	2	0	0	0
27	3	0	3	5	0	5	2	1	3
28	3	0	3	0	0	0	0	0	0
29	3	0	3	1	2	3	0	0	0
30	3	0	3	0	0	0	0	0	0
31	3	0	3	1	3	4	0	0	0
32	3	0	3	0	2	2	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	5	0	5	2	0	2
35	3	0	3	1	3	4	0	0	0
36	3	0	3	0	0	0	0	0	0
37	3	0	3	0	3	3	0	0	0
38	3	0	3	1	3	4	0	0	0
39	3	0	3	1	0	1	0	0	0
40	3	0	3	0	0	0	0	0	0
41	3	0	3	4	1	5	0	0	0
42	3	0	3	0	0	0	0	0	0
43	3	0	3	4	1	5	0	0	0
44	3	0	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	3	0	3	0	2	2	0	0	0
47	3	0	3	4	1	5	0	0	0
48	3	0	3	3	1	4	0	0	0
49	3	0	3	3	1	4	0	1	1
50	3	0	3	0	0	0	0	0	0

Table 230 0 CRUDES 5 LCS-r1 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.08	0.4	2.48	0.32	0.5	0.82
max	3	3	3	4	4	5
sig	1.17525507	0.728431	1.03490116	0.86756	0.886	1.32002
sigxb	0.0235051	0.014569	0.02069802	0.01735	0.018	0.0264
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.4	0.52		0.5	4.18
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0
2	0	0	0	0	0	0
3	2	1	3	0	0	0
4	1	0	1	0	0	0
5	2	1	3	0	0	0
6	2	1	3	0	0	0
7	3	0	3	1	1	2
8	3	0	3	0	0	0
9	2	1	3	0	0	0
10	2	1	3	0	1	1
11	3	0	3	1	1	2
12	3	0	3	1	4	5
13	0	0	0	0	0	0
14	3	0	3	0	1	1
15	3	0	3	4	0	4
16	3	0	3	1	0	1
17	3	0	3	4	1	5
18	3	0	3	1	1	2
19	1	2	3	0	0	0
20	3	0	3	0	0	0
21	2	1	3	0	0	0
22	1	0	1	0	0	0
23	3	0	3	0	0	0
24	3	0	3	0	0	0
25	0	0	0	0	0	0
26	1	1	2	0	0	0
27	0	2	2	0	0	0
28	3	0	3	0	1	1
29	0	0	0	0	0	0
30	2	1	3	0	1	1
31	3	0	3	0	0	0
32	0	3	3	0	0	0
33	2	0	2	0	2	2
34	3	0	3	0	0	0
35	3	0	3	1	0	1
36	3	0	3	0	1	1
37	0	2	2	0	0	0
38	0	0	0	0	0	0
39	3	0	3	0	1	1
40	3	0	3	0	3	3
41	3	0	3	0	0	0
42	0	0	0	0	0	0
43	3	0	3	2	1	3
44	3	0	3	0	3	3
45	1	2	3	0	0	0
46	3	0	3	0	0	0
47	3	0	3	0	1	1
48	3	0	3	0	0	0
49	3	0	3	0	1	1
50	3	0	3	0	0	0

Table 231 0 CRUDES 5 LCS-r2 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	2	0	0	0
xbar	3	0	3	4.28	0.52	4.8	0.2	0.24	0.44
max	3	0	3	5	3	5	2	3	4
sig	0	0	0	1.14357	0.814	0.60609	0.534522	0.6869037	1.072095
sigxb	0	0	0	0.02287	0.016	0.01212	0.01069	0.0137381	0.021442
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.52	0.2		0.24	4.56
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	5	0	5	0	0	0
2	3	0	3	5	0	5	2	2	4
3	3	0	3	5	0	5	0	0	0
4	3	0	3	5	0	5	1	0	1
5	3	0	3	5	0	5	0	0	0
6	3	0	3	5	0	5	0	0	0
7	3	0	3	5	0	5	0	0	0
8	3	0	3	4	1	5	0	0	0
9	3	0	3	4	1	5	0	0	0
10	3	0	3	4	1	5	0	0	0
11	3	0	3	2	2	4	0	0	0
12	3	0	3	5	0	5	0	0	0
13	3	0	3	5	0	5	0	0	0
14	3	0	3	4	1	5	0	0	0
15	3	0	3	5	0	5	0	0	0
16	3	0	3	5	0	5	0	0	0
17	3	0	3	5	0	5	0	2	2
18	3	0	3	5	0	5	0	0	0
19	3	0	3	4	1	5	0	0	0
20	3	0	3	5	0	5	1	3	4
21	3	0	3	5	0	5	0	0	0
22	3	0	3	5	0	5	1	0	1
23	3	0	3	5	0	5	0	0	0
24	3	0	3	5	0	5	0	0	0
25	3	0	3	5	0	5	0	0	0
26	3	0	3	5	0	5	0	0	0
27	3	0	3	5	0	5	2	0	2
28	3	0	3	3	2	5	0	0	0
29	3	0	3	2	2	4	0	0	0
30	3	0	3	5	0	5	0	0	0
31	3	0	3	2	1	3	0	0	0
32	3	0	3	5	0	5	0	0	0
33	3	0	3	4	0	4	0	0	0
34	3	0	3	5	0	5	0	0	0
35	3	0	3	3	2	5	0	0	0
36	3	0	3	5	0	5	0	0	0
37	3	0	3	5	0	5	0	2	2
38	3	0	3	3	2	5	0	0	0
39	3	0	3	3	2	5	0	0	0
40	3	0	3	4	1	5	0	0	0
41	3	0	3	5	0	5	1	1	2
42	3	0	3	3	0	3	0	0	0
43	3	0	3	5	0	5	2	2	4
44	3	0	3	2	3	5	0	0	0
45	3	0	3	0	2	2	0	0	0
46	3	0	3	5	0	5	0	0	0
47	3	0	3	5	0	5	0	0	0
48	3	0	3	4	1	5	0	0	0
49	3	0	3	4	1	5	0	0	0
50	3	0	3	5	0	5	0	0	0

Table 232 0 CRUDES 5 LCS-r3 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.76	0.58	1.34	0.04	0.12	0.16
max	3	3	3	2	3	5
sig	1.04119241	0.810392	1.31878113	0.28284	0.594	0.81716
sigxb	0.02082385	0.016208	0.02637562	0.00566	0.012	0.01634
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.58	1.66		0.12	4.84
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	3	0	3	0	0	0
3	1	1	2	0	0	0
4	1	1	2	0	0	0
5	2	0	2	0	0	0
6	2	1	3	0	0	0
7	0	2	2	0	0	0
8	0	0	0	0	0	0
9	2	1	3	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	3	0	3	0	0	0
13	1	1	2	0	0	0
14	1	2	3	0	0	0
15	1	0	1	0	0	0
16	0	1	1	0	0	0
17	3	0	3	0	0	0
18	1	2	3	0	0	0
19	0	0	0	0	0	0
20	2	1	3	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	2	2	0	0	0
24	0	2	2	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	1	1	2	0	0	0
28	3	0	3	0	3	3
29	2	1	3	0	0	0
30	0	0	0	0	0	0
31	0	3	3	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	3	0	3	2	3	5
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	2	1	3	0	0	0
41	1	0	1	0	0	0
42	0	1	1	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	1	2	3	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	2	1	3	0	0	0
49	0	0	0	0	0	0
50	0	2	2	0	0	0

Table 233 0 CRUDES 5 LCS-r4 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	3.28	1	4.28	0.2	0.08	0.28
max	3	0	3	5	5	5	4	1	4
sig	0	0	0	1.69079	1.069	1.1073	0.699854	0.2740475	0.881557
sigxb	0	0	0	0.03382	0.021	0.02215	0.013997	0.005481	0.017631
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1	0.72		0.08	4.72
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	4	1	5	0	0	0
2	3	0	3	3	1	4	0	0	0
3	3	0	3	1	2	3	0	0	0
4	3	0	3	5	0	5	0	0	0
5	3	0	3	5	0	5	2	1	3
6	3	0	3	5	0	5	0	0	0
7	3	0	3	4	1	5	0	0	0
8	3	0	3	5	0	5	4	0	4
9	3	0	3	5	0	5	0	0	0
10	3	0	3	4	1	5	0	0	0
11	3	0	3	5	0	5	0	0	0
12	3	0	3	2	3	5	0	0	0
13	3	0	3	2	2	4	0	0	0
14	3	0	3	4	0	4	0	0	0
15	3	0	3	0	0	0	0	0	0
16	3	0	3	4	1	5	0	0	0
17	3	0	3	3	1	4	0	0	0
18	3	0	3	0	2	2	0	0	0
19	3	0	3	3	1	4	0	0	0
20	3	0	3	0	2	2	0	0	0
21	3	0	3	3	1	4	0	0	0
22	3	0	3	5	0	5	2	1	3
23	3	0	3	1	2	3	0	0	0
24	3	0	3	4	1	5	0	0	0
25	3	0	3	3	2	5	0	0	0
26	3	0	3	5	0	5	0	0	0
27	3	0	3	3	0	3	0	0	0
28	3	0	3	0	3	3	0	0	0
29	3	0	3	4	1	5	0	0	0
30	3	0	3	1	2	3	0	0	0
31	3	0	3	4	1	5	1	1	2
32	3	0	3	5	0	5	0	0	0
33	3	0	3	2	2	4	0	0	0
34	3	0	3	3	2	5	0	0	0
35	3	0	3	5	0	5	0	0	0
36	3	0	3	5	0	5	0	0	0
37	3	0	3	0	5	5	0	0	0
38	3	0	3	4	1	5	0	0	0
39	3	0	3	4	1	5	0	0	0
40	3	0	3	1	2	3	0	0	0
41	3	0	3	4	0	4	0	0	0
42	3	0	3	4	0	4	0	0	0
43	3	0	3	3	2	5	0	0	0
44	3	0	3	4	0	4	0	0	0
45	3	0	3	4	1	5	0	0	0
46	3	0	3	5	0	5	0	0	0
47	3	0	3	4	1	5	0	0	0
48	3	0	3	5	0	5	0	0	0
49	3	0	3	5	0	5	1	1	2
50	3	0	3	0	2	2	0	0	0

Table 234 0 CRUDES 5 LCS-r5 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0
xbar	3	0	3	2.38	1.58	3.96
max	3	0	3	5	4	5
sig	0	0	0	1.427	1.247	1.17734
sigxb	0	0	0	0.02854	0.025	0.02355
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0		1.58	1.04
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	3	3
2	3	0	3	1	1	2
3	3	0	3	1	0	1
4	3	0	3	4	0	4
5	3	0	3	1	4	5
6	3	0	3	2	3	5
7	3	0	3	2	2	4
8	3	0	3	1	3	4
9	3	0	3	3	1	4
10	3	0	3	5	0	5
11	3	0	3	3	2	5
12	3	0	3	2	1	3
13	3	0	3	1	4	5
14	3	0	3	0	0	0
15	3	0	3	4	0	4
16	3	0	3	0	1	1
17	3	0	3	5	0	5
18	3	0	3	1	2	3
19	3	0	3	2	1	3
20	3	0	3	2	3	5
21	3	0	3	1	2	3
22	3	0	3	1	4	5
23	3	0	3	4	0	4
24	3	0	3	2	3	5
25	3	0	3	4	1	5
26	3	0	3	3	1	4
27	3	0	3	1	4	5
28	3	0	3	2	1	3
29	3	0	3	5	0	5
30	3	0	3	4	1	5
31	3	0	3	4	1	5
32	3	0	3	1	3	4
33	3	0	3	1	2	3
34	3	0	3	1	2	3
35	3	0	3	2	3	5
36	3	0	3	1	3	4
37	3	0	3	3	1	4
38	3	0	3	4	1	5
39	3	0	3	3	1	4
40	3	0	3	4	0	4
41	3	0	3	2	2	4
42	3	0	3	4	1	5
43	3	0	3	2	1	3
44	3	0	3	4	0	4
45	3	0	3	4	1	5
46	3	0	3	3	1	4
47	3	0	3	4	1	5
48	3	0	3	1	3	4
49	3	0	3	2	3	5
50	3	0	3	2	1	3

Table 235 0 CRUDES 5 LCS-r6 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	3	0	5	0	0	0
xbar	3	0	3	4.84	0.16	5	0.18	0.12	0.3
max	3	0	3	5	2	5	2	3	4
sig	0	0	0	0.42185	0.422	0	0.522553	0.5205962	0.931315
sigxb	0	0	0	0.00844	0.008	0	0.010451	0.0104119	0.018626
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.16	0		0.12	4.7
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	5	0	5	0	0	0
2	3	0	3	5	0	5	0	0	0
3	3	0	3	5	0	5	0	0	0
4	3	0	3	5	0	5	0	0	0
5	3	0	3	5	0	5	0	0	0
6	3	0	3	4	1	5	0	0	0
7	3	0	3	4	1	5	0	0	0
8	3	0	3	5	0	5	0	0	0
9	3	0	3	5	0	5	0	0	0
10	3	0	3	5	0	5	0	0	0
11	3	0	3	5	0	5	0	0	0
12	3	0	3	5	0	5	0	0	0
13	3	0	3	5	0	5	0	0	0
14	3	0	3	5	0	5	1	0	1
15	3	0	3	5	0	5	0	0	0
16	3	0	3	5	0	5	0	0	0
17	3	0	3	5	0	5	0	0	0
18	3	0	3	5	0	5	0	0	0
19	3	0	3	5	0	5	0	0	0
20	3	0	3	5	0	5	0	0	0
21	3	0	3	5	0	5	0	0	0
22	3	0	3	5	0	5	0	0	0
23	3	0	3	4	1	5	0	0	0
24	3	0	3	5	0	5	1	3	4
25	3	0	3	4	1	5	0	0	0
26	3	0	3	5	0	5	0	0	0
27	3	0	3	5	0	5	0	0	0
28	3	0	3	5	0	5	0	0	0
29	3	0	3	4	1	5	0	0	0
30	3	0	3	5	0	5	0	0	0
31	3	0	3	4	1	5	0	0	0
32	3	0	3	5	0	5	0	0	0
33	3	0	3	5	0	5	1	0	1
34	3	0	3	5	0	5	2	0	2
35	3	0	3	5	0	5	0	0	0
36	3	0	3	5	0	5	0	0	0
37	3	0	3	5	0	5	2	2	4
38	3	0	3	5	0	5	0	0	0
39	3	0	3	5	0	5	0	0	0
40	3	0	3	5	0	5	0	0	0
41	3	0	3	5	0	5	0	0	0
42	3	0	3	5	0	5	0	0	0
43	3	0	3	5	0	5	0	0	0
44	3	0	3	5	0	5	0	0	0
45	3	0	3	5	0	5	0	0	0
46	3	0	3	5	0	5	0	0	0
47	3	0	3	5	0	5	2	1	3
48	3	0	3	5	0	5	0	0	0
49	3	0	3	3	2	5	0	0	0
50	3	0	3	5	0	5	0	0	0

Table 236 0 CRUDES 5 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.22	0.26	0.48	0	0	0
max	3	3	3	0	0	0
sig	0.64807407	0.664247	1.03490116	0	0	0
sigxb	0.01296148	0.013285	0.02069802	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.26	2.52		0	5
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	1	1	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	1	1	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	2	1	3	0	0	0
22	3	0	3	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	2	1	3	0	0	0
26	0	0	0	0	0	0
27	1	1	2	0	0	0
28	0	0	0	0	0	0
29	0	3	3	0	0	0
30	0	0	0	0	0	0
31	1	1	2	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	3	3	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	2	1	3	0	0	0

Table 237 0 CRUDES 5 LCS-r8 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0
xbar	2.86	0.14	3	1.08	1.08	2.16	0.44	0.44	0.88
max	3	1	3	5	4	5	3	3	4
sig	0.35050983	0.35051	0	1.38269	1.226	1.81108	0.674915	0.7866229	1.023001
sigxb	0.0070102	0.00701	0	0.02765	0.025	0.03622	0.013498	0.0157325	0.02046
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.14	0		1.08	2.84		0.44	4.12
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	2	2	4	1	1	2
2	3	0	3	4	0	4	1	0	1
3	3	0	3	4	1	5	0	1	1
4	3	0	3	2	2	4	0	1	1
5	3	0	3	0	1	1	0	0	0
6	3	0	3	1	1	2	0	0	0
7	3	0	3	0	3	3	1	1	2
8	2	1	3	0	0	0	0	0	0
9	2	1	3	0	0	0	0	0	0
10	3	0	3	0	0	0	0	0	0
11	3	0	3	1	1	2	0	2	2
12	3	0	3	1	3	4	0	2	2
13	3	0	3	2	0	2	1	0	1
14	3	0	3	1	0	1	1	0	1
15	3	0	3	2	2	4	0	1	1
16	2	1	3	0	0	0	0	0	0
17	3	0	3	0	2	2	1	0	1
18	3	0	3	0	1	1	0	0	0
19	3	0	3	1	1	2	1	1	2
20	3	0	3	1	0	1	1	3	4
21	3	0	3	0	4	4	1	0	1
22	3	0	3	2	2	4	0	0	0
23	3	0	3	0	0	0	0	0	0
24	3	0	3	5	0	5	3	0	3
25	3	0	3	1	2	3	0	0	0
26	3	0	3	2	2	4	1	1	2
27	2	1	3	0	2	2	0	0	0
28	3	0	3	1	4	5	0	1	1
29	3	0	3	2	0	2	1	0	1
30	3	0	3	3	0	3	0	0	0
31	3	0	3	0	0	0	0	0	0
32	3	0	3	0	0	0	0	0	0
33	3	0	3	0	0	0	0	0	0
34	3	0	3	3	2	5	2	0	2
35	3	0	3	0	0	0	0	0	0
36	3	0	3	0	2	2	0	0	0
37	3	0	3	5	0	5	0	3	3
38	3	0	3	1	2	3	1	0	1
39	2	1	3	0	0	0	0	0	0
40	3	0	3	1	2	3	1	0	1
41	2	1	3	0	0	0	0	0	0
42	3	0	3	0	0	0	0	0	0
43	3	0	3	0	3	3	1	0	1
44	3	0	3	0	0	0	0	0	0
45	3	0	3	0	0	0	0	0	0
46	3	0	3	1	4	5	2	1	3
47	2	1	3	0	0	0	0	0	0
48	3	0	3	2	1	3	1	0	1
49	3	0	3	3	1	4	0	2	2
50	3	0	3	0	1	1	0	1	1

Table 238 0 CRUDES 5 LCS-r9 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.38	0.38	2.76	0.2	0.84	1.04
max	3	2	3	2	3	4
sig	0.9452351	0.567486	0.68690373	0.53452	1.076	1.36964
sigxb	0.0189047	0.01135	0.01373807	0.01069	0.022	0.02739
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.38	0.24		0.84	3.96
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	1	1	2	0	1	1
2	3	0	3	0	0	0
3	3	0	3	0	3	3
4	3	0	3	0	1	1
5	3	0	3	0	3	3
6	3	0	3	0	1	1
7	3	0	3	0	2	2
8	3	0	3	0	1	1
9	2	1	3	0	0	0
10	3	0	3	0	3	3
11	3	0	3	2	2	4
12	3	0	3	0	0	0
13	2	1	3	0	0	0
14	1	1	2	0	0	0
15	3	0	3	1	2	3
16	3	0	3	1	2	3
17	3	0	3	0	2	2
18	3	0	3	1	3	4
19	3	0	3	0	0	0
20	2	1	3	0	0	0
21	1	2	3	0	1	1
22	3	0	3	0	0	0
23	3	0	3	0	0	0
24	0	2	2	0	0	0
25	3	0	3	0	0	0
26	2	1	3	0	0	0
27	3	0	3	2	2	4
28	3	0	3	0	0	0
29	3	0	3	0	0	0
30	3	0	3	2	2	4
31	3	0	3	0	0	0
32	2	1	3	0	0	0
33	3	0	3	1	0	1
34	3	0	3	0	1	1
35	3	0	3	0	2	2
36	2	1	3	0	3	3
37	0	0	0	0	0	0
38	3	0	3	0	2	2
39	3	0	3	0	0	0
40	3	0	3	0	2	2
41	0	0	0	0	0	0
42	2	1	3	0	0	0
43	2	1	3	0	0	0
44	3	0	3	0	0	0
45	2	1	3	0	0	0
46	2	1	3	0	0	0
47	3	0	3	0	1	1
48	2	1	3	0	0	0
49	0	1	1	0	0	0
50	1	1	2	0	0	0

Table 239 0 CRUDES 5 LCS-r10 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	3	0	0	0
xbar	3	0	3	4.04	0.78	4.82	0.4	0.38	0.78
max	3	0	3	5	3	5	2	2	4
sig	0	0	0	1.06828	0.815	0.43753	0.670059	0.6667007	0.995705
sigxb	0	0	0	0.02137	0.016	0.00875	0.013401	0.013334	0.019914
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.78	0.18		0.38	4.22
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	4	1	5	0	2	2
2	3	0	3	4	1	5	0	0	0
3	3	0	3	3	2	5	0	0	0
4	3	0	3	4	1	5	0	0	0
5	3	0	3	3	2	5	0	0	0
6	3	0	3	3	1	4	0	0	0
7	3	0	3	4	1	5	0	0	0
8	3	0	3	3	2	5	0	0	0
9	3	0	3	1	3	4	0	0	0
10	3	0	3	4	1	5	0	0	0
11	3	0	3	5	0	5	1	2	3
12	3	0	3	5	0	5	0	0	0
13	3	0	3	5	0	5	1	0	1
14	3	0	3	5	0	5	1	1	2
15	3	0	3	5	0	5	0	2	2
16	3	0	3	4	1	5	0	0	0
17	3	0	3	4	1	5	0	0	0
18	3	0	3	5	0	5	0	1	1
19	3	0	3	4	1	5	0	0	0
20	3	0	3	3	1	4	0	0	0
21	3	0	3	4	1	5	0	0	0
22	3	0	3	5	0	5	0	0	0
23	3	0	3	5	0	5	0	0	0
24	3	0	3	5	0	5	2	0	2
25	3	0	3	5	0	5	0	1	1
26	3	0	3	2	2	4	0	0	0
27	3	0	3	4	1	5	2	0	2
28	3	0	3	2	2	4	1	0	1
29	3	0	3	5	0	5	1	0	1
30	3	0	3	3	2	5	1	0	1
31	3	0	3	4	1	5	2	0	2
32	3	0	3	2	2	4	0	0	0
33	3	0	3	5	0	5	1	0	1
34	3	0	3	5	0	5	1	0	1
35	3	0	3	5	0	5	0	1	1
36	3	0	3	4	1	5	0	0	0
37	3	0	3	3	2	5	0	0	0
38	3	0	3	5	0	5	1	2	3
39	3	0	3	5	0	5	2	2	4
40	3	0	3	3	1	4	0	0	0
41	3	0	3	5	0	5	0	0	0
42	3	0	3	5	0	5	0	0	0
43	3	0	3	2	1	3	0	1	1
44	3	0	3	5	0	5	0	0	0
45	3	0	3	4	1	5	0	0	0
46	3	0	3	3	2	5	1	1	2
47	3	0	3	5	0	5	0	1	1
48	3	0	3	5	0	5	0	1	1
49	3	0	3	4	1	5	0	1	1
50	3	0	3	5	0	5	2	0	2

Table 240 0 CRUDES 5 LCS-r11 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.86	0.62	1.48	0.06	0.08	0.14
max	3	3	3	2	2	4
sig	1.19539934	0.90102	1.38858319	0.31364	0.396	0.70015
sigxb	0.02390799	0.01802	0.02777166	0.00627	0.008	0.014
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.62	1.52		0.08	4.86
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	2	2	4
2	3	0	3	0	0	0
3	0	0	0	0	0	0
4	1	2	3	0	0	0
5	0	0	0	0	0	0
6	1	1	2	0	0	0
7	1	2	3	0	0	0
8	0	0	0	0	0	0
9	3	0	3	0	0	0
10	3	0	3	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	2	2	0	0	0
14	1	2	3	0	0	0
15	0	2	2	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	1	2	3	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	1	0	1	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	2	1	3	0	0	0
26	1	2	3	0	0	0
27	3	0	3	0	0	0
28	0	0	0	0	0	0
29	0	1	1	0	0	0
30	0	3	3	0	0	0
31	0	0	0	0	0	0
32	3	0	3	0	0	0
33	0	2	2	0	0	0
34	1	2	3	0	0	0
35	3	0	3	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	3	0	3	0	0	0
40	0	2	2	0	0	0
41	0	1	1	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	3	0	3	1	2	3
45	1	2	3	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	2	1	3	0	0	0
49	3	0	3	0	0	0
50	0	1	1	0	0	0

Table 241 0 CRUDES 5 LCS-r12 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	2	0	0	0
xbar	3	0	3	2.92	1.4	4.32	0.84	0.8	1.64
max	3	0	3	5	4	5	3	3	4
sig	0	0	0	1.24278	1.069	0.89077	0.888934	0.808122	1.305561
sigxb	0	0	0	0.02486	0.021	0.01782	0.017779	0.0161624	0.026111
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1.4	0.68		0.8	3.36
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	2	5	2	1	3
2	3	0	3	3	2	5	1	1	2
3	3	0	3	4	1	5	2	1	3
4	3	0	3	3	2	5	0	0	0
5	3	0	3	4	1	5	0	0	0
6	3	0	3	5	0	5	2	0	2
7	3	0	3	2	2	4	1	1	2
8	3	0	3	3	0	3	0	1	1
9	3	0	3	4	0	4	0	1	1
10	3	0	3	3	1	4	0	0	0
11	3	0	3	0	4	4	0	0	0
12	3	0	3	2	2	4	0	0	0
13	3	0	3	5	0	5	1	3	4
14	3	0	3	1	3	4	2	1	3
15	3	0	3	5	0	5	2	1	3
16	3	0	3	2	2	4	1	0	1
17	3	0	3	2	2	4	1	1	2
18	3	0	3	1	3	4	0	0	0
19	3	0	3	3	2	5	1	0	1
20	3	0	3	4	1	5	0	1	1
21	3	0	3	4	1	5	2	1	3
22	3	0	3	3	2	5	1	2	3
23	3	0	3	2	2	4	1	2	3
24	3	0	3	3	1	4	0	0	0
25	3	0	3	4	1	5	1	1	2
26	3	0	3	2	2	4	1	2	3
27	3	0	3	4	1	5	0	1	1
28	3	0	3	4	0	4	0	0	0
29	3	0	3	2	0	2	0	2	2
30	3	0	3	1	1	2	1	1	2
31	3	0	3	2	2	4	0	0	0
32	3	0	3	2	3	5	3	1	4
33	3	0	3	5	0	5	2	0	2
34	3	0	3	2	3	5	1	2	3
35	3	0	3	2	2	4	0	0	0
36	3	0	3	3	2	5	1	1	2
37	3	0	3	1	3	4	1	1	2
38	3	0	3	3	2	5	2	1	3
39	3	0	3	3	2	5	2	1	3
40	3	0	3	5	0	5	1	0	1
41	3	0	3	4	1	5	0	0	0
42	3	0	3	4	1	5	2	2	4
43	3	0	3	2	2	4	0	3	3
44	3	0	3	5	0	5	3	0	3
45	3	0	3	2	3	5	0	0	0
46	3	0	3	2	0	2	0	1	1
47	3	0	3	2	0	2	0	0	0
48	3	0	3	2	1	3	1	1	2
49	3	0	3	3	2	5	0	1	1
50	3	0	3	4	0	4	0	0	0

Table 242 0 CRUDES 5 LCS-r13 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	5				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	1	0	1	0	0	0
xbar	2.96	0	2.96	2.14	1.72	3.86
max	3	0	3	5	4	5
sig	0.28284271	0	0.28284271	1.30946	1.196	1.37039
sigxb	0.00565685	0	0.00565685	0.02619	0.024	0.02741
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0.04		1.72	1.14
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	4	1	5
2	3	0	3	3	2	5
3	3	0	3	1	2	3
4	3	0	3	1	1	2
5	3	0	3	5	0	5
6	3	0	3	2	2	4
7	3	0	3	0	0	0
8	3	0	3	4	1	5
9	3	0	3	1	4	5
10	3	0	3	1	2	3
11	3	0	3	3	0	3
12	3	0	3	2	2	4
13	3	0	3	2	3	5
14	3	0	3	1	2	3
15	3	0	3	3	1	4
16	3	0	3	4	1	5
17	3	0	3	2	3	5
18	3	0	3	1	1	2
19	3	0	3	1	4	5
20	3	0	3	1	4	5
21	3	0	3	2	3	5
22	3	0	3	2	2	4
23	3	0	3	3	1	4
24	3	0	3	1	4	5
25	3	0	3	2	1	3
26	3	0	3	2	0	2
27	3	0	3	4	1	5
28	3	0	3	0	1	1
29	3	0	3	3	2	5
30	3	0	3	0	1	1
31	3	0	3	5	0	5
32	3	0	3	1	3	4
33	3	0	3	2	2	4
34	3	0	3	2	2	4
35	3	0	3	4	0	4
36	3	0	3	0	4	4
37	3	0	3	4	0	4
38	3	0	3	2	3	5
39	3	0	3	3	1	4
40	3	0	3	1	3	4
41	3	0	3	3	1	4
42	3	0	3	1	1	2
43	3	0	3	2	2	4
44	3	0	3	3	2	5
45	3	0	3	3	2	5
46	1	0	1	0	0	0
47	3	0	3	2	1	3
48	3	0	3	3	2	5
49	3	0	3	2	3	5
50	3	0	3	3	2	5

Table 243 0 CRUDES 5 LCS-r14 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	5	5						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	3	0	4	0	0	0
xbar	3	0	3	4.9	0.08	4.98	0.92	0.68	1.6
max	3	0	3	5	2	5	3	4	5
sig	0	0	0	0.4165	0.34	0.14142	0.922286	0.8437042	1.370238
sigxb	0	0	0	0.00833	0.007	0.00283	0.018446	0.0168741	0.027405
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.08	0.02		0.68	3.4
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	5	0	5	2	1	3
2	3	0	3	3	2	5	0	0	0
3	3	0	3	5	0	5	2	1	3
4	3	0	3	5	0	5	0	0	0
5	3	0	3	5	0	5	0	0	0
6	3	0	3	3	1	4	0	0	0
7	3	0	3	5	0	5	1	1	2
8	3	0	3	5	0	5	0	0	0
9	3	0	3	5	0	5	3	1	4
10	3	0	3	5	0	5	0	2	2
11	3	0	3	5	0	5	1	1	2
12	3	0	3	5	0	5	1	0	1
13	3	0	3	5	0	5	3	0	3
14	3	0	3	5	0	5	1	0	1
15	3	0	3	4	1	5	0	0	0
16	3	0	3	5	0	5	1	2	3
17	3	0	3	5	0	5	0	1	1
18	3	0	3	5	0	5	1	4	5
19	3	0	3	5	0	5	1	1	2
20	3	0	3	5	0	5	1	0	1
21	3	0	3	5	0	5	0	0	0
22	3	0	3	5	0	5	0	0	0
23	3	0	3	5	0	5	2	1	3
24	3	0	3	5	0	5	1	1	2
25	3	0	3	5	0	5	2	2	4
26	3	0	3	5	0	5	0	0	0
27	3	0	3	5	0	5	1	1	2
28	3	0	3	5	0	5	0	0	0
29	3	0	3	5	0	5	2	1	3
30	3	0	3	5	0	5	0	1	1
31	3	0	3	5	0	5	0	0	0
32	3	0	3	5	0	5	0	0	0
33	3	0	3	5	0	5	1	1	2
34	3	0	3	5	0	5	1	0	1
35	3	0	3	5	0	5	0	2	2
36	3	0	3	5	0	5	2	1	3
37	3	0	3	5	0	5	2	2	4
38	3	0	3	5	0	5	0	1	1
39	3	0	3	5	0	5	3	0	3
40	3	0	3	5	0	5	0	0	0
41	3	0	3	5	0	5	2	0	2
42	3	0	3	5	0	5	1	0	1
43	3	0	3	5	0	5	1	2	3
44	3	0	3	5	0	5	0	0	0
45	3	0	3	5	0	5	0	0	0
46	3	0	3	5	0	5	1	1	2
47	3	0	3	5	0	5	1	0	1
48	3	0	3	5	0	5	2	1	3
49	3	0	3	5	0	5	2	0	2
50	3	0	3	5	0	5	1	1	2

Table 244 0 CRUDES 5 LCS-r15 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.22	0.34	0.56	0	0	0
max	2	2	3	0	0	0
sig	0.54548237	0.658074	1.07209503	0	0	0
sigxb	0.01090965	0.013161	0.0214419	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.34	2.44		0	6
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	1	1	2	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	1	2	3	0	0	0
6	0	0	0	0	0	0
7	0	1	1	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	2	1	3	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	1	1	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	1	2	3	0	0	0
29	0	0	0	0	0	0
30	2	1	3	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	2	2	0	0	0
34	0	0	0	0	0	0
35	2	1	3	0	0	0
36	0	0	0	0	0	0
37	1	2	3	0	0	0
38	0	0	0	0	0	0
39	1	1	2	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	2	2	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 245 0 CRUDES 6 LCS-r0 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	0	0	0	0
xbar	3	0	3	4.14	0.84	4.98	0.5	0.52	1.02
max	3	0	3	6	6	6	3	3	6
sig	0	0	0	2.09966	1.235	1.65973	0.886405	0.886175	1.558256
sigxb	0	0	0	0.04199	0.025	0.03319	0.017728	0.0177235	0.031165
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.84	1.02		0.52	4.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	2	2	4
2	3	0	3	3	3	6	0	0	0
3	3	0	3	6	0	6	0	2	2
4	3	0	3	6	0	6	3	3	6
5	3	0	3	0	1	1	0	0	0
6	3	0	3	4	1	5	0	0	0
7	3	0	3	6	0	6	0	0	0
8	3	0	3	2	2	4	0	0	0
9	3	0	3	5	1	6	1	0	1
10	3	0	3	5	1	6	0	0	0
11	3	0	3	6	0	6	0	1	1
12	3	0	3	5	1	6	0	0	0
13	3	0	3	4	1	5	0	1	1
14	3	0	3	0	6	6	0	0	0
15	3	0	3	6	0	6	1	2	3
16	3	0	3	3	2	5	0	0	0
17	3	0	3	1	2	3	0	0	0
18	3	0	3	6	0	6	0	1	1
19	3	0	3	5	1	6	0	0	0
20	3	0	3	2	1	3	0	0	0
21	3	0	3	6	0	6	3	2	5
22	3	0	3	5	0	5	0	0	0
23	3	0	3	4	1	5	0	0	0
24	3	0	3	6	0	6	2	0	2
25	3	0	3	6	0	6	1	0	1
26	3	0	3	6	0	6	0	0	0
27	3	0	3	2	2	4	0	0	0
28	3	0	3	6	0	6	0	0	0
29	3	0	3	4	2	6	0	0	0
30	3	0	3	3	0	3	0	0	0
31	3	0	3	6	0	6	0	1	1
32	3	0	3	6	0	6	1	1	2
33	3	0	3	1	1	2	0	0	0
34	3	0	3	6	0	6	0	0	0
35	3	0	3	2	4	6	0	0	0
36	3	0	3	6	0	6	2	2	4
37	3	0	3	0	0	0	0	0	0
38	3	0	3	4	2	6	0	0	0
39	3	0	3	3	2	5	0	0	0
40	3	0	3	2	0	2	0	0	0
41	3	0	3	6	0	6	1	2	3
42	3	0	3	6	0	6	2	0	2
43	3	0	3	0	0	0	0	0	0
44	3	0	3	6	0	6	0	3	3
45	3	0	3	6	0	6	2	2	4
46	3	0	3	6	0	6	2	0	2
47	3	0	3	3	1	4	0	0	0
48	3	0	3	3	1	4	0	0	0
49	3	0	3	6	0	6	2	1	3
50	3	0	3	0	3	3	0	0	0

Table 246 0 CRUDES 6 LCS-r1 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.72	0.2	2.92	0.64	1.84	2.48
max	3	3	3	4	5	6
sig	0.72955116	0.571429	0.44446712	0.94242	1.448	1.87617
sigxb	0.01459102	0.011429	0.00888934	0.01885	0.029	0.03752
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.2	0.08		1.84	3.52
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	3	3
2	3	0	3	1	3	4
3	3	0	3	0	2	2
4	3	0	3	2	2	4
5	1	2	3	0	1	1
6	3	0	3	0	3	3
7	3	0	3	1	3	4
8	3	0	3	1	2	3
9	3	0	3	1	2	3
10	3	0	3	1	2	3
11	1	1	2	0	0	0
12	3	0	3	2	2	4
13	3	0	3	0	0	0
14	3	0	3	2	1	3
15	0	3	3	0	1	1
16	3	0	3	0	0	0
17	3	0	3	2	3	5
18	3	0	3	0	1	1
19	3	0	3	0	0	0
20	2	1	3	0	0	0
21	3	0	3	0	1	1
22	3	0	3	0	0	0
23	3	0	3	0	3	3
24	3	0	3	0	4	4
25	3	0	3	2	2	4
26	0	0	0	0	0	0
27	3	0	3	2	4	6
28	3	0	3	4	1	5
29	3	0	3	1	2	3
30	3	0	3	0	0	0
31	3	0	3	0	1	1
32	3	0	3	0	3	3
33	3	0	3	3	2	5
34	3	0	3	0	2	2
35	3	0	3	0	2	2
36	3	0	3	0	3	3
37	3	0	3	1	2	3
38	3	0	3	0	5	5
39	3	0	3	2	3	5
40	2	1	3	0	0	0
41	3	0	3	0	0	0
42	3	0	3	1	1	2
43	3	0	3	1	5	6
44	3	0	3	0	5	5
45	2	1	3	0	0	0
46	3	0	3	0	2	2
47	2	1	3	0	0	0
48	3	0	3	1	2	3
49	3	0	3	0	2	2
50	3	0	3	1	4	5

Table 247 0 CRUDES 6 LCS-r2 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	5	0	0	0
xbar	3	0	3	5.6	0.36	5.96	0.76	0.46	1.22
max	3	0	3	6	3	6	5	3	6
sig	0	0	0	0.9689	0.827	0.19795	1.286666	0.7615773	1.753015
sigxb	0	0	0	0.01938	0.017	0.00396	0.025733	0.0152315	0.03506
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.36	0.04		0.46	4.78
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	2	2	4
2	3	0	3	6	0	6	0	0	0
3	3	0	3	5	1	6	0	0	0
4	3	0	3	6	0	6	5	1	6
5	3	0	3	6	0	6	0	0	0
6	3	0	3	6	0	6	4	0	4
7	3	0	3	6	0	6	2	1	3
8	3	0	3	4	2	6	0	0	0
9	3	0	3	6	0	6	0	1	1
10	3	0	3	6	0	6	0	0	0
11	3	0	3	6	0	6	0	0	0
12	3	0	3	6	0	6	0	0	0
13	3	0	3	6	0	6	0	0	0
14	3	0	3	6	0	6	3	1	4
15	3	0	3	5	1	6	0	0	0
16	3	0	3	2	3	5	0	0	0
17	3	0	3	6	0	6	1	0	1
18	3	0	3	6	0	6	0	0	0
19	3	0	3	6	0	6	0	0	0
20	3	0	3	6	0	6	0	0	0
21	3	0	3	6	0	6	0	0	0
22	3	0	3	6	0	6	3	2	5
23	3	0	3	6	0	6	0	0	0
24	3	0	3	6	0	6	4	1	5
25	3	0	3	6	0	6	1	0	1
26	3	0	3	6	0	6	2	1	3
27	3	0	3	5	1	6	0	0	0
28	3	0	3	6	0	6	2	1	3
29	3	0	3	6	0	6	0	0	0
30	3	0	3	6	0	6	0	0	0
31	3	0	3	6	0	6	0	0	0
32	3	0	3	6	0	6	0	0	0
33	3	0	3	6	0	6	0	2	2
34	3	0	3	4	2	6	0	0	0
35	3	0	3	6	0	6	2	0	2
36	3	0	3	6	0	6	0	0	0
37	3	0	3	6	0	6	1	2	3
38	3	0	3	6	0	6	0	0	0
39	3	0	3	6	0	6	3	1	4
40	3	0	3	5	1	6	0	0	0
41	3	0	3	6	0	6	1	3	4
42	3	0	3	6	0	6	0	0	0
43	3	0	3	3	3	6	0	0	0
44	3	0	3	6	0	6	1	0	1
45	3	0	3	5	1	6	0	0	0
46	3	0	3	6	0	6	0	1	1
47	3	0	3	6	0	6	0	0	0
48	3	0	3	6	0	6	1	2	3
49	3	0	3	2	3	5	0	0	0
50	3	0	3	6	0	6	0	1	1

Table 248 0 CRUDES 6 LCS-r3 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	1.44	0.5	1.94	0.14	0.1	0.24
max	3	2	3	2	1	3
sig	1.28030609	0.707107	1.37633053	0.40457	0.303	0.65652
sigxb	0.02560612	0.014142	0.02752661	0.00809	0.006	0.01313
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.5	1.06		0.1	5.76
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	3	0	3	0	0	0
3	2	1	3	0	0	0
4	2	1	3	0	0	0
5	0	0	0	0	0	0
6	1	2	3	0	0	0
7	0	1	1	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	2	1	3	0	0	0
11	0	0	0	0	0	0
12	3	0	3	0	0	0
13	3	0	3	0	0	0
14	3	0	3	0	1	1
15	1	2	3	0	0	0
16	2	1	3	0	0	0
17	3	0	3	0	0	0
18	3	0	3	0	0	0
19	1	2	3	0	0	0
20	0	0	0	0	0	0
21	1	1	2	0	0	0
22	0	0	0	0	0	0
23	3	0	3	1	1	2
24	2	1	3	0	0	0
25	0	0	0	0	0	0
26	3	0	3	0	0	0
27	2	1	3	0	0	0
28	3	0	3	2	1	3
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	3	0	3	0	0	0
32	0	0	0	0	0	0
33	0	1	1	0	0	0
34	3	0	3	1	0	1
35	1	2	3	0	0	0
36	3	0	3	1	1	2
37	3	0	3	1	1	2
38	1	2	3	0	0	0
39	0	0	0	0	0	0
40	2	1	3	0	0	0
41	3	0	3	0	0	0
42	1	2	3	0	0	0
43	0	0	0	0	0	0
44	3	0	3	1	0	1
45	0	0	0	0	0	0
46	2	1	3	0	0	0
47	0	1	1	0	0	0
48	3	0	3	0	0	0
49	0	0	0	0	0	0
50	1	1	2	0	0	0

Table 249 0 CRUDES 6 LCS-r4 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	1	0	2	0	0	0	0	0	0
xbar	2.96	0.02	2.98	4.9	0.68	5.58	0.48	0.48	0.96
max	3	1	3	6	4	6	4	3	5
sig	0.28284271	0.141421	0.14142136	1.52864	1.019	1.03194	0.952762	0.7351246	1.384462
sigxb	0.00565685	0.002828	0.00282843	0.03057	0.02	0.02064	0.019055	0.0147025	0.027689
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0.02		0.68	0.42		0.48	5.04
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	2	2	4
2	3	0	3	6	0	6	0	0	0
3	3	0	3	3	2	5	0	0	0
4	3	0	3	6	0	6	0	1	1
5	3	0	3	5	1	6	0	0	0
6	3	0	3	6	0	6	0	0	0
7	3	0	3	4	1	5	0	0	0
8	3	0	3	6	0	6	0	1	1
9	3	0	3	4	1	5	0	1	1
10	3	0	3	6	0	6	3	1	4
11	3	0	3	2	2	4	0	0	0
12	3	0	3	6	0	6	4	1	5
13	3	0	3	4	1	5	0	0	0
14	3	0	3	6	0	6	1	3	4
15	3	0	3	5	1	6	0	0	0
16	3	0	3	5	1	6	1	1	2
17	3	0	3	2	3	5	0	0	0
18	3	0	3	2	4	6	0	0	0
19	3	0	3	6	0	6	0	0	0
20	3	0	3	6	0	6	2	0	2
21	3	0	3	6	0	6	2	0	2
22	3	0	3	6	0	6	0	0	0
23	3	0	3	6	0	6	1	1	2
24	3	0	3	2	1	3	0	0	0
25	3	0	3	4	2	6	0	0	0
26	3	0	3	6	0	6	1	1	2
27	3	0	3	6	0	6	1	2	3
28	3	0	3	6	0	6	0	0	0
29	3	0	3	5	1	6	0	0	0
30	3	0	3	6	0	6	0	1	1
31	3	0	3	6	0	6	0	0	0
32	3	0	3	5	1	6	1	1	2
33	3	0	3	6	0	6	0	2	2
34	3	0	3	3	3	6	0	0	0
35	3	0	3	6	0	6	0	0	0
36	3	0	3	2	3	5	0	0	0
37	3	0	3	6	0	6	2	0	2
38	3	0	3	6	0	6	0	0	0
39	3	0	3	5	0	5	0	0	0
40	1	1	2	0	0	0	0	0	0
41	3	0	3	4	2	6	0	0	0
42	3	0	3	6	0	6	0	1	1
43	3	0	3	3	1	4	0	0	0
44	3	0	3	4	2	6	0	2	2
45	3	0	3	5	1	6	0	0	0
46	3	0	3	5	0	5	0	1	1
47	3	0	3	6	0	6	0	0	0
48	3	0	3	6	0	6	3	1	4
49	3	0	3	6	0	6	0	0	0
50	3	0	3	6	0	6	0	0	0

Table 250 0 CRUDES 6 LCS-r5 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	0
xbar	3	0	3	3.58	1.78	5.36
max	3	0	3	5	4	6
sig	0	0	0	1.24687	1.13	1.04511
sigxb	0	0	0	0.02494	0.023	0.0209
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0		1.78	0.64
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	3	1	4
2	3	0	3	3	3	6
3	3	0	3	2	2	4
4	3	0	3	3	1	4
5	3	0	3	3	3	6
6	3	0	3	4	2	6
7	3	0	3	5	1	6
8	3	0	3	0	0	0
9	3	0	3	5	1	6
10	3	0	3	3	2	5
11	3	0	3	4	2	6
12	3	0	3	3	2	5
13	3	0	3	3	3	6
14	3	0	3	5	1	6
15	3	0	3	5	1	6
16	3	0	3	2	3	5
17	3	0	3	2	4	6
18	3	0	3	5	1	6
19	3	0	3	2	4	6
20	3	0	3	5	1	6
21	3	0	3	4	2	6
22	3	0	3	2	4	6
23	3	0	3	3	1	4
24	3	0	3	4	2	6
25	3	0	3	3	2	5
26	3	0	3	3	3	6
27	3	0	3	3	2	5
28	3	0	3	4	2	6
29	3	0	3	5	1	6
30	3	0	3	3	3	6
31	3	0	3	3	3	6
32	3	0	3	4	2	6
33	3	0	3	5	0	5
34	3	0	3	4	2	6
35	3	0	3	2	3	5
36	3	0	3	5	0	5
37	3	0	3	4	1	5
38	3	0	3	4	2	6
39	3	0	3	5	1	6
40	3	0	3	4	0	4
41	3	0	3	4	2	6
42	3	0	3	5	0	5
43	3	0	3	0	4	4
44	3	0	3	4	2	6
45	3	0	3	5	0	5
46	3	0	3	3	2	5
47	3	0	3	3	2	5
48	3	0	3	5	1	6
49	3	0	3	5	0	5
50	3	0	3	4	2	6

Table 251 0 CRUDES 6 LCS-r6 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	5	0	6	0	0	0
xbar	3	0	3	5.98	0.02	6	0.46	0.3	0.76
max	3	0	3	6	1	6	3	3	4
sig	0	0	0	0.14142	0.141	0	0.908239	0.6468132	1.302431
sigxb	0	0	0	0.00283	0.003	0	0.018165	0.0129363	0.026049
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.02	0		0.3	5.24
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	2	2	4
2	3	0	3	6	0	6	0	0	0
3	3	0	3	6	0	6	0	0	0
4	3	0	3	6	0	6	0	2	2
5	3	0	3	6	0	6	0	0	0
6	3	0	3	6	0	6	0	1	1
7	3	0	3	6	0	6	0	0	0
8	3	0	3	6	0	6	0	0	0
9	3	0	3	5	1	6	0	0	0
10	3	0	3	6	0	6	1	1	2
11	3	0	3	6	0	6	0	0	0
12	3	0	3	6	0	6	0	0	0
13	3	0	3	6	0	6	0	0	0
14	3	0	3	6	0	6	0	0	0
15	3	0	3	6	0	6	0	0	0
16	3	0	3	6	0	6	0	0	0
17	3	0	3	6	0	6	3	1	4
18	3	0	3	6	0	6	0	0	0
19	3	0	3	6	0	6	0	0	0
20	3	0	3	6	0	6	1	0	1
21	3	0	3	6	0	6	0	0	0
22	3	0	3	6	0	6	0	0	0
23	3	0	3	6	0	6	0	1	1
24	3	0	3	6	0	6	0	0	0
25	3	0	3	6	0	6	1	0	1
26	3	0	3	6	0	6	0	0	0
27	3	0	3	6	0	6	0	0	0
28	3	0	3	6	0	6	0	1	1
29	3	0	3	6	0	6	0	0	0
30	3	0	3	6	0	6	0	0	0
31	3	0	3	6	0	6	0	0	0
32	3	0	3	6	0	6	0	0	0
33	3	0	3	6	0	6	2	0	2
34	3	0	3	6	0	6	0	0	0
35	3	0	3	6	0	6	0	0	0
36	3	0	3	6	0	6	0	0	0
37	3	0	3	6	0	6	3	1	4
38	3	0	3	6	0	6	1	3	4
39	3	0	3	6	0	6	1	1	2
40	3	0	3	6	0	6	1	0	1
41	3	0	3	6	0	6	0	0	0
42	3	0	3	6	0	6	0	0	0
43	3	0	3	6	0	6	0	0	0
44	3	0	3	6	0	6	0	0	0
45	3	0	3	6	0	6	3	0	3
46	3	0	3	6	0	6	0	0	0
47	3	0	3	6	0	6	0	0	0
48	3	0	3	6	0	6	1	0	1
49	3	0	3	6	0	6	3	1	4
50	3	0	3	6	0	6	0	0	0

Table 252 0 CRUDES 6 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.36	0.4	0.76	0	0	0
max	3	3	3	0	0	0
sig	0.77617587	0.832993	1.20475249	0	0	0
sigxb	0.01552352	0.01666	0.02409505	0	0	0
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.4	2.24		0	6
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	3	3	0	0	0
9	0	1	1	0	0	0
10	0	0	0	0	0	0
11	1	2	3	0	0	0
12	0	0	0	0	0	0
13	0	2	2	0	0	0
14	1	2	3	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	2	0	2	0	0	0
20	0	0	0	0	0	0
21	3	0	3	0	0	0
22	0	1	1	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	1	2	3	0	0	0
29	0	0	0	0	0	0
30	3	0	3	0	0	0
31	1	1	2	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	3	3	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	1	0	1	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	2	0	2	0	0	0
44	1	2	3	0	0	0
45	0	0	0	0	0	0
46	2	1	3	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 253 0 CRUDES 6 LCS-r8 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	0	0	1	0	0	0
xbar	3	0	3	2.6	1.76	4.36	1.18	0.8	1.98
max	3	0	3	6	5	6	4	3	5
sig	0	0	0	1.56492	1.238	1.42514	1.023998	0.9476071	1.477588
sigxb	0	0	0	0.0313	0.025	0.0285	0.02048	0.0189521	0.029552
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1.76	1.64		0.8	4.02
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	2	5	2	2	4
2	3	0	3	3	1	4	2	0	2
3	3	0	3	2	2	4	0	0	0
4	3	0	3	4	1	5	1	0	1
5	3	0	3	4	1	5	3	2	5
6	3	0	3	3	0	3	2	2	4
7	3	0	3	0	3	3	0	1	1
8	3	0	3	3	3	6	0	0	0
9	3	0	3	2	1	3	3	0	3
10	3	0	3	2	2	4	0	0	0
11	3	0	3	2	0	2	0	0	0
12	3	0	3	2	2	4	0	0	0
13	3	0	3	2	1	3	1	0	1
14	3	0	3	1	2	3	0	0	0
15	3	0	3	5	1	6	2	0	2
16	3	0	3	0	3	3	0	0	0
17	3	0	3	6	0	6	0	3	3
18	3	0	3	5	1	6	1	1	2
19	3	0	3	2	1	3	1	0	1
20	3	0	3	5	1	6	3	1	4
21	3	0	3	5	1	6	0	2	2
22	3	0	3	2	4	6	1	1	2
23	3	0	3	2	0	2	1	2	3
24	3	0	3	1	2	3	0	0	0
25	3	0	3	0	5	5	1	0	1
26	3	0	3	4	2	6	2	1	3
27	3	0	3	2	3	5	1	1	2
28	3	0	3	3	2	5	2	1	3
29	3	0	3	3	0	3	1	1	2
30	3	0	3	2	3	5	1	1	2
31	3	0	3	3	3	6	2	3	5
32	3	0	3	1	3	4	1	0	1
33	3	0	3	6	0	6	2	2	4
34	3	0	3	1	0	1	0	0	0
35	3	0	3	2	3	5	1	1	2
36	3	0	3	3	3	6	1	0	1
37	3	0	3	2	2	4	0	1	1
38	3	0	3	3	3	6	2	3	5
39	3	0	3	1	4	5	1	1	2
40	3	0	3	1	2	3	1	0	1
41	3	0	3	1	4	5	1	1	2
42	3	0	3	2	1	3	2	1	3
43	3	0	3	1	2	3	0	0	0
44	3	0	3	2	1	3	2	0	2
45	3	0	3	2	1	3	0	3	3
46	3	0	3	6	0	6	3	1	4
47	3	0	3	1	1	2	2	0	2
48	3	0	3	4	2	6	1	1	2
49	3	0	3	4	1	5	4	0	4
50	3	0	3	4	2	6	2	0	2

Table 254 0 CRUDES 6 LCS-r9 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	2	0	0	0
xbar	2.86	0.12	2.98	0.74	1.32	2.06
max	3	2	3	4	4	5
sig	0.49528388	0.38545	0.14142136	1.06541	1.332	1.81164
sigxb	0.00990568	0.007709	0.00282843	0.02131	0.027	0.03623
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.12	0.02		1.32	3.94
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	2	2
2	3	0	3	0	0	0
3	2	1	3	0	0	0
4	3	0	3	0	0	0
5	2	1	3	1	2	3
6	3	0	3	0	0	0
7	2	1	3	0	0	0
8	3	0	3	0	1	1
9	3	0	3	1	1	2
10	3	0	3	0	2	2
11	3	0	3	1	4	5
12	3	0	3	0	0	0
13	3	0	3	0	2	2
14	3	0	3	0	0	0
15	3	0	3	1	1	2
16	3	0	3	0	0	0
17	3	0	3	2	3	5
18	3	0	3	0	4	4
19	3	0	3	0	1	1
20	3	0	3	0	0	0
21	3	0	3	1	3	4
22	3	0	3	0	0	0
23	3	0	3	0	0	0
24	3	0	3	0	4	4
25	3	0	3	2	2	4
26	3	0	3	1	1	2
27	3	0	3	2	1	3
28	3	0	3	0	0	0
29	3	0	3	3	1	4
30	3	0	3	0	0	0
31	3	0	3	1	3	4
32	3	0	3	1	2	3
33	3	0	3	1	1	2
34	3	0	3	1	1	2
35	3	0	3	0	1	1
36	3	0	3	0	4	4
37	3	0	3	2	3	5
38	3	0	3	0	1	1
39	3	0	3	3	1	4
40	3	0	3	0	0	0
41	3	0	3	3	1	4
42	3	0	3	3	1	4
43	3	0	3	0	0	0
44	3	0	3	0	4	4
45	3	0	3	2	3	5
46	0	2	2	0	0	0
47	3	0	3	4	0	4
48	3	0	3	0	1	1
49	2	1	3	0	1	1
50	3	0	3	1	3	4

Table 255 0 CRUDES 6 LCS-r10 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	2	0	5	0	0	0
xbar	3	0	3	5.3	0.56	5.86	0.88	0.9	1.78
max	3	0	3	6	3	6	4	3	5
sig	0	0	0	0.90914	0.76	0.35051	1.118308	0.9948849	1.474823
sigxb	0	0	0	0.01818	0.015	0.00701	0.022366	0.0198977	0.029496
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.56	0.14		0.9	4.22
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	5	1	6	1	1	2
2	3	0	3	6	0	6	1	0	1
3	3	0	3	6	0	6	1	0	1
4	3	0	3	6	0	6	2	1	3
5	3	0	3	4	1	5	0	0	0
6	3	0	3	5	0	5	1	0	1
7	3	0	3	4	1	5	0	0	0
8	3	0	3	6	0	6	1	3	4
9	3	0	3	5	1	6	0	3	3
10	3	0	3	5	1	6	4	1	5
11	3	0	3	5	1	6	2	1	3
12	3	0	3	6	0	6	0	3	3
13	3	0	3	6	0	6	0	1	1
14	3	0	3	6	0	6	3	1	4
15	3	0	3	6	0	6	1	2	3
16	3	0	3	6	0	6	4	0	4
17	3	0	3	6	0	6	0	2	2
18	3	0	3	6	0	6	0	2	2
19	3	0	3	6	0	6	3	1	4
20	3	0	3	5	1	6	2	0	2
21	3	0	3	5	1	6	0	0	0
22	3	0	3	5	1	6	1	1	2
23	3	0	3	6	0	6	1	2	3
24	3	0	3	3	2	5	0	0	0
25	3	0	3	5	1	6	1	0	1
26	3	0	3	5	0	5	1	0	1
27	3	0	3	5	1	6	0	1	1
28	3	0	3	6	0	6	0	3	3
29	3	0	3	4	2	6	0	1	1
30	3	0	3	6	0	6	0	0	0
31	3	0	3	5	0	5	0	0	0
32	3	0	3	6	0	6	2	0	2
33	3	0	3	5	1	6	0	1	1
34	3	0	3	6	0	6	1	1	2
35	3	0	3	6	0	6	1	0	1
36	3	0	3	2	3	5	0	0	0
37	3	0	3	6	0	6	0	2	2
38	3	0	3	6	0	6	0	0	0
39	3	0	3	6	0	6	3	1	4
40	3	0	3	6	0	6	1	1	2
41	3	0	3	6	0	6	3	2	5
42	3	0	3	6	0	6	1	3	4
43	3	0	3	5	1	6	0	0	0
44	3	0	3	5	1	6	0	0	0
45	3	0	3	5	1	6	0	2	2
46	3	0	3	3	3	6	0	0	0
47	3	0	3	5	1	6	0	1	1
48	3	0	3	5	1	6	1	0	1
49	3	0	3	5	1	6	0	0	0
50	3	0	3	6	0	6	1	1	2

Table 256 0 CRUDES 6 LCS-r11 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	1.58	0.56	2.14	0.14	0.18	0.32
max	3	3	3	2	2	3
sig	1.35661644	0.860944	1.26184187	0.40457	0.523	0.79385
sigxb	0.02713233	0.017219	0.02523684	0.00809	0.01	0.01588
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.56	0.86		0.18	5.68
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	2	1	3
2	3	0	3	0	0	0
3	0	0	0	0	0	0
4	3	0	3	1	0	1
5	3	0	3	0	0	0
6	0	0	0	0	0	0
7	2	1	3	0	0	0
8	0	0	0	0	0	0
9	3	0	3	0	0	0
10	0	1	1	0	0	0
11	3	0	3	0	2	2
12	3	0	3	0	0	0
13	0	0	0	0	0	0
14	3	0	3	0	0	0
15	0	3	3	0	0	0
16	0	2	2	0	0	0
17	1	2	3	0	0	0
18	2	1	3	0	0	0
19	3	0	3	0	0	0
20	3	0	3	0	2	2
21	0	1	1	0	0	0
22	0	0	0	0	0	0
23	2	1	3	0	0	0
24	3	0	3	1	1	2
25	1	0	1	0	0	0
26	2	1	3	0	0	0
27	0	2	2	0	0	0
28	1	2	3	0	0	0
29	3	0	3	0	0	0
30	3	0	3	0	0	0
31	3	0	3	1	0	1
32	0	0	0	0	0	0
33	0	2	2	0	0	0
34	0	0	0	0	0	0
35	1	2	3	0	0	0
36	1	2	3	0	0	0
37	3	0	3	0	0	0
38	0	0	0	0	0	0
39	1	2	3	0	0	0
40	3	0	3	0	0	0
41	3	0	3	0	0	0
42	2	1	3	0	0	0
43	3	0	3	0	0	0
44	0	0	0	0	0	0
45	3	0	3	0	0	0
46	3	0	3	1	1	2
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	2	2	0	0	0
50	3	0	3	1	2	3

Table 257 0 CRUDES 6 LCS-r12 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	3	0	0	0
xbar	3	0	3	3.68	1.68	5.36	1.36	1.26	2.62
max	3	0	3	6	5	6	5	5	6
sig	0	0	0	1.43484	1.269	0.85141	1.351643	1.174734	1.712976
sigxb	0	0	0	0.0287	0.025	0.01703	0.027033	0.0234947	0.03426
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1.68	0.64		1.26	3.38
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	3	2	5
2	3	0	3	4	1	5	3	0	3
3	3	0	3	5	1	6	0	0	0
4	3	0	3	3	3	6	3	0	3
5	3	0	3	4	1	5	3	0	3
6	3	0	3	6	0	6	0	1	1
7	3	0	3	5	1	6	2	3	5
8	3	0	3	1	5	6	2	1	3
9	3	0	3	4	2	6	1	1	2
10	3	0	3	5	1	6	4	2	6
11	3	0	3	4	1	5	3	0	3
12	3	0	3	2	4	6	0	0	0
13	3	0	3	5	1	6	5	1	6
14	3	0	3	6	0	6	1	1	2
15	3	0	3	3	3	6	0	0	0
16	3	0	3	2	3	5	1	1	2
17	3	0	3	3	1	4	1	4	5
18	3	0	3	5	0	5	0	2	2
19	3	0	3	3	2	5	1	1	2
20	3	0	3	2	3	5	0	0	0
21	3	0	3	5	0	5	1	1	2
22	3	0	3	4	1	5	0	2	2
23	3	0	3	3	3	6	0	2	2
24	3	0	3	4	1	5	2	2	4
25	3	0	3	1	2	3	0	0	0
26	3	0	3	1	2	3	0	1	1
27	3	0	3	3	2	5	1	2	3
28	3	0	3	3	3	6	0	0	0
29	3	0	3	5	0	5	2	1	3
30	3	0	3	2	3	5	1	1	2
31	3	0	3	2	4	6	4	0	4
32	3	0	3	5	1	6	4	1	5
33	3	0	3	5	1	6	0	1	1
34	3	0	3	3	2	5	2	0	2
35	3	0	3	6	0	6	1	3	4
36	3	0	3	3	0	3	1	2	3
37	3	0	3	5	1	6	0	2	2
38	3	0	3	4	2	6	0	1	1
39	3	0	3	2	4	6	0	1	1
40	3	0	3	4	1	5	2	1	3
41	3	0	3	5	1	6	0	5	5
42	3	0	3	3	1	4	2	3	5
43	3	0	3	2	4	6	0	0	0
44	3	0	3	5	1	6	1	1	2
45	3	0	3	4	2	6	1	4	5
46	3	0	3	3	2	5	1	0	1
47	3	0	3	5	1	6	3	1	4
48	3	0	3	5	1	6	3	1	4
49	3	0	3	3	2	5	1	2	3
50	3	0	3	1	3	4	2	2	4

Table 258 0 CRUDES 6 LCS-r13 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	6				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	3	0	3	1	0	3
xbar	3	0	3	3.58	1.78	5.36
max	3	0	3	6	4	6
sig	0	0	0	1.45812	1.166	0.80204
sigxb	0	0	0	0.02916	0.023	0.01604
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0		1.78	0.64
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	3	3	6
2	3	0	3	5	1	6
3	3	0	3	4	2	6
4	3	0	3	4	0	4
5	3	0	3	2	2	4
6	3	0	3	5	1	6
7	3	0	3	1	2	3
8	3	0	3	1	3	4
9	3	0	3	3	2	5
10	3	0	3	6	0	6
11	3	0	3	5	0	5
12	3	0	3	5	1	6
13	3	0	3	2	3	5
14	3	0	3	6	0	6
15	3	0	3	2	2	4
16	3	0	3	5	1	6
17	3	0	3	6	0	6
18	3	0	3	4	2	6
19	3	0	3	4	2	6
20	3	0	3	1	4	5
21	3	0	3	3	2	5
22	3	0	3	5	1	6
23	3	0	3	1	3	4
24	3	0	3	4	2	6
25	3	0	3	5	1	6
26	3	0	3	1	4	5
27	3	0	3	5	1	6
28	3	0	3	4	2	6
29	3	0	3	2	3	5
30	3	0	3	2	3	5
31	3	0	3	4	1	5
32	3	0	3	3	1	4
33	3	0	3	5	0	5
34	3	0	3	5	1	6
35	3	0	3	4	2	6
36	3	0	3	3	3	6
37	3	0	3	3	3	6
38	3	0	3	3	1	4
39	3	0	3	3	3	6
40	3	0	3	5	1	6
41	3	0	3	3	3	6
42	3	0	3	2	4	6
43	3	0	3	2	3	5
44	3	0	3	5	0	5
45	3	0	3	3	2	5
46	3	0	3	5	1	6
47	3	0	3	4	2	6
48	3	0	3	2	3	5
49	3	0	3	4	2	6
50	3	0	3	5	0	5

Table 259 0 CRUDES 6 LCS-r14 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	6	6						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	5	0	6	0	0	0
xbar	3	0	3	5.86	0.14	6	1.8	1.12	2.92
max	3	0	3	6	1	6	5	4	6
sig	0	0	0	0.35051	0.351	0	1.2454	1.0811936	1.468583
sigxb	0	0	0	0.00701	0.007	0	0.024908	0.0216239	0.029372
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.14	0		1.12	3.08
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	0	6	3	2	5
2	3	0	3	6	0	6	2	1	3
3	3	0	3	6	0	6	4	0	4
4	3	0	3	6	0	6	1	1	2
5	3	0	3	6	0	6	4	0	4
6	3	0	3	6	0	6	1	2	3
7	3	0	3	5	1	6	2	1	3
8	3	0	3	6	0	6	2	3	5
9	3	0	3	5	1	6	2	4	6
10	3	0	3	6	0	6	1	1	2
11	3	0	3	6	0	6	1	1	2
12	3	0	3	6	0	6	2	3	5
13	3	0	3	6	0	6	4	0	4
14	3	0	3	5	1	6	0	1	1
15	3	0	3	5	1	6	1	0	1
16	3	0	3	6	0	6	3	0	3
17	3	0	3	5	1	6	0	1	1
18	3	0	3	6	0	6	2	2	4
19	3	0	3	6	0	6	2	1	3
20	3	0	3	6	0	6	2	2	4
21	3	0	3	5	1	6	2	0	2
22	3	0	3	6	0	6	1	1	2
23	3	0	3	6	0	6	2	1	3
24	3	0	3	6	0	6	2	0	2
25	3	0	3	6	0	6	1	2	3
26	3	0	3	6	0	6	2	1	3
27	3	0	3	6	0	6	0	3	3
28	3	0	3	6	0	6	5	0	5
29	3	0	3	6	0	6	0	1	1
30	3	0	3	6	0	6	3	0	3
31	3	0	3	6	0	6	3	3	6
32	3	0	3	6	0	6	3	3	6
33	3	0	3	6	0	6	1	2	3
34	3	0	3	6	0	6	3	0	3
35	3	0	3	6	0	6	0	1	1
36	3	0	3	6	0	6	1	1	2
37	3	0	3	6	0	6	1	3	4
38	3	0	3	6	0	6	1	2	3
39	3	0	3	6	0	6	2	1	3
40	3	0	3	6	0	6	1	1	2
41	3	0	3	6	0	6	4	0	4
42	3	0	3	6	0	6	2	1	3
43	3	0	3	6	0	6	3	0	3
44	3	0	3	5	1	6	1	0	1
45	3	0	3	6	0	6	3	0	3
46	3	0	3	6	0	6	0	1	1
47	3	0	3	6	0	6	2	2	4
48	3	0	3	6	0	6	2	0	2
49	3	0	3	6	0	6	0	0	0
50	3	0	3	6	0	6	0	0	0

Table 260 0 CRUDES 6 LCS-r15 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.52	0.64	1.16	0	0.02	0.02
max	3	3	3	0	1	1
sig	0.83885247	0.89807	1.28349014	0	0.141	0.14142
sigxb	0.01677705	0.017961	0.0256698	0	0.003	0.00283
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.64	1.84		0.02	6.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0
2	0	0	0	0	0	0
3	3	0	3	0	1	1
4	0	0	0	0	0	0
5	0	2	2	0	0	0
6	0	0	0	0	0	0
7	0	1	1	0	0	0
8	0	0	0	0	0	0
9	0	2	2	0	0	0
10	2	1	3	0	0	0
11	0	3	3	0	0	0
12	0	2	2	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	2	1	3	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	1	1	2	0	0	0
21	0	0	0	0	0	0
22	0	2	2	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	1	1	2	0	0	0
26	1	1	2	0	0	0
27	0	0	0	0	0	0
28	1	2	3	0	0	0
29	0	0	0	0	0	0
30	1	1	2	0	0	0
31	0	0	0	0	0	0
32	1	1	2	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	3	3	0	0	0
36	0	0	0	0	0	0
37	1	1	2	0	0	0
38	2	0	2	0	0	0
39	2	1	3	0	0	0
40	0	0	0	0	0	0
41	1	2	3	0	0	0
42	0	0	0	0	0	0
43	1	2	3	0	0	0
44	0	0	0	0	0	0
45	2	0	2	0	0	0
46	0	0	0	0	0	0
47	1	2	3	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0

Table 261 0 CRUDES 7 LCS-r0 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	0	0	2	0	0	0	0	0	0
xbar	2.94	0.04	2.98	5.38	1.02	6.4	1.1	0.68	1.78
max	3	2	3	7	4	7	5	3	7
sig	0.42426407	0.282843	0.14142136	2.13704	1.348	1.35526	1.432138	0.890769	2.073054
sigxb	0.00848528	0.005657	0.00282843	0.04274	0.027	0.02711	0.028643	0.0178154	0.041461
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.04	0.02		1.02	0.6		0.68	5.22
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	4	2	6	0	0	0
2	3	0	3	3	2	5	0	0	0
3	3	0	3	7	0	7	0	0	0
4	3	0	3	7	0	7	5	2	7
5	3	0	3	7	0	7	0	1	1
6	3	0	3	7	0	7	2	0	2
7	3	0	3	1	2	3	0	0	0
8	3	0	3	6	1	7	0	0	0
9	3	0	3	5	1	6	0	0	0
10	3	0	3	7	0	7	4	1	5
11	3	0	3	7	0	7	1	2	3
12	3	0	3	7	0	7	1	2	3
13	3	0	3	4	3	7	0	0	0
14	3	0	3	7	0	7	2	1	3
15	3	0	3	3	3	6	0	0	0
16	3	0	3	3	4	7	0	0	0
17	3	0	3	6	1	7	0	1	1
18	3	0	3	6	1	7	2	2	4
19	3	0	3	1	4	5	0	0	0
20	3	0	3	6	1	7	1	0	1
21	3	0	3	7	0	7	4	0	4
22	3	0	3	7	0	7	0	2	2
23	3	0	3	3	3	6	0	0	0
24	3	0	3	7	0	7	3	2	5
25	3	0	3	7	0	7	2	1	3
26	3	0	3	7	0	7	2	2	4
27	3	0	3	7	0	7	0	0	0
28	0	2	2	0	0	0	0	0	0
29	3	0	3	7	0	7	2	0	2
30	3	0	3	6	0	6	0	0	0
31	3	0	3	4	3	7	1	1	2
32	3	0	3	7	0	7	0	0	0
33	3	0	3	3	4	7	0	1	1
34	3	0	3	4	3	7	0	0	0
35	3	0	3	7	0	7	3	3	6
36	3	0	3	5	2	7	0	0	0
37	3	0	3	7	0	7	3	2	5
38	3	0	3	2	3	5	0	0	0
39	3	0	3	7	0	7	4	1	5
40	3	0	3	7	0	7	1	0	1
41	3	0	3	5	1	6	0	0	0
42	3	0	3	5	2	7	1	1	2
43	3	0	3	1	2	3	0	0	0
44	3	0	3	7	0	7	3	2	5
45	3	0	3	7	0	7	0	0	0
46	3	0	3	1	3	4	0	0	0
47	3	0	3	7	0	7	2	2	4
48	3	0	3	7	0	7	3	0	3
49	3	0	3	7	0	7	3	2	5
50	3	0	3	7	0	7	0	0	0

Table 262 0 CRUDES 7 LCS-r1 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	2	0	3	0	0	0
xbar	2.92	0.08	3	1.42	2.18	3.6
max	3	1	3	5	6	7
sig	0.27404752	0.274048	0	1.44406	1.438	1.93781
sigxb	0.00548095	0.005481	0	0.02888	0.029	0.03876
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.08	0		2.18	3.4
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	3	3	6
2	3	0	3	1	3	4
3	3	0	3	0	1	1
4	3	0	3	0	3	3
5	3	0	3	0	2	2
6	3	0	3	2	2	4
7	3	0	3	1	1	2
8	3	0	3	0	4	4
9	3	0	3	2	4	6
10	3	0	3	3	1	4
11	3	0	3	0	2	2
12	3	0	3	4	2	6
13	3	0	3	0	5	5
14	3	0	3	0	4	4
15	3	0	3	0	3	3
16	3	0	3	5	2	7
17	2	1	3	0	0	0
18	3	0	3	0	3	3
19	3	0	3	1	2	3
20	3	0	3	2	3	5
21	2	1	3	0	0	0
22	3	0	3	2	3	5
23	3	0	3	1	3	4
24	3	0	3	3	1	4
25	3	0	3	2	1	3
26	3	0	3	0	6	6
27	3	0	3	0	0	0
28	2	1	3	0	0	0
29	3	0	3	0	0	0
30	3	0	3	2	1	3
31	3	0	3	0	1	1
32	2	1	3	0	0	0
33	3	0	3	4	1	5
34	3	0	3	3	3	6
35	3	0	3	1	3	4
36	3	0	3	3	3	6
37	3	0	3	2	1	3
38	3	0	3	1	2	3
39	3	0	3	0	2	2
40	3	0	3	3	2	5
41	3	0	3	3	1	4
42	3	0	3	0	4	4
43	3	0	3	2	4	6
44	3	0	3	0	3	3
45	3	0	3	1	3	4
46	3	0	3	3	3	6
47	3	0	3	3	0	3
48	3	0	3	4	1	5
49	3	0	3	1	4	5
50	3	0	3	3	3	6

Table 263 0 CRUDES 7 LCS-r2 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	5	0	7	0	0	0
xbar	3	0	3	6.84	0.16	7	1.14	0.66	1.8
max	3	0	3	7	2	7	5	3	6
sig	0	0	0	0.42185	0.422	0	1.511993	0.8478063	2.010178
sigxb	0	0	0	0.00844	0.008	0	0.03024	0.0169561	0.040204
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.16	0		0.66	5.2
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	7	0	7	0	0	0
2	3	0	3	6	1	7	0	0	0
3	3	0	3	7	0	7	4	2	6
4	3	0	3	7	0	7	0	0	0
5	3	0	3	7	0	7	1	0	1
6	3	0	3	7	0	7	0	0	0
7	3	0	3	7	0	7	0	0	0
8	3	0	3	7	0	7	5	0	5
9	3	0	3	7	0	7	0	0	0
10	3	0	3	6	1	7	0	0	0
11	3	0	3	7	0	7	0	1	1
12	3	0	3	7	0	7	2	1	3
13	3	0	3	7	0	7	0	1	1
14	3	0	3	7	0	7	1	0	1
15	3	0	3	6	1	7	0	0	0
16	3	0	3	7	0	7	3	0	3
17	3	0	3	7	0	7	0	0	0
18	3	0	3	6	1	7	1	2	3
19	3	0	3	7	0	7	0	0	0
20	3	0	3	7	0	7	1	2	3
21	3	0	3	7	0	7	1	0	1
22	3	0	3	7	0	7	0	0	0
23	3	0	3	7	0	7	4	1	5
24	3	0	3	7	0	7	0	0	0
25	3	0	3	7	0	7	2	1	3
26	3	0	3	7	0	7	0	0	0
27	3	0	3	7	0	7	1	2	3
28	3	0	3	7	0	7	1	0	1
29	3	0	3	7	0	7	0	0	0
30	3	0	3	7	0	7	0	1	1
31	3	0	3	7	0	7	2	1	3
32	3	0	3	7	0	7	4	2	6
33	3	0	3	7	0	7	0	0	0
34	3	0	3	6	1	7	0	0	0
35	3	0	3	7	0	7	4	0	4
36	3	0	3	7	0	7	2	1	3
37	3	0	3	7	0	7	4	1	5
38	3	0	3	7	0	7	1	2	3
39	3	0	3	7	0	7	2	3	5
40	3	0	3	7	0	7	3	2	5
41	3	0	3	7	0	7	0	0	0
42	3	0	3	7	0	7	0	0	0
43	3	0	3	6	1	7	0	1	1
44	3	0	3	7	0	7	4	1	5
45	3	0	3	7	0	7	1	1	2
46	3	0	3	7	0	7	0	2	2
47	3	0	3	7	0	7	3	2	5
48	3	0	3	7	0	7	0	0	0
49	3	0	3	5	2	7	0	0	0
50	3	0	3	7	0	7	0	0	0

Table 264 0 CRUDES 7 LCS-r3 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	1.56	0.56	2.12	0.36	0.48	0.84
max	3	3	3	3	4	5
sig	1.3272651	0.860944	1.2394864	0.77618	0.995	1.4619
sigxb	0.0265453	0.017219	0.02478973	0.01552	0.02	0.02924
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.56	0.88		0.48	6.16
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	2	1	3	0	0	0
2	2	1	3	0	0	0
3	0	3	3	0	0	0
4	2	1	3	0	0	0
5	3	0	3	1	4	5
6	0	0	0	0	0	0
7	3	0	3	0	0	0
8	3	0	3	1	3	4
9	0	1	1	0	0	0
10	3	0	3	1	2	3
11	1	1	2	0	0	0
12	0	2	2	0	0	0
13	0	0	0	0	0	0
14	3	0	3	3	1	4
15	3	0	3	2	1	3
16	3	0	3	0	0	0
17	2	1	3	0	0	0
18	1	1	2	0	0	0
19	0	2	2	0	0	0
20	0	0	0	0	0	0
21	3	0	3	2	2	4
22	3	0	3	0	0	0
23	0	0	0	0	0	0
24	3	0	3	0	3	3
25	0	0	0	0	0	0
26	3	0	3	1	1	2
27	0	0	0	0	0	0
28	3	0	3	2	0	2
29	0	3	3	0	0	0
30	0	0	0	0	0	0
31	3	0	3	0	3	3
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	3	0	3	0	1	1
35	1	1	2	0	0	0
36	1	2	3	0	0	0
37	1	2	3	0	0	0
38	3	0	3	3	1	4
39	3	0	3	0	0	0
40	0	0	0	0	0	0
41	2	0	2	0	0	0
42	1	2	3	0	0	0
43	3	0	3	1	0	1
44	3	0	3	1	0	1
45	1	1	2	0	0	0
46	0	0	0	0	0	0
47	3	0	3	0	2	2
48	1	2	3	0	0	0
49	0	1	1	0	0	0
50	3	0	3	0	0	0

Table 265 0 CRUDES 7 LCS-r4 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	3	0	5	0	0	0
xbar	3	0	3	6.44	0.42	6.86	1.16	1	2.16
max	3	0	3	7	3	7	5	4	7
sig	0	0	0	1.10951	0.835	0.40457	1.475791	1.1248583	2.122378
sigxb	0	0	0	0.02219	0.017	0.00809	0.029516	0.0224972	0.042448
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.42	0.14		1	4.84
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	4	2	6	0	0	0
2	3	0	3	7	0	7	3	2	5
3	3	0	3	7	0	7	1	2	3
4	3	0	3	7	0	7	1	0	1
5	3	0	3	3	3	6	0	0	0
6	3	0	3	7	0	7	0	0	0
7	3	0	3	7	0	7	0	0	0
8	3	0	3	7	0	7	3	0	3
9	3	0	3	7	0	7	0	2	2
10	3	0	3	7	0	7	0	0	0
11	3	0	3	7	0	7	1	1	2
12	3	0	3	7	0	7	5	2	7
13	3	0	3	7	0	7	2	3	5
14	3	0	3	7	0	7	0	0	0
15	3	0	3	6	1	7	0	1	1
16	3	0	3	7	0	7	1	0	1
17	3	0	3	4	3	7	0	0	0
18	3	0	3	7	0	7	4	1	5
19	3	0	3	7	0	7	2	1	3
20	3	0	3	7	0	7	2	1	3
21	3	0	3	7	0	7	4	2	6
22	3	0	3	7	0	7	1	1	2
23	3	0	3	7	0	7	2	3	5
24	3	0	3	6	1	7	0	0	0
25	3	0	3	5	1	6	0	0	0
26	3	0	3	5	1	6	0	0	0
27	3	0	3	7	0	7	4	2	6
28	3	0	3	5	1	6	0	0	0
29	3	0	3	7	0	7	0	0	0
30	3	0	3	7	0	7	2	2	4
31	3	0	3	6	1	7	0	0	0
32	3	0	3	7	0	7	2	2	4
33	3	0	3	6	1	7	0	1	1
34	3	0	3	7	0	7	0	1	1
35	3	0	3	7	0	7	0	0	0
36	3	0	3	7	0	7	2	1	3
37	3	0	3	7	0	7	2	1	3
38	3	0	3	7	0	7	0	4	4
39	3	0	3	7	0	7	3	0	3
40	3	0	3	7	0	7	0	0	0
41	3	0	3	7	0	7	0	1	1
42	3	0	3	7	0	7	1	0	1
43	3	0	3	3	2	5	0	0	0
44	3	0	3	7	0	7	5	1	6
45	3	0	3	7	0	7	0	2	2
46	3	0	3	6	1	7	1	1	2
47	3	0	3	7	0	7	1	4	5
48	3	0	3	7	0	7	0	3	3
49	3	0	3	7	0	7	3	2	5
50	3	0	3	4	3	7	0	0	0

Table 266 0 CRUDES 7 LCS-r5 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	3	0	3	0	0	4
xbar	3	0	3	4.66	1.82	6.48
max	3	0	3	7	5	7
sig	0	0	0	1.17125	0.962	0.70682
sigxb	0	0	0	0.02343	0.019	0.01414
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0		1.82	0.52
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	4	2	6
2	3	0	3	5	1	6
3	3	0	3	3	2	5
4	3	0	3	5	2	7
5	3	0	3	5	2	7
6	3	0	3	6	1	7
7	3	0	3	5	2	7
8	3	0	3	4	3	7
9	3	0	3	3	4	7
10	3	0	3	5	1	6
11	3	0	3	6	1	7
12	3	0	3	5	2	7
13	3	0	3	5	1	6
14	3	0	3	5	1	6
15	3	0	3	5	1	6
16	3	0	3	4	3	7
17	3	0	3	4	2	6
18	3	0	3	4	2	6
19	3	0	3	6	1	7
20	3	0	3	6	1	7
21	3	0	3	6	1	7
22	3	0	3	4	3	7
23	3	0	3	6	1	7
24	3	0	3	5	2	7
25	3	0	3	6	0	6
26	3	0	3	6	1	7
27	3	0	3	5	2	7
28	3	0	3	2	2	4
29	3	0	3	4	3	7
30	3	0	3	4	3	7
31	3	0	3	6	1	7
32	3	0	3	4	2	6
33	3	0	3	6	1	7
34	3	0	3	4	1	5
35	3	0	3	5	2	7
36	3	0	3	4	3	7
37	3	0	3	5	2	7
38	3	0	3	4	2	6
39	3	0	3	5	1	6
40	3	0	3	5	1	6
41	3	0	3	4	2	6
42	3	0	3	4	3	7
43	3	0	3	5	1	6
44	3	0	3	7	0	7
45	3	0	3	4	2	6
46	3	0	3	0	5	5
47	3	0	3	4	3	7
48	3	0	3	5	2	7
49	3	0	3	4	2	6
50	3	0	3	5	2	7

Table 267 0 CRUDES 7 LCS-r6 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	4	0	7	0	0	0
xbar	3	0	3	6.92	0.08	7	1.04	0.9	1.94
max	3	0	3	7	3	7	5	3	6
sig	0	0	0	0.44447	0.444	0	1.277114	0.9091373	1.777524
sigxb	0	0	0	0.00889	0.009	0	0.025542	0.0181827	0.03555
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.08	0		0.9	5.06
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	6	1	7	0	0	0
2	3	0	3	7	0	7	0	1	1
3	3	0	3	7	0	7	1	1	2
4	3	0	3	7	0	7	0	0	0
5	3	0	3	4	3	7	0	0	0
6	3	0	3	7	0	7	1	1	2
7	3	0	3	7	0	7	0	3	3
8	3	0	3	7	0	7	2	1	3
9	3	0	3	7	0	7	0	0	0
10	3	0	3	7	0	7	4	1	5
11	3	0	3	7	0	7	3	2	5
12	3	0	3	7	0	7	2	1	3
13	3	0	3	7	0	7	1	1	2
14	3	0	3	7	0	7	0	0	0
15	3	0	3	7	0	7	0	2	2
16	3	0	3	7	0	7	0	0	0
17	3	0	3	7	0	7	0	0	0
18	3	0	3	7	0	7	2	2	4
19	3	0	3	7	0	7	0	0	0
20	3	0	3	7	0	7	3	0	3
21	3	0	3	7	0	7	4	1	5
22	3	0	3	7	0	7	1	2	3
23	3	0	3	7	0	7	0	0	0
24	3	0	3	7	0	7	0	2	2
25	3	0	3	7	0	7	2	2	4
26	3	0	3	7	0	7	0	1	1
27	3	0	3	7	0	7	1	1	2
28	3	0	3	7	0	7	1	2	3
29	3	0	3	7	0	7	1	1	2
30	3	0	3	7	0	7	0	0	0
31	3	0	3	7	0	7	0	1	1
32	3	0	3	7	0	7	0	0	0
33	3	0	3	7	0	7	0	1	1
34	3	0	3	7	0	7	1	1	2
35	3	0	3	7	0	7	2	0	2
36	3	0	3	7	0	7	5	1	6
37	3	0	3	7	0	7	1	3	4
38	3	0	3	7	0	7	1	1	2
39	3	0	3	7	0	7	1	0	1
40	3	0	3	7	0	7	3	3	6
41	3	0	3	7	0	7	1	1	2
42	3	0	3	7	0	7	2	2	4
43	3	0	3	7	0	7	0	0	0
44	3	0	3	7	0	7	1	1	2
45	3	0	3	7	0	7	3	0	3
46	3	0	3	7	0	7	0	0	0
47	3	0	3	7	0	7	0	0	0
48	3	0	3	7	0	7	2	2	4
49	3	0	3	7	0	7	0	0	0
50	3	0	3	7	0	7	0	0	0

Table 268 0 CRUDES 7 LCS-r7 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	0.7	0.48	1.18	0.02	0	0.02
max	3	2	3	1	0	1
sig	1.03509834	0.762381	1.42413597	0.14142	0	0.14142
sigxb	0.02070197	0.015248	0.02848272	0.00283	0	0.00283
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.48	1.82		0	6.98
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	1	2	3	0	0	0
6	1	2	3	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	1	1	0	0	0
13	2	1	3	0	0	0
14	3	0	3	0	0	0
15	2	1	3	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	2	1	3	0	0	0
19	0	0	0	0	0	0
20	1	0	1	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	2	1	3	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	1	2	3	0	0	0
27	0	0	0	0	0	0
28	1	2	3	0	0	0
29	0	0	0	0	0	0
30	2	1	3	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	1	2	3	0	0	0
35	2	1	3	0	0	0
36	0	0	0	0	0	0
37	3	0	3	0	0	0
38	0	0	0	0	0	0
39	1	2	3	0	0	0
40	3	0	3	0	0	0
41	3	0	3	1	0	1
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	1	2	3	0	0	0
45	0	0	0	0	0	0
46	3	0	3	0	0	0
47	0	0	0	0	0	0
48	0	1	1	0	0	0
49	0	0	0	0	0	0
50	0	2	2	0	0	0

Table 269 0 CRUDES 7 LCS-r8 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	2	0	3	0	0	0	0	0	0
xbar	2.98	0.02	3	3.44	2.14	5.58	1.44	1.26	2.7
max	3	1	3	7	5	7	5	4	7
sig	0.14142136	0.141421	0	1.77465	1.212	1.47205	1.280306	1.0063066	1.705334
sigxb	0.00282843	0.002828	0	0.03549	0.024	0.02944	0.025606	0.0201261	0.034107
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0.02	0		2.14	1.42		1.26	4.3
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	3	2	5	1	0	1
2	3	0	3	6	1	7	3	2	5
3	3	0	3	6	1	7	4	3	7
4	3	0	3	1	4	5	1	0	1
5	3	0	3	6	0	6	1	1	2
6	3	0	3	3	2	5	1	0	1
7	2	1	3	0	0	0	0	0	0
8	3	0	3	1	3	4	3	1	4
9	3	0	3	3	3	6	1	1	2
10	3	0	3	2	3	5	1	3	4
11	3	0	3	3	2	5	2	2	4
12	3	0	3	4	3	7	1	2	3
13	3	0	3	4	2	6	1	1	2
14	3	0	3	6	1	7	2	2	4
15	3	0	3	4	3	7	2	2	4
16	3	0	3	4	2	6	1	1	2
17	3	0	3	3	1	4	1	0	1
18	3	0	3	3	1	4	0	1	1
19	3	0	3	0	3	3	0	2	2
20	3	0	3	3	2	5	0	1	1
21	3	0	3	1	2	3	2	0	2
22	3	0	3	3	1	4	1	1	2
23	3	0	3	5	2	7	5	0	5
24	3	0	3	2	4	6	2	0	2
25	3	0	3	4	3	7	2	1	3
26	3	0	3	2	5	7	0	1	1
27	3	0	3	4	2	6	1	1	2
28	3	0	3	6	1	7	1	2	3
29	3	0	3	5	2	7	2	1	3
30	3	0	3	0	4	4	2	0	2
31	3	0	3	3	4	7	1	2	3
32	3	0	3	2	3	5	0	1	1
33	3	0	3	4	3	7	0	2	2
34	3	0	3	4	2	6	1	2	3
35	3	0	3	4	3	7	1	0	1
36	3	0	3	7	0	7	3	1	4
37	3	0	3	6	0	6	1	3	4
38	3	0	3	5	1	6	3	2	5
39	3	0	3	4	3	7	2	4	6
40	3	0	3	2	3	5	0	0	0
41	3	0	3	4	1	5	0	3	3
42	3	0	3	4	2	6	5	1	6
43	3	0	3	7	0	7	2	2	4
44	3	0	3	2	3	5	0	1	1
45	3	0	3	3	2	5	0	2	2
46	3	0	3	5	2	7	4	2	6
47	3	0	3	3	3	6	2	1	3
48	3	0	3	2	4	6	1	0	1
49	3	0	3	3	1	4	2	2	4
50	3	0	3	1	2	3	0	0	0

Table 270 0 CRUDES 7 LCS-r9 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	1	0	3	0	0	0
xbar	2.84	0.16	3	1.26	2.18	3.44
max	3	2	3	5	6	7
sig	0.42185209	0.421852	0	1.482	1.687	2.28714
sigxb	0.00843704	0.008437	0	0.02964	0.034	0.04574
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.16	0		2.18	3.56
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0
2	3	0	3	1	4	5
3	3	0	3	2	3	5
4	3	0	3	3	3	6
5	3	0	3	3	3	6
6	3	0	3	0	4	4
7	3	0	3	0	2	2
8	2	1	3	0	0	0
9	3	0	3	4	0	4
10	2	1	3	0	0	0
11	3	0	3	1	4	5
12	3	0	3	0	1	1
13	3	0	3	0	0	0
14	3	0	3	5	1	6
15	3	0	3	3	4	7
16	3	0	3	1	2	3
17	3	0	3	5	0	5
18	3	0	3	3	2	5
19	3	0	3	2	4	6
20	3	0	3	4	2	6
21	3	0	3	1	3	4
22	3	0	3	0	6	6
23	3	0	3	2	2	4
24	3	0	3	3	3	6
25	3	0	3	1	4	5
26	3	0	3	0	5	5
27	3	0	3	1	3	4
28	1	2	3	0	0	0
29	2	1	3	0	0	0
30	3	0	3	1	2	3
31	2	1	3	0	0	0
32	2	1	3	0	0	0
33	3	0	3	0	1	1
34	3	0	3	0	4	4
35	3	0	3	3	2	5
36	3	0	3	1	4	5
37	3	0	3	0	0	0
38	3	0	3	2	3	5
39	3	0	3	2	4	6
40	3	0	3	0	4	4
41	3	0	3	1	3	4
42	3	0	3	1	5	6
43	3	0	3	1	2	3
44	3	0	3	0	2	2
45	3	0	3	2	3	5
46	3	0	3	4	1	5
47	3	0	3	0	3	3
48	3	0	3	0	0	0
49	2	1	3	0	0	0
50	3	0	3	0	1	1

Table 271 0 CRUDES 7 LCS-r10 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	4	0	5	0	0	0
xbar	3	0	3	6.7	0.24	6.94	1.78	1.5	3.28
max	3	0	3	7	2	7	7	5	7
sig	0	0	0	0.67763	0.517	0.31364	1.432708	1.2494897	1.552352
sigxb	0	0	0	0.01355	0.01	0.00627	0.028654	0.0249898	0.031047
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.24	0.06		1.5	3.72
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	7	0	7	0	1	1
2	3	0	3	7	0	7	2	0	2
3	3	0	3	6	1	7	1	1	2
4	3	0	3	7	0	7	3	0	3
5	3	0	3	7	0	7	3	3	6
6	3	0	3	7	0	7	1	1	2
7	3	0	3	7	0	7	2	1	3
8	3	0	3	5	2	7	1	0	1
9	3	0	3	7	0	7	1	3	4
10	3	0	3	7	0	7	3	1	4
11	3	0	3	7	0	7	3	2	5
12	3	0	3	7	0	7	4	1	5
13	3	0	3	7	0	7	1	1	2
14	3	0	3	7	0	7	1	2	3
15	3	0	3	7	0	7	2	2	4
16	3	0	3	4	1	5	0	0	0
17	3	0	3	7	0	7	0	1	1
18	3	0	3	6	1	7	1	1	2
19	3	0	3	7	0	7	4	0	4
20	3	0	3	7	0	7	0	1	1
21	3	0	3	7	0	7	3	1	4
22	3	0	3	7	0	7	3	1	4
23	3	0	3	7	0	7	1	5	6
24	3	0	3	7	0	7	2	1	3
25	3	0	3	7	0	7	2	1	3
26	3	0	3	7	0	7	1	3	4
27	3	0	3	7	0	7	0	5	5
28	3	0	3	7	0	7	1	2	3
29	3	0	3	5	1	6	0	0	0
30	3	0	3	7	0	7	1	2	3
31	3	0	3	7	0	7	7	0	7
32	3	0	3	7	0	7	1	1	2
33	3	0	3	6	1	7	1	4	5
34	3	0	3	7	0	7	3	1	4
35	3	0	3	7	0	7	5	0	5
36	3	0	3	7	0	7	2	1	3
37	3	0	3	7	0	7	4	1	5
38	3	0	3	7	0	7	0	4	4
39	3	0	3	7	0	7	1	3	4
40	3	0	3	7	0	7	3	2	5
41	3	0	3	7	0	7	1	1	2
42	3	0	3	6	1	7	3	1	4
43	3	0	3	6	1	7	1	0	1
44	3	0	3	5	2	7	2	3	5
45	3	0	3	7	0	7	1	2	3
46	3	0	3	7	0	7	1	2	3
47	3	0	3	7	0	7	1	2	3
48	3	0	3	7	0	7	2	1	3
49	3	0	3	6	1	7	1	2	3
50	3	0	3	7	0	7	2	1	3

Table 272 0 CRUDES 7 LCS-r11 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	0	0	0	0	0	0
xbar	2.16	0.34	2.5	0.24	0.18	0.42
max	3	2	3	3	3	4
sig	1.13137085	0.592814	1.01519074	0.62466	0.56	0.94954
sigxb	0.02262742	0.011856	0.02030381	0.01249	0.011	0.01899
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0.34	0.5		0.18	6.58
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	0	0	0
2	3	0	3	0	0	0
3	1	1	2	0	0	0
4	0	2	2	0	0	0
5	1	0	1	0	0	0
6	2	1	3	0	0	0
7	2	0	2	0	0	0
8	3	0	3	0	0	0
9	2	1	3	0	0	0
10	3	0	3	1	0	1
11	3	0	3	0	0	0
12	2	1	3	0	0	0
13	2	1	3	0	0	0
14	2	1	3	0	0	0
15	3	0	3	0	0	0
16	3	0	3	2	0	2
17	2	1	3	0	0	0
18	3	0	3	0	1	1
19	1	1	2	0	0	0
20	2	1	3	0	0	0
21	3	0	3	0	0	0
22	0	0	0	0	0	0
23	3	0	3	3	1	4
24	3	0	3	0	0	0
25	3	0	3	1	1	2
26	3	0	3	0	0	0
27	3	0	3	0	0	0
28	3	0	3	0	0	0
29	1	2	3	0	0	0
30	3	0	3	1	1	2
31	3	0	3	0	0	0
32	3	0	3	0	0	0
33	2	1	3	0	0	0
34	3	0	3	0	0	0
35	3	0	3	0	0	0
36	2	1	3	0	0	0
37	3	0	3	2	0	2
38	0	0	0	0	0	0
39	3	0	3	1	0	1
40	0	2	2	0	0	0
41	3	0	3	1	2	3
42	0	0	0	0	0	0
43	3	0	3	0	0	0
44	3	0	3	0	3	3
45	3	0	3	0	0	0
46	0	0	0	0	0	0
47	3	0	3	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	3	0	3	0	0	0

Table 273 0 CRUDES 7 LCS-r12 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	1	0	2	0	0	0
xbar	3	0	3	4.82	1.66	6.48	2.46	1.58	4.04
max	3	0	3	7	5	7	6	5	7
sig	0	0	0	1.39518	1.136	0.90891	1.473715	1.1082253	1.628321
sigxb	0	0	0	0.0279	0.023	0.01818	0.029474	0.0221645	0.032566
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		1.66	0.52		1.58	2.96
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	1	5	6	1	0	1
2	3	0	3	5	2	7	1	2	3
3	3	0	3	4	2	6	3	1	4
4	3	0	3	5	2	7	2	1	3
5	3	0	3	5	2	7	5	1	6
6	3	0	3	3	4	7	2	1	3
7	3	0	3	5	1	6	3	3	6
8	3	0	3	4	2	6	1	2	3
9	3	0	3	5	2	7	2	2	4
10	3	0	3	7	0	7	6	1	7
11	3	0	3	4	1	5	0	2	2
12	3	0	3	3	4	7	1	1	2
13	3	0	3	5	2	7	1	3	4
14	3	0	3	4	3	7	2	0	2
15	3	0	3	6	1	7	4	1	5
16	3	0	3	4	1	5	2	0	2
17	3	0	3	6	0	6	2	2	4
18	3	0	3	5	1	6	3	2	5
19	3	0	3	4	3	7	4	2	6
20	3	0	3	5	2	7	2	2	4
21	3	0	3	4	2	6	0	0	0
22	3	0	3	6	1	7	1	3	4
23	3	0	3	6	1	7	3	2	5
24	3	0	3	5	2	7	2	2	4
25	3	0	3	2	3	5	2	2	4
26	3	0	3	4	3	7	2	1	3
27	3	0	3	4	2	6	4	2	6
28	3	0	3	5	2	7	2	3	5
29	3	0	3	6	1	7	5	0	5
30	3	0	3	4	1	5	1	2	3
31	3	0	3	4	3	7	3	2	5
32	3	0	3	7	0	7	3	1	4
33	3	0	3	5	2	7	2	2	4
34	3	0	3	5	2	7	3	0	3
35	3	0	3	5	1	6	6	1	7
36	3	0	3	5	2	7	2	0	2
37	3	0	3	6	1	7	2	1	3
38	3	0	3	5	2	7	4	2	6
39	3	0	3	6	0	6	1	3	4
40	3	0	3	1	1	2	2	0	2
41	3	0	3	6	1	7	0	5	5
42	3	0	3	6	1	7	1	3	4
43	3	0	3	6	1	7	4	1	5
44	3	0	3	7	0	7	3	3	6
45	3	0	3	5	1	6	2	3	5
46	3	0	3	5	1	6	5	1	6
47	3	0	3	7	0	7	1	1	2
48	3	0	3	2	4	6	4	3	7
49	3	0	3	6	1	7	4	1	5
50	3	0	3	6	1	7	2	0	2

Table 274 0 CRUDES 7 LCS-r13 Data Spreadsheet

	starting values for the run					
	amphibs	lcs				
	3	7				
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs
min	3	0	3	1	0	2
xbar	3	0	3	4.82	1.72	6.54
max	3	0	3	7	5	7
sig	0	0	0	1.38048	1.278	0.90824
sigxb	0	0	0	0.02761	0.026	0.01816
		amphib inj	amphibs lost		lcs inj	lcs lost
xbar		0	0		1.72	0.46
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs
1	3	0	3	6	0	6
2	3	0	3	6	1	7
3	3	0	3	5	0	5
4	3	0	3	6	1	7
5	3	0	3	6	1	7
6	3	0	3	5	2	7
7	3	0	3	3	2	5
8	3	0	3	5	2	7
9	3	0	3	7	0	7
10	3	0	3	4	3	7
11	3	0	3	3	4	7
12	3	0	3	2	3	5
13	3	0	3	5	2	7
14	3	0	3	5	2	7
15	3	0	3	5	2	7
16	3	0	3	5	2	7
17	3	0	3	5	2	7
18	3	0	3	6	0	6
19	3	0	3	5	1	6
20	3	0	3	6	1	7
21	3	0	3	5	2	7
22	3	0	3	5	2	7
23	3	0	3	7	0	7
24	3	0	3	6	1	7
25	3	0	3	5	1	6
26	3	0	3	4	3	7
27	3	0	3	3	2	5
28	3	0	3	6	0	6
29	3	0	3	1	5	6
30	3	0	3	2	0	2
31	3	0	3	6	0	6
32	3	0	3	5	2	7
33	3	0	3	5	1	6
34	3	0	3	6	1	7
35	3	0	3	5	2	7
36	3	0	3	3	4	7
37	3	0	3	6	1	7
38	3	0	3	4	2	6
39	3	0	3	5	2	7
40	3	0	3	3	4	7
41	3	0	3	4	3	7
42	3	0	3	6	1	7
43	3	0	3	6	1	7
44	3	0	3	7	0	7
45	3	0	3	4	3	7
46	3	0	3	2	5	7
47	3	0	3	4	2	6
48	3	0	3	5	2	7
49	3	0	3	5	2	7
50	3	0	3	6	1	7

Table 275 0 CRUDES 7 LCS-r14 Data Spreadsheet

	starting values for the run								
	amphibs	lcs	helo						
	3	7	7						
	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	total lcs	helo alive	helo injured	total helo
min	3	0	3	6	0	7	0	0	0
xbar	3	0	3	6.96	0.04	7	2.64	1.28	3.92
max	3	0	3	7	1	7	7	4	7
sig	0	0	0	0.19795	0.198	0	1.425139	1.0887177	1.536495
sigxb	0	0	0	0.00396	0.004	0	0.028503	0.0217744	0.03073
		amphib inj	amphibs lost		lcs inj	lcs lost		helo injured	helo lost
xbar		0	0		0.04	0		1.28	3.08
run	amphib alive	amphib inj	total amphib	lcs alive	lcs inj	tot lcs	helo alive	helo injured	total helo
1	3	0	3	7	0	7	2	0	2
2	3	0	3	7	0	7	2	1	3
3	3	0	3	7	0	7	3	1	4
4	3	0	3	7	0	7	1	4	5
5	3	0	3	7	0	7	4	1	5
6	3	0	3	7	0	7	5	0	5
7	3	0	3	6	1	7	0	0	0
8	3	0	3	7	0	7	2	1	3
9	3	0	3	7	0	7	3	3	6
10	3	0	3	7	0	7	5	0	5
11	3	0	3	7	0	7	2	1	3
12	3	0	3	7	0	7	3	1	4
13	3	0	3	7	0	7	2	2	4
14	3	0	3	7	0	7	2	2	4
15	3	0	3	7	0	7	2	2	4
16	3	0	3	7	0	7	4	0	4
17	3	0	3	7	0	7	1	0	1
18	3	0	3	7	0	7	3	2	5
19	3	0	3	7	0	7	5	0	5
20	3	0	3	7	0	7	2	1	3
21	3	0	3	7	0	7	7	0	7
22	3	0	3	7	0	7	2	2	4
23	3	0	3	7	0	7	3	3	6
24	3	0	3	7	0	7	1	1	2
25	3	0	3	7	0	7	0	2	2
26	3	0	3	7	0	7	4	1	5
27	3	0	3	6	1	7	2	1	3
28	3	0	3	7	0	7	2	1	3
29	3	0	3	7	0	7	4	1	5
30	3	0	3	7	0	7	3	4	7
31	3	0	3	7	0	7	3	2	5
32	3	0	3	7	0	7	3	0	3
33	3	0	3	7	0	7	4	1	5
34	3	0	3	7	0	7	3	0	3
35	3	0	3	7	0	7	2	3	5
36	3	0	3	7	0	7	4	0	4
37	3	0	3	7	0	7	4	1	5
38	3	0	3	7	0	7	0	1	1
39	3	0	3	7	0	7	3	3	6
40	3	0	3	7	0	7	2	2	4
41	3	0	3	7	0	7	1	1	2
42	3	0	3	7	0	7	3	0	3
43	3	0	3	7	0	7	2	2	4
44	3	0	3	7	0	7	2	1	3
45	3	0	3	7	0	7	3	0	3
46	3	0	3	7	0	7	5	1	6
47	3	0	3	7	0	7	3	3	6
48	3	0	3	7	0	7	1	2	3
49	3	0	3	7	0	7	1	1	2
50	3	0	3	7	0	7	2	2	4

Table 276 0 CRUDES 7 LCS-r15 Data Spreadsheet

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APPENDIX B. DATA GROUPS FOR ANALYSIS

A. INTRODUCTION

This appendix displays the data groups by force mix prepared for analysis. Each table is broken into eight columns: number of CRUDES (CRUiser, DEStroyer, Frigate) ships assigned to the ESG, number of LCSs assigned to the ESG, the run-set observed, helo/UCAV (helicopter/Unmanned Combat Aerial Vehicle) factor status, Stealth status, Firepower status, speed status, and average total ship loss (the sum of amphibious ships, CRUDES ships, and LCSs lost). The number in the CRUDES column remains the same for a table because the groups are separated by the number of CRUDES ships assigned to the ESG.

B. DATA GROUPS FOR ANALYSIS

CRUDES	LCS	Run-Set	Helo	Stealth	Firepower	Speed	Total Ship Loss
3	0	r0	0	0	0	0	3.76
3	0	r1	1	0	0	0	0.58

Table 277 3 CRUDES Data Prepared for Analysis

CRUDES	LCS	Run-Set	Helo	Stealth	Firepower	Speed	Total Ship Loss
2	1	r0	0	0	0	0	4.44
2	2	r0	0	0	0	0	4.76
2	3	r0	0	0	0	0	5.4
2	4	r0	0	0	0	0	5.86
2	5	r0	0	0	0	0	6.86
2	1	r1	1	0	0	0	1.34
2	2	r1	1	0	0	0	1.46
2	3	r1	1	0	0	0	0.62
2	4	r1	1	0	0	0	0.3
2	5	r1	1	0	0	0	0.16
2	1	r10	0	1	0	1	4.14
2	2	r10	0	1	0	1	3.46
2	3	r10	0	1	0	1	3.66
2	4	r10	0	1	0	1	3.14
2	5	r10	0	1	0	1	3.04
2	1	r11	1	1	0	1	1.18
2	2	r11	1	1	0	1	0.88
2	3	r11	1	1	0	1	0.52
2	4	r11	1	1	0	1	0.12
2	5	r11	1	1	0	1	0
2	1	r12	0	0	1	1	4.5
2	2	r12	0	0	1	1	4.92
2	3	r12	0	0	1	1	4.88
2	4	r12	0	0	1	1	5.54
2	5	r12	0	0	1	1	5.62
2	1	r13	1	0	1	1	1.9
2	2	r13	1	0	1	1	1.54
2	3	r13	1	0	1	1	0.78
2	4	r13	1	0	1	1	0.42
2	5	r13	1	0	1	1	0.4
2	1	r14	0	1	1	1	2.98
2	2	r14	0	1	1	1	2.72
2	3	r14	0	1	1	1	1.9
2	4	r14	0	1	1	1	1.3
2	5	r14	0	1	1	1	1.1
2	1	r15	1	1	1	1	1.2
2	2	r15	1	1	1	1	0.22
2	3	r15	1	1	1	1	0.02
2	4	r15	1	1	1	1	0
2	5	r15	1	1	1	1	0
2	1	r2	0	1	0	0	3.92
2	2	r2	0	1	0	0	3.32
2	3	r2	0	1	0	0	3.16
2	4	r2	0	1	0	0	2.64
2	5	r2	0	1	0	0	2.3
2	1	r3	1	1	0	0	1.22
2	2	r3	1	1	0	0	0.46
2	3	r3	1	1	0	0	0.04
2	4	r3	1	1	0	0	0
2	5	r3	1	1	0	0	0
2	1	r4	0	0	1	0	4.26
2	2	r4	0	0	1	0	4.34
2	3	r4	0	0	1	0	4.12
2	4	r4	0	0	1	0	5.22
2	5	r4	0	0	1	0	4.74
2	1	r5	1	0	1	0	1.08
2	2	r5	1	0	1	0	0.66
2	3	r5	1	0	1	0	0.22
2	4	r5	1	0	1	0	0.1
2	5	r5	1	0	1	0	0
2	1	r6	0	1	1	0	2.76
2	2	r6	0	1	1	0	1.9
2	3	r6	0	1	1	0	0.96
2	4	r6	0	1	1	0	0.6
2	5	r6	0	1	1	0	0.56
2	1	r7	1	1	1	0	0.44
2	2	r7	1	1	1	0	0.08
2	3	r7	1	1	1	0	0
2	4	r7	1	1	1	0	0
2	5	r7	1	1	1	0	0
2	1	r8	0	0	0	1	4.92
2	2	r8	0	0	0	1	4.94
2	3	r8	0	0	0	1	5.92
2	4	r8	0	0	0	1	6.2

Table 278 2 CRUDES Data Prepared for Analysis

CRUDES	LCS	Run-Set	Helo	Stealth	Firepower	Speed	Total Ship Loss
1	2	r0	0	0	0	0	5.32
1	2	r1	1	0	0	0	2.96
1	2	r2	0	1	0	0	4.2
1	2	r3	1	1	0	0	1.1
1	2	r4	0	0	1	0	5.26
1	2	r5	1	0	1	0	1.72
1	2	r6	0	1	1	0	2.92
1	2	r7	1	1	1	0	0.28
1	2	r8	0	0	0	1	5.64
1	2	r9	1	0	0	1	2.92
1	2	r10	0	1	0	1	4.16
1	2	r11	1	1	0	1	1.62
1	2	r12	0	0	1	1	5.3
1	2	r13	1	0	1	1	2.34
1	2	r14	0	1	1	1	2.78
1	2	r15	1	1	1	1	0.56
1	3	r0	0	0	0	0	6.04
1	3	r1	1	0	0	0	2.22
1	3	r2	0	1	0	0	4.18
1	3	r3	1	1	0	0	0.68
1	3	r4	0	0	1	0	5.18
1	3	r5	1	0	1	0	1.08
1	3	r6	0	1	1	0	1.54
1	3	r7	1	1	1	0	0
1	3	r8	0	0	0	1	6.3
1	3	r9	1	0	0	1	2.86
1	3	r10	0	1	0	1	4.14
1	3	r11	1	1	0	1	0.56
1	3	r12	0	0	1	1	5.34
1	3	r13	1	0	1	1	1.54
1	3	r14	0	1	1	1	1.98
1	3	r15	1	1	1	1	0.16
1	4	r0	0	0	0	0	6.64
1	4	r1	1	0	0	0	1.58
1	4	r2	0	1	0	0	4.2
1	4	r3	1	1	0	0	0.1
1	4	r4	0	0	1	0	5.44
1	4	r5	1	0	1	0	0.52
1	4	r6	0	1	1	0	0.8
1	4	r7	1	1	1	0	0
1	4	r8	0	0	0	1	6.6
1	4	r9	1	0	0	1	2.54
1	4	r10	0	1	0	1	3.84
1	4	r11	1	1	0	1	0.46
1	4	r12	0	0	1	1	5.9
1	4	r13	1	0	1	1	0.88
1	4	r14	0	1	1	1	1.22
1	4	r15	1	1	1	1	0
1	5	r0	0	0	0	0	7.12
1	5	r1	1	0	0	0	0.62
1	5	r2	0	1	0	0	3.3
1	5	r3	1	1	0	0	0
1	5	r4	0	0	1	0	6
1	5	r5	1	0	1	0	0.1
1	5	r6	0	1	1	0	0.58
1	5	r7	1	1	1	0	0
1	5	r8	0	0	0	1	7.1
1	5	r9	1	0	0	1	1.8
1	5	r10	0	1	0	1	3.6
1	5	r11	1	1	0	1	0.04
1	5	r12	0	0	1	1	5.6
1	5	r13	1	0	1	1	0.64
1	5	r14	0	1	1	1	1.12
1	5	r15	1	1	1	1	0
1	6	r0	0	0	0	0	7.82
1	6	r1	1	0	0	0	0.34
1	6	r2	0	1	0	0	2.7
1	6	r3	1	1	0	0	0
1	6	r4	0	0	1	0	5.18
1	6	r5	1	0	1	0	0.24
1	6	r6	0	1	1	0	0.52
1	6	r7	1	1	1	0	0
1	6	r8	0	0	0	1	7.66
1	6	r9	1	0	0	1	1.6

Table 279 1 CRUDES Data Prepared for Analysis

CRUDES	LCS	Run-Set	Helo	Stealth	Firepower	Speed	Total Ship Loss
0	3	r0	0	0	0	0	5.94
0	3	r1	1	0	0	0	3.58
0	3	r2	0	1	0	0	4.48
0	3	r3	1	1	0	0	1.84
0	3	r4	0	0	1	0	5.44
0	3	r5	1	0	1	0	2.38
0	3	r6	0	1	1	0	2.76
0	3	r7	1	1	1	0	0.3
0	3	r8	0	0	0	1	5.9
0	3	r9	1	0	0	1	3.6
0	3	r10	0	1	0	1	4.44
0	3	r11	1	1	0	1	2.24
0	3	r12	0	0	1	1	5.7
0	3	r13	1	0	1	1	2.56
0	3	r14	0	1	1	1	2.76
0	3	r15	1	1	1	1	0.28
0	4	r0	0	0	0	0	6.8
0	4	r1	1	0	0	0	3.3
0	4	r2	0	1	0	0	4.9
0	4	r3	1	1	0	0	0.6
0	4	r4	0	0	1	0	6.52
0	4	r5	1	0	1	0	1.44
0	4	r6	0	1	1	0	1.9
0	4	r7	1	1	1	0	0
0	4	r8	0	0	0	1	6.54
0	4	r9	1	0	0	1	3.44
0	4	r10	0	1	0	1	4.56
0	4	r11	1	1	0	1	0.6
0	4	r12	0	0	1	1	5.9
0	4	r13	1	0	1	1	1.3
0	4	r14	0	1	1	1	1.86
0	4	r15	1	1	1	1	0.1
0	5	r0	0	0	0	0	7.46
0	5	r1	1	0	0	0	2.36
0	5	r2	0	1	0	0	4.7
0	5	r3	1	1	0	0	0.2
0	5	r4	0	0	1	0	6.5
0	5	r5	1	0	1	0	0.72
0	5	r6	0	1	1	0	1.04
0	5	r7	1	1	1	0	0
0	5	r8	0	0	0	1	7.52
0	5	r9	1	0	0	1	2.84
0	5	r10	0	1	0	1	4.2
0	5	r11	1	1	0	1	0.18
0	5	r12	0	0	1	1	6.38
0	5	r13	1	0	1	1	0.68
0	5	r14	0	1	1	1	1.18
0	5	r15	1	1	1	1	0.02
0	6	r0	0	0	0	0	8.44
0	6	r1	1	0	0	0	1.02
0	6	r2	0	1	0	0	3.6
0	6	r3	1	1	0	0	0.04
0	6	r4	0	0	1	0	6.82
0	6	r5	1	0	1	0	0.44
0	6	r6	0	1	1	0	0.64
0	6	r7	1	1	1	0	0
0	6	r8	0	0	0	1	8.24
0	6	r9	1	0	0	1	1.64
0	6	r10	0	1	0	1	3.96
0	6	r11	1	1	0	1	0.14
0	6	r12	0	0	1	1	6.54
0	6	r13	1	0	1	1	0.64
0	6	r14	0	1	1	1	0.64
0	6	r15	1	1	1	1	0
0	7	r0	0	0	0	0	8.82
0	7	r1	1	0	0	0	0.62
0	7	r2	0	1	0	0	3.4
0	7	r3	1	1	0	0	0
0	7	r4	0	0	1	0	7.04
0	7	r5	1	0	1	0	0.14
0	7	r6	0	1	1	0	0.52
0	7	r7	1	1	1	0	0
0	7	r8	0	0	0	1	8.8
0	7	r9	1	0	0	1	1.42

Table 280 0 CRUDES Data Prepared for Analysis

APPENDIX C. S-PLUS CODE AND OUTPUT

A. INTRODUCTION

This appendix displays the S-Plus code used in analyzing the data and the output. Data frames were created from the spreadsheets in Annex B (Data Groups for Analysis) by using the Graphical User Interface. The "File" option was first selected, then import data. Next, the file with the data was found, selected, and the data frame named. The data frames are named crudes*X*data, and the "*X*" signifies how many CRUDES ships were assigned to ESGs in the data group.

Table 281's code was written because S-Plus did not recognize numbers of LCSs (Littoral Combat Ships) to be a range of numbers. The other tables have S-Plus code and output used in the analysis. Key items are in bold font. If residuals and the number following residuals in the table are in bold, the ANOVA was rejected because there were too few residuals. If the number in the "Mean Sq" column, on the "Residuals" row, is in bold font, the ANOVA model was rejected because the Mean Square Error was not small enough. If whole lines in a table are in bold then the factor listed in the left column of the row effects ship loss.

B. S-PLUS CODE AND OUTPUT

```
> crudes2data$LCS.f_as.factor(crudes2data$LCS)
> crudes1data$LCS.f_as.factor(crudes1data$LCS)
> crudes0data$LCS.f_as.factor(crudes0data$LCS)
```

Table 281 S-Plus Code to allow numbers of LCSs to be recognized as a range

```
> allfact3.2c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^3, data = crudes2data)
> plot(allfact3.2c)
> summary(allfact3.2c)
                        Df Sum of Sq  Mean Sq  F Value     Pr(F)
                  LCS.f  4    4.0100   1.0025   17.941 0.0000015
                   HELO  1  204.6080 204.6080 3661.733 0.0000000
                STEALTH  1   57.0882  57.0882 1021.669 0.0000000
              FIREPOWER  1   12.4031  12.4031  221.970 0.0000000
                  SPEED  1    4.4462   4.4462   79.571 0.0000000
             LCS.f:HELO  4    2.5767   0.6442   11.528 0.0000413
           LCS.f:STEALTH  4    5.9270   1.4818   26.518 0.0000001
         LCS.f:FIREPOWER  4    0.9260   0.2315    4.143 0.0125266
             LCS.f:SPEED  4    0.1673   0.0418    0.748 0.5700467
            HELO:STEALTH  1   21.6112  21.6112  386.761 0.0000000
          HELO:FIREPOWER  1    3.2886   3.2886   58.854 0.0000002
              HELO:SPEED  1    0.0000   0.0000    0.001 0.9776283
       STEALTH:FIREPOWER  1    0.3672   0.3672    6.572 0.0181029
           STEALTH:SPEED  1    0.2442   0.2442    4.370 0.0489123
          FIREPOWER:SPEED  1    0.0110   0.0110    0.198 0.6611606
      LCS.f:HELO:STEALTH  4    8.1823   2.0456   36.608 0.0000000
    LCS.f:HELO:FIREPOWER  4    1.2244   0.3061    5.478 0.0035053
        LCS.f:HELO:SPEED  4    0.0834   0.0208    0.373 0.8251777
LCS.f:STEALTH:FIREPOWER  4    0.2971   0.0743    1.329 0.2918246
     LCS.f:STEALTH:SPEED  4    0.0125   0.0031    0.056 0.9937063
   LCS.f:FIREPOWER:SPEED  4    0.1582   0.0395    0.708 0.5956583
  HELO:STEALTH:FIREPOWER  1    1.4742   1.4742   26.384 0.0000435
      HELO:STEALTH:SPEED  1    0.5746   0.5746   10.283 0.0042365
    HELO:FIREPOWER:SPEED  1    0.2142   0.2142    3.834 0.0636347
STEALTH:FIREPOWER:SPEED  1    0.0174   0.0174    0.311 0.5826719
               Residuals 21    1.1734   0.0559
```

Table 282 S-Plus Code Preparing the ANOVA of the 2 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions, and Output

```
> allfact4.2c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^4, data = crudes2data)
> summary(allfact4.2c)
                              Df Sum of Sq  Mean Sq  F Value     Pr(F)
                        LCS.f  4    4.0100   1.0025   17.908 0.0080954
                         HELO  1  204.6080 204.6080 3655.020 0.0000004
                      STEALTH  1   57.0882  57.0882 1019.796 0.0000057
                    FIREPOWER  1   12.4031  12.4031  221.564 0.0001186
                        SPEED  1    4.4462   4.4462   79.426 0.0008763
                    LCS.f:HELO  4    2.5767   0.6442   11.507 0.0181558
                 LCS.f:STEALTH  4    5.9270   1.4818   26.469 0.0038793
              LCS.f:FIREPOWER  4    0.9260   0.2315    4.135 0.0989879
                  LCS.f:SPEED  4    0.1673   0.0418    0.747 0.6078302
                 HELO:STEALTH  1   21.6112  21.6112  386.052 0.0000396
               HELO:FIREPOWER  1    3.2886   3.2886   58.746 0.0015576
                   HELO:SPEED  1    0.0000   0.0000    0.001 0.9787393
            STEALTH:FIREPOWER  1    0.3672   0.3672    6.560 0.0625607
                STEALTH:SPEED  1    0.2442   0.2442    4.362 0.1049936
               FIREPOWER:SPEED  1    0.0110   0.0110    0.197 0.6798793
            LCS.f:HELO:STEALTH  4    8.1823   2.0456   36.541 0.0020908
          LCS.f:HELO:FIREPOWER  4    1.2244   0.3061    5.468 0.0643168
              LCS.f:HELO:SPEED  4    0.0834   0.0208    0.372 0.8190896
      LCS.f:STEALTH:FIREPOWER  4    0.2971   0.0743    1.327 0.3953270
          LCS.f:STEALTH:SPEED  4    0.0125   0.0031    0.056 0.9918852
        LCS.f:FIREPOWER:SPEED  4    0.1582   0.0395    0.706 0.6277637
       HELO:STEALTH:FIREPOWER  1    1.4742   1.4742   26.335 0.0068301
           HELO:STEALTH:SPEED  1    0.5746   0.5746   10.264 0.0327812
         HELO:FIREPOWER:SPEED  1    0.2142   0.2142    3.827 0.1220694
      STEALTH:FIREPOWER:SPEED  1    0.0174   0.0174    0.311 0.6068496
 LCS.f:HELO:STEALTH:FIREPOWER  4    0.2516   0.0629    1.124 0.4564214
     LCS.f:HELO:STEALTH:SPEED  4    0.1236   0.0309    0.552 0.7104405
   LCS.f:HELO:FIREPOWER:SPEED  4    0.4473   0.1118    1.997 0.2596301
LCS.f:STEALTH:FIREPOWER:SPEED  4    0.0874   0.0219    0.390 0.8077521
 HELO:STEALTH:FIREPOWER:SPEED  1    0.0396   0.0396    0.707 0.4476239
                   Residuals  4    0.2239   0.0560
```

Table 283 S-Plus Code Preparing the ANOVA of the 2 CRUDES Set's Total Ship Losses, Including Up to 4-Way Interactions, and Output

```
> allfact2.2c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^2, data = crudes2data)
> summary(allfact2.2c)
                  Df Sum of Sq  Mean Sq  F Value     Pr(F)
            LCS.f  4    4.0100   1.0025   3.6626 0.0109343
             HELO  1  204.6080 204.6080 747.5317 0.0000000
          STEALTH  1   57.0882  57.0882 208.5707 0.0000000
        FIREPOWER  1   12.4031  12.4031  45.3146 0.0000000
            SPEED  1    4.4462   4.4462  16.2443 0.0001938
       LCS.f:HELO  4    2.5767   0.6442   2.3535 0.0667771
    LCS.f:STEALTH  4    5.9270   1.4818   5.4136 0.0010859
  LCS.f:FIREPOWER  4    0.9260   0.2315   0.8458 0.5030647
      LCS.f:SPEED  4    0.1673   0.0418   0.1528 0.9608572
     HELO:STEALTH  1   21.6112  21.6112  78.9561 0.0000000
   HELO:FIREPOWER  1    3.2886   3.2886  12.0149 0.0011076
       HELO:SPEED  1    0.0000   0.0000   0.0002 0.9898218
STEALTH:FIREPOWER  1    0.3672   0.3672   1.3416 0.2523704
    STEALTH:SPEED  1    0.2442   0.2442   0.8922 0.3495167
  FIREPOWER:SPEED  1    0.0110   0.0110   0.0404 0.8416241
        Residuals 49   13.4119   0.2737
```

Table 284 S-Plus Code Preparing the ANOVA of the 2 CRUDES Set's Total Ship Losses, Including Up to 2-Way Interactions, and Output

```
> allfact4.1c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^4, data = crudes1data)
> summary(allfact4.1c)
                              Df Sum of Sq  Mean Sq  F Value     Pr(F)
                        LCS.f  5    8.3928   1.6786   25.924 0.0013872
                         HELO  1  304.0240 304.0240 4695.352 0.0000000
                      STEALTH  1  144.3542 144.3542 2229.408 0.0000001
                    FIREPOWER  1   33.3233  33.3233  514.645 0.0000031
                        SPEED  1    1.6224   1.6224   25.056 0.0040850
                   LCS.f:HELO  5    4.9900   0.9980   15.413 0.0046565
                LCS.f:STEALTH  5    4.2129   0.8426   13.013 0.0068335
              LCS.f:FIREPOWER  5    0.6875   0.1375    2.124 0.2140446
                  LCS.f:SPEED  5    0.0265   0.0053    0.082 0.9921622
                 HELO:STEALTH  1   48.0534  48.0534  742.137 0.0000012
               HELO:FIREPOWER  1    8.0042   8.0042  123.616 0.0001026
                   HELO:SPEED  1    0.2440   0.2440    3.769 0.1098895
            STEALTH:FIREPOWER  1    0.2204   0.2204    3.404 0.1243415
                STEALTH:SPEED  1    0.5104   0.5104    7.883 0.0376525
               FIREPOWER:SPEED  1    0.0054   0.0054    0.083 0.7843346
            LCS.f:HELO:STEALTH  5   17.9690   3.5938   55.503 0.0002221
          LCS.f:HELO:FIREPOWER  5    2.9450   0.5890    9.097 0.0150264
              LCS.f:HELO:SPEED  5    0.0856   0.0171    0.265 0.9146304
      LCS.f:STEALTH:FIREPOWER  5    0.7443   0.1489    2.299 0.1910537
          LCS.f:STEALTH:SPEED  5    0.1950   0.0390    0.602 0.7041824
        LCS.f:FIREPOWER:SPEED  5    0.0881   0.0176    0.272 0.9101592
       HELO:STEALTH:FIREPOWER  1    3.7446   3.7446   57.832 0.0006246
           HELO:STEALTH:SPEED  1    0.2904   0.2904    4.485 0.0877534
         HELO:FIREPOWER:SPEED  1    0.4538   0.4538    7.008 0.0455791
      STEALTH:FIREPOWER:SPEED  1    0.0748   0.0748    1.155 0.3315193
 LCS.f:HELO:STEALTH:FIREPOWER  5    1.4373   0.2875    4.440 0.0637807
     LCS.f:HELO:STEALTH:SPEED  5    0.4546   0.0909    1.404 0.3592665
   LCS.f:HELO:FIREPOWER:SPEED  5    0.5644   0.1129    1.743 0.2783540
LCS.f:STEALTH:FIREPOWER:SPEED  5    0.1477   0.0295    0.456 0.7952754
 HELO:STEALTH:FIREPOWER:SPEED  1    0.0294   0.0294    0.454 0.5303048
                   Residuals  5    0.3238   0.0648
```

Table 285 S-Plus Code Preparing the ANOVA of the 1 CRUDES Set's Total Ship Losses, Including Up to 4-Way Interactions, and Output

```
> alfact3mod.1c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^3+LCS.f:HELO:STEALTH:FIREPOWER,
data = crudes1data)
> summary(alfact3mod.1c)
```

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LCS.f	**5**	**8.3928**	**1.6786**	**23.192**	**0.0000001**
HELO	**1**	**304.0240**	**304.0240**	**4200.516**	**0.0000000**
STEALTH	**1**	**144.3542**	**144.3542**	**1994.454**	**0.0000000**
FIREPOWER	**1**	**33.3233**	**33.3233**	**460.407**	**0.0000000**
SPEED	**1**	**1.6224**	**1.6224**	**22.416**	**0.0001124**
LCS.f:HELO	**5**	**4.9900**	**0.9980**	**13.789**	**0.0000049**
LCS.f:STEALTH	**5**	**4.2129**	**0.8426**	**11.641**	**0.0000177**
LCS.f:FIREPOWER	5	0.6875	0.1375	1.900	0.1372766
LCS.f:SPEED	5	0.0265	0.0053	0.073	0.9956677
HELO:STEALTH	**1**	**48.0534**	**48.0534**	**663.925**	**0.0000000**
HELO:FIREPOWER	**1**	**8.0042**	**8.0042**	**110.589**	**0.0000000**
HELO:SPEED	1	0.2440	0.2440	3.371	0.0805358
STEALTH:FIREPOWER	1	0.2204	0.2204	3.045	0.0955858
STEALTH:SPEED	**1**	**0.5104**	**0.5104**	**7.052**	**0.0147939**
FIREPOWER:SPEED	1	0.0054	0.0054	0.075	0.7874095
LCS.f:HELO:STEALTH	**5**	**17.9690**	**3.5938**	**49.654**	**0.0000000**
LCS.f:HELO:FIREPOWER	**5**	**2.9450**	**0.5890**	**8.138**	**0.0002114**
LCS.f:HELO:SPEED	5	0.0856	0.0171	0.237	0.9418963
LCS.f:STEALTH:FIREPOWER	5	0.7443	0.1489	2.057	0.1117734
LCS.f:STEALTH:SPEED	5	0.1950	0.0390	0.539	0.7446132
LCS.f:FIREPOWER:SPEED	5	0.0881	0.0176	0.244	0.9384032
HELO:STEALTH:FIREPOWER	**1**	**3.7446**	**3.7446**	**51.737**	**0.0000004**
HELO:STEALTH:SPEED	1	0.2904	0.2904	4.012	0.0582456
HELO:FIREPOWER:SPEED	**1**	**0.4538**	**0.4538**	**6.269**	**0.0206068**
STEALTH:FIREPOWER:SPEED	1	0.0748	0.0748	1.034	0.3208633
LCS.f:HELO:STEALTH:FIREPOWER	**5**	**1.4373**	**0.2875**	**3.972**	**0.0108198**
Residuals	21	1.5199	0.0724		

Table 286 S-Plus Code Preparing the ANOVA of the 1 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions + a 4-Way Interaction, and Output

```
> allfact3.1c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^3, data = crudes1data)
> summary(allfact3.1c)
                        Df Sum of Sq  Mean Sq  F Value     Pr(F)
                  LCS.f  5    8.3928   1.6786   14.758 0.0000007
                   HELO  1  304.0240 304.0240 2672.934 0.0000000
                STEALTH  1  144.3542 144.3542 1269.140 0.0000000
              FIREPOWER  1   33.3233  33.3233  292.973 0.0000000
                  SPEED  1    1.6224   1.6224   14.264 0.0008346
             LCS.f:HELO  5    4.9900   0.9980    8.774 0.0000562
          LCS.f:STEALTH  5    4.2129   0.8426    7.408 0.0001961
        LCS.f:FIREPOWER  5    0.6875   0.1375    1.209 0.3327633
            LCS.f:SPEED  5    0.0265   0.0053    0.047 0.9985576
           HELO:STEALTH  1   48.0534  48.0534  422.478 0.0000000
         HELO:FIREPOWER  1    8.0042   8.0042   70.371 0.0000000
             HELO:SPEED  1    0.2440   0.2440    2.145 0.1549898
      STEALTH:FIREPOWER  1    0.2204   0.2204    1.938 0.1756940
          STEALTH:SPEED  1    0.5104   0.5104    4.488 0.0438596
        FIREPOWER:SPEED  1    0.0054   0.0054    0.047 0.8292159
     LCS.f:HELO:STEALTH  5   17.9690   3.5938   31.596 0.0000000
   LCS.f:HELO:FIREPOWER  5    2.9450   0.5890    5.178 0.0019866
       LCS.f:HELO:SPEED  5    0.0856   0.0171    0.151 0.9780434
LCS.f:STEALTH:FIREPOWER  5    0.7443   0.1489    1.309 0.2909349
    LCS.f:STEALTH:SPEED  5    0.1950   0.0390    0.343 0.8820550
  LCS.f:FIREPOWER:SPEED  5    0.0881   0.0176    0.155 0.9766046
 HELO:STEALTH:FIREPOWER  1    3.7446   3.7446   32.922 0.0000049
     HELO:STEALTH:SPEED  1    0.2904   0.2904    2.553 0.1221581
   HELO:FIREPOWER:SPEED  1    0.4538   0.4538    3.989 0.0563553
STEALTH:FIREPOWER:SPEED  1    0.0748   0.0748    0.658 0.4247082
              Residuals 26    2.9573   0.1137
```

Table 287 S-Plus Code Preparing the ANOVA of the 1 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions, and Output

```
>        alfact4.0c_aov(formula        =        tot.ship.loss        ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^4, data = crudes0data)
> summary(alfact4.0c)
                              Df Sum of Sq  Mean Sq  F Value     Pr(F)
                        LCS.f  4    6.1828   1.5457   100.01 0.0002921
                         HELO  1  291.4661 291.4661 18859.02 0.0000000
                      STEALTH  1  153.6242 153.6242  9940.10 0.0000001
                    FIREPOWER  1   40.2996  40.2996  2607.54 0.0000009
                        SPEED  1    0.0396   0.0396     2.56 0.1846723
                    LCS.f:HELO  4   10.3625   2.5906   167.62 0.0001051
                 LCS.f:STEALTH  4    4.1066   1.0266    66.43 0.0006533
              LCS.f:FIREPOWER  4    0.3206   0.0802     5.19 0.0699411
                  LCS.f:SPEED  4    0.2362   0.0591     3.82 0.1112233
                 HELO:STEALTH  1   37.5106  37.5106  2427.09 0.0000010
               HELO:FIREPOWER  1    5.1918   5.1918   335.93 0.0000521
                   HELO:SPEED  1    0.2856   0.2856    18.48 0.0126575
            STEALTH:FIREPOWER  1    1.1761   1.1761    76.10 0.0009512
                STEALTH:SPEED  1    0.0162   0.0162     1.05 0.3632013
              FIREPOWER:SPEED  1    0.0396   0.0396     2.56 0.1846723
           LCS.f:HELO:STEALTH  4   18.1258   4.5315   293.20 0.0000346
         LCS.f:HELO:FIREPOWER  4    4.3364   1.0841    70.15 0.0005871
             LCS.f:HELO:SPEED  4    0.0322   0.0081     0.52 0.7282737
      LCS.f:STEALTH:FIREPOWER  4    0.3423   0.0856     5.54 0.0630439
          LCS.f:STEALTH:SPEED  4    0.1094   0.0273     1.77 0.2970071
        LCS.f:FIREPOWER:SPEED  4    0.0476   0.0119     0.77 0.5967675
       HELO:STEALTH:FIREPOWER  1    8.0011   8.0011   517.70 0.0000221
           HELO:STEALTH:SPEED  1    0.1022   0.1022     6.62 0.0618419
         HELO:FIREPOWER:SPEED  1    0.0530   0.0530     3.43 0.1375703
      STEALTH:FIREPOWER:SPEED  1    0.0361   0.0361     2.34 0.2010276
 LCS.f:HELO:STEALTH:FIREPOWER  4    1.9255   0.4814    31.15 0.0028428
     LCS.f:HELO:STEALTH:SPEED  4    0.1632   0.0408     2.64 0.1849889
   LCS.f:HELO:FIREPOWER:SPEED  4    0.0324   0.0081     0.52 0.7267636
LCS.f:STEALTH:FIREPOWER:SPEED  4    0.1951   0.0488     3.16 0.1458307
 HELO:STEALTH:FIREPOWER:SPEED  1    0.0018   0.0018     0.12 0.7497411
                   Residuals  4    0.0618   0.0155
```

Table 288 S-Plus Code Preparing the ANOVA of the 0 CRUDES Set's Total Ship Losses, Including Up to 4-Way Interactions, and Output

```
> alfact3mod.0c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^3+LCS.f:HELO:STEALTH:FIREPOWER,
data = crudes0data)
> summary(alfact3mod.0c)
```

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LCS.f	**4**	**6.1828**	**1.5457**	**57.84**	**0.0000000**
HELO	**1**	**291.4661**	**291.4661**	**10907.08**	**0.0000000**
STEALTH	**1**	**153.6242**	**153.6242**	**5748.84**	**0.0000000**
FIREPOWER	**1**	**40.2996**	**40.2996**	**1508.07**	**0.0000000**
SPEED	1	0.0396	0.0396	1.48	0.2400798
LCS.f:HELO	**4**	**10.3625**	**2.5906**	**96.94**	**0.0000000**
LCS.f:STEALTH	**4**	**4.1066**	**1.0266**	**38.42**	**0.0000000**
LCS.f:FIREPOWER	**4**	**0.3206**	**0.0802**	**3.00**	**0.0482526**
LCS.f:SPEED	4	0.2362	0.0591	2.21	0.1112523
HELO:STEALTH	**1**	**37.5106**	**37.5106**	**1403.70**	**0.0000000**
HELO:FIREPOWER	**1**	**5.1918**	**5.1918**	**194.28**	**0.0000000**
HELO:SPEED	**1**	**0.2856**	**0.2856**	**10.69**	**0.0045207**
STEALTH:FIREPOWER	**1**	**1.1761**	**1.1761**	**44.01**	**0.0000042**
STEALTH:SPEED	1	0.0162	0.0162	0.61	0.4462951
FIREPOWER:SPEED	1	0.0396	0.0396	1.48	0.2400798
LCS.f:HELO:STEALTH	**4**	**18.1258**	**4.5315**	**169.57**	**0.0000000**
LCS.f:HELO:FIREPOWER	**4**	**4.3364**	**1.0841**	**40.57**	**0.0000000**
LCS.f:HELO:SPEED	4	0.0322	0.0081	0.30	0.8729508
LCS.f:STEALTH:FIREPOWER	**4**	**0.3423**	**0.0856**	**3.20**	**0.0393104**
LCS.f:STEALTH:SPEED	4	0.1094	0.0273	1.02	0.4234147
LCS.f:FIREPOWER:SPEED	4	0.0476	0.0119	0.45	0.7741740
HELO:STEALTH:FIREPOWER	**1**	**8.0011**	**8.0011**	**299.41**	**0.0000000**
HELO:STEALTH:SPEED	1	0.1022	0.1022	3.83	0.0670954
HELO:FIREPOWER:SPEED	1	0.0530	0.0530	1.99	0.1768911
STEALTH:FIREPOWER:SPEED	1	0.0361	0.0361	1.35	0.2610174
LCS.f:HELO:STEALTH:FIREPOWER	**4**	**1.9255**	**0.4814**	**18.01**	**0.0000061**
Residuals	17	0.4543	0.0267		

Table 289 S-Plus Code Preparing the ANOVA of the 0 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions + a 4-Way Interaction, and Output

```
> allfact3.0c_aov(formula = tot.ship.loss ~
(LCS.f+HELO+STEALTH+FIREPOWER+SPEED)^3, data = crudes0data)
> summary(allfact3.0c)
                        Df Sum of Sq  Mean Sq  F Value     Pr(F)
                  LCS.f  4    6.1828   1.5457   13.640 0.0000124
                   HELO  1  291.4661 291.4661 2571.992 0.0000000
                STEALTH  1  153.6242 153.6242 1355.631 0.0000000
              FIREPOWER  1   40.2996  40.2996  355.617 0.0000000
                  SPEED  1    0.0396   0.0396    0.349 0.5607135
             LCS.f:HELO  4   10.3625   2.5906   22.861 0.0000002
          LCS.f:STEALTH  4    4.1066   1.0266    9.059 0.0002047
        LCS.f:FIREPOWER  4    0.3206   0.0802    0.707 0.5959113
            LCS.f:SPEED  4    0.2362   0.0591    0.521 0.7212051
           HELO:STEALTH  1   37.5106  37.5106  331.006 0.0000000
         HELO:FIREPOWER  1    5.1918   5.1918   45.814 0.0000011
             HELO:SPEED  1    0.2856   0.2856    2.520 0.1273348
      STEALTH:FIREPOWER  1    1.1761   1.1761   10.379 0.0040933
          STEALTH:SPEED  1    0.0162   0.0162    0.143 0.7087727
        FIREPOWER:SPEED  1    0.0396   0.0396    0.349 0.5607135
     LCS.f:HELO:STEALTH  4   18.1258   4.5315   39.987 0.0000000
   LCS.f:HELO:FIREPOWER  4    4.3364   1.0841    9.566 0.0001445
       LCS.f:HELO:SPEED  4    0.0322   0.0081    0.071 0.9901003
LCS.f:STEALTH:FIREPOWER  4    0.3423   0.0856    0.755 0.5658939
    LCS.f:STEALTH:SPEED  4    0.1094   0.0273    0.241 0.9116963
  LCS.f:FIREPOWER:SPEED  4    0.0476   0.0119    0.105 0.9794778
 HELO:STEALTH:FIREPOWER  1    8.0011   8.0011   70.605 0.0000000
     HELO:STEALTH:SPEED  1    0.1022   0.1022    0.902 0.3529854
   HELO:FIREPOWER:SPEED  1    0.0530   0.0530    0.468 0.5013499
STEALTH:FIREPOWER:SPEED  1    0.0361   0.0361    0.319 0.5783242
              Residuals 21    2.3798   0.1133
```

Table 290 S-Plus Code Preparing the ANOVA of the 0 CRUDES Set's Total Ship Losses, Including Up to 3-Way Interactions, and Output

APPENDIX D. GRAPHS

A. INTRODUCTION

This appendix displays graphs of residual plots for chosen ANOVA models and run-set comparisons. The run-set comparisons are categorized by what factors they isolate.

B. RESIDUAL PLOTS

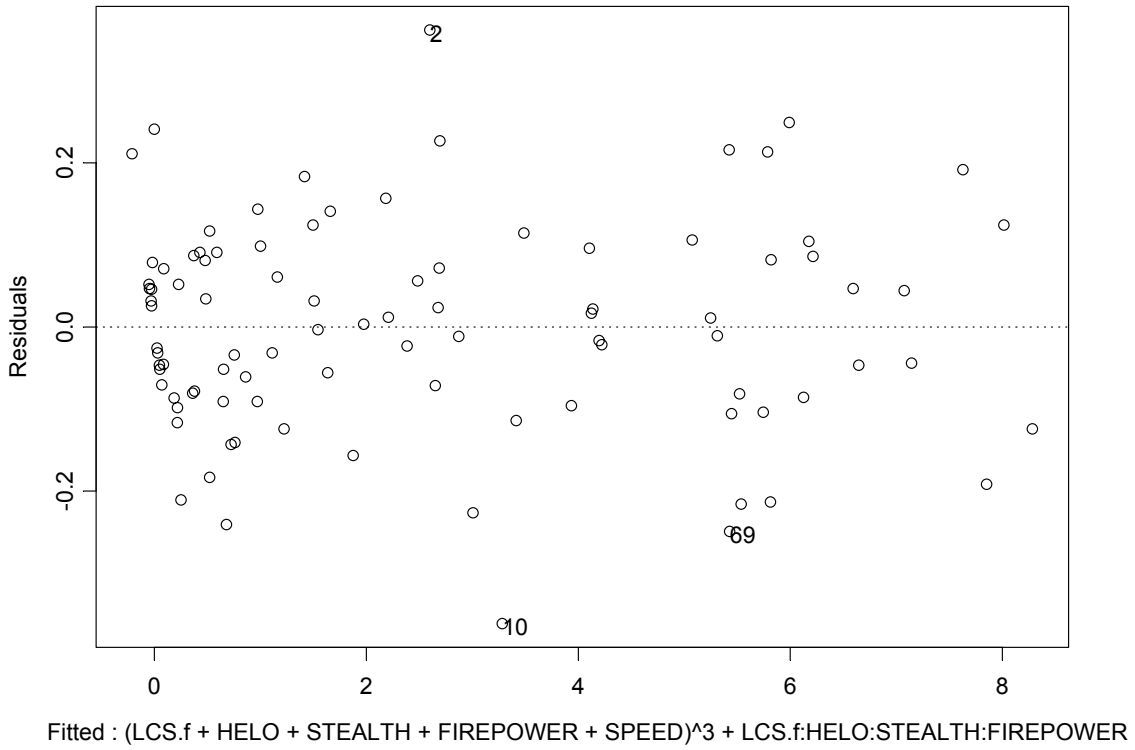

Figure 18 Residual Plot for the 1 CRUDES ANOVA

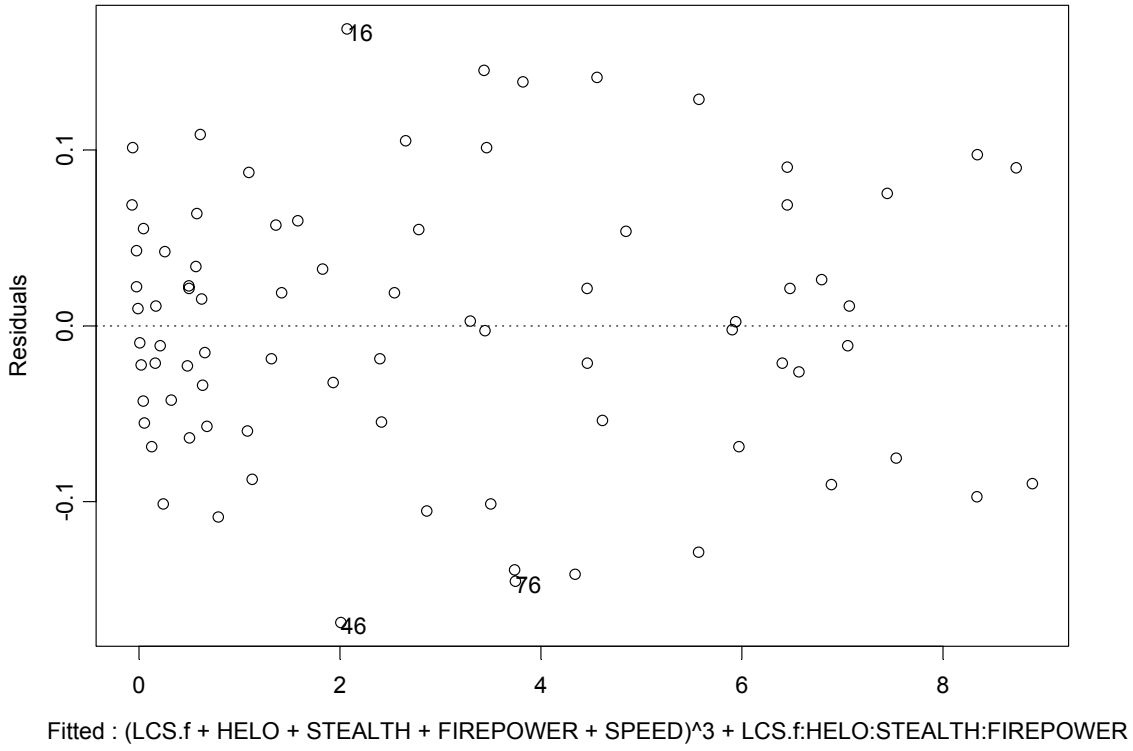

Figure 19 Residual Plot for the 0 CRUDES ANOVA

C. HELO/UCAV COMPARISONS

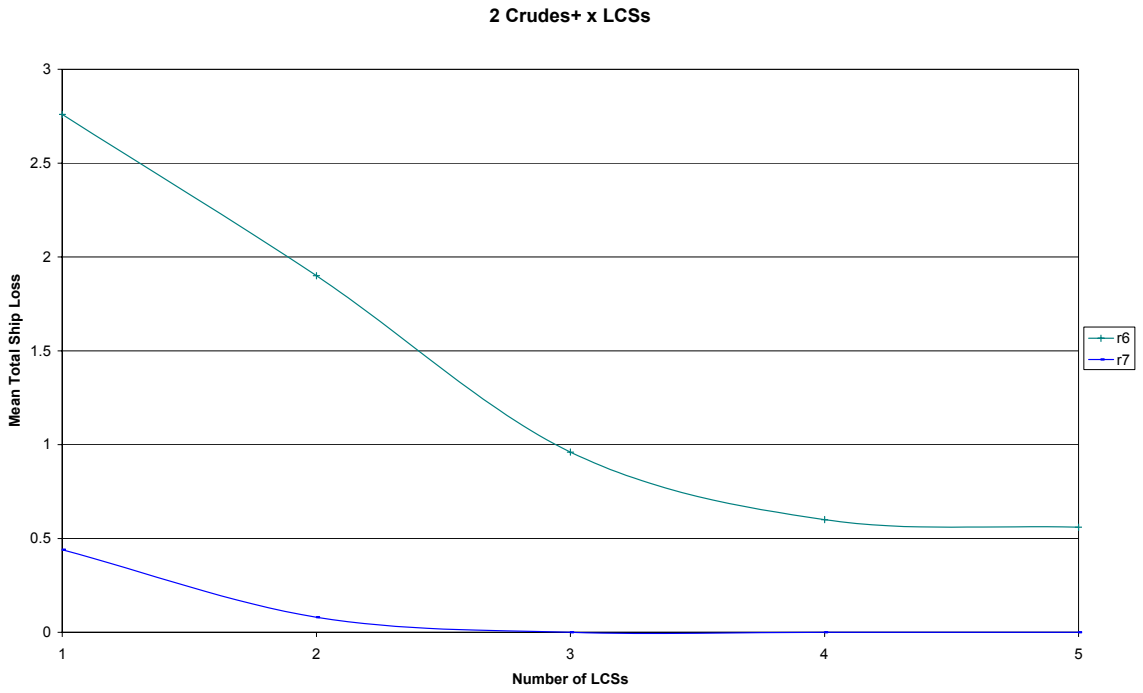

Figure 20 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r6 and r7

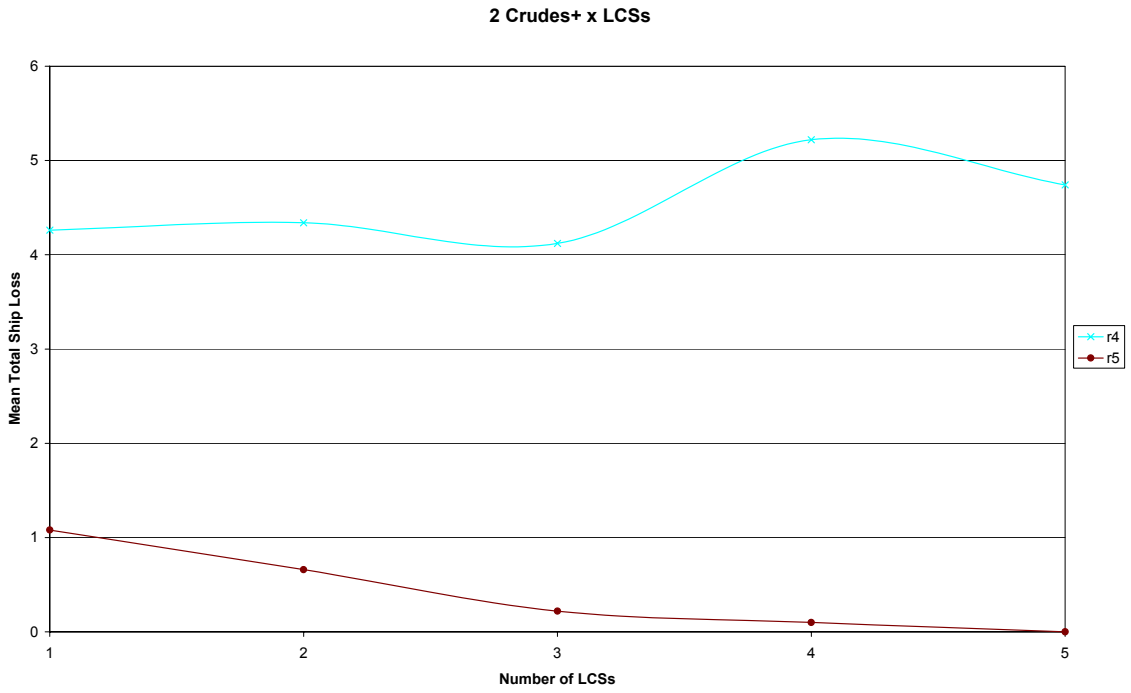

Figure 21 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r4 and r5

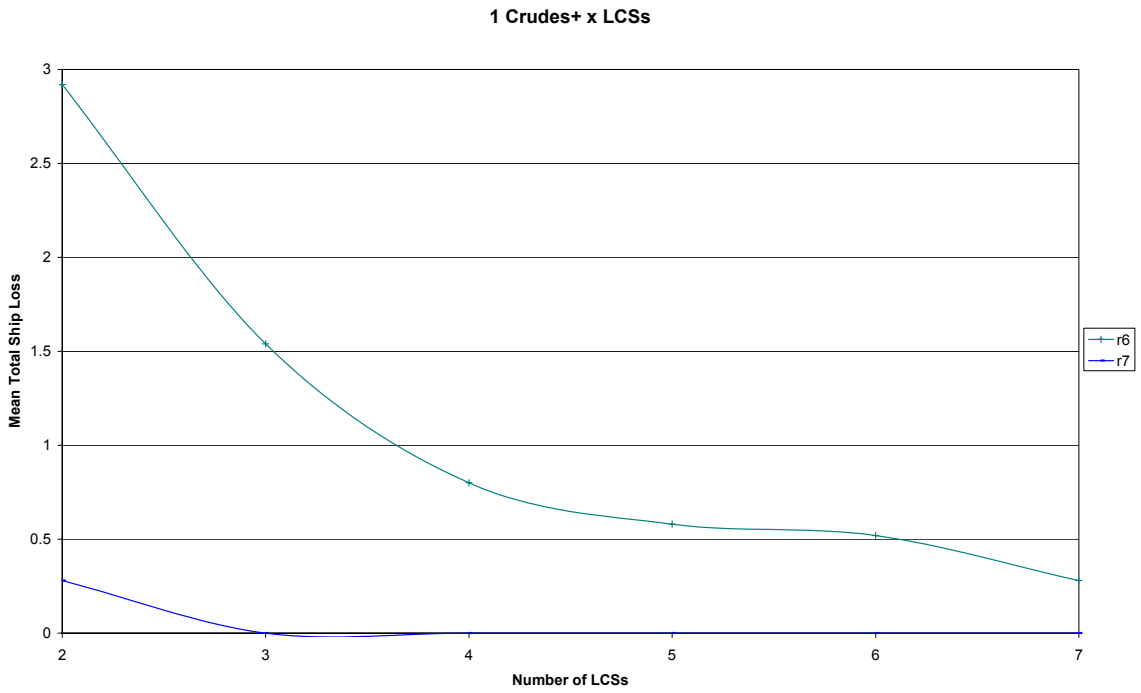

Figure 22 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r6 and r7

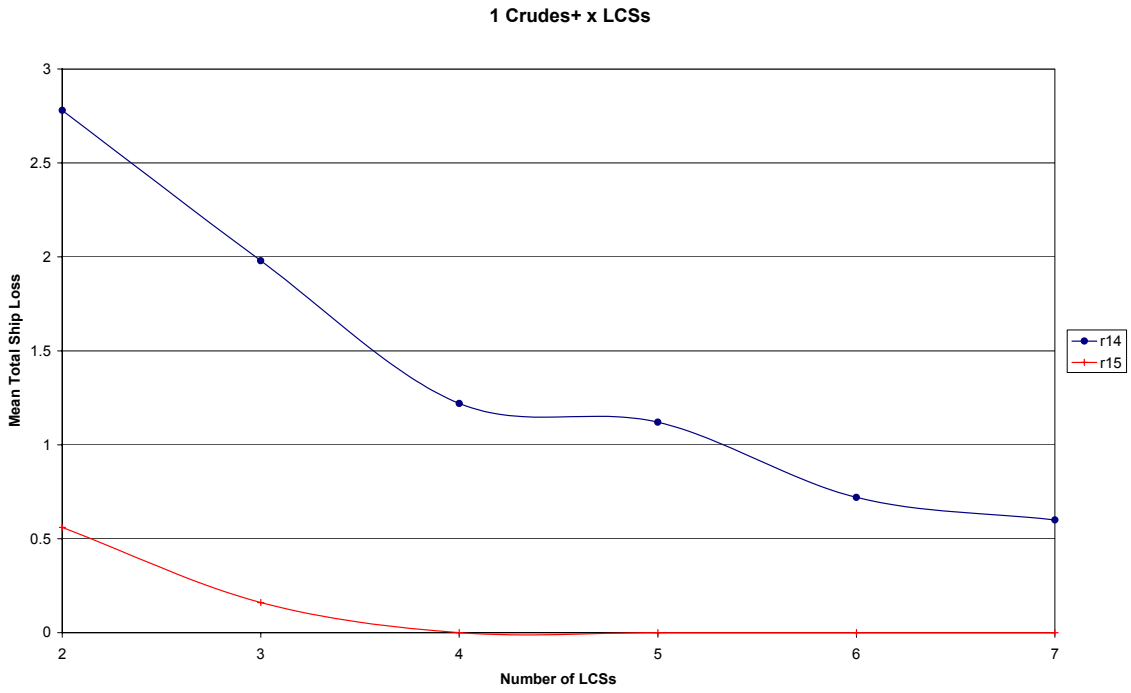

Figure 23 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r14 and r15

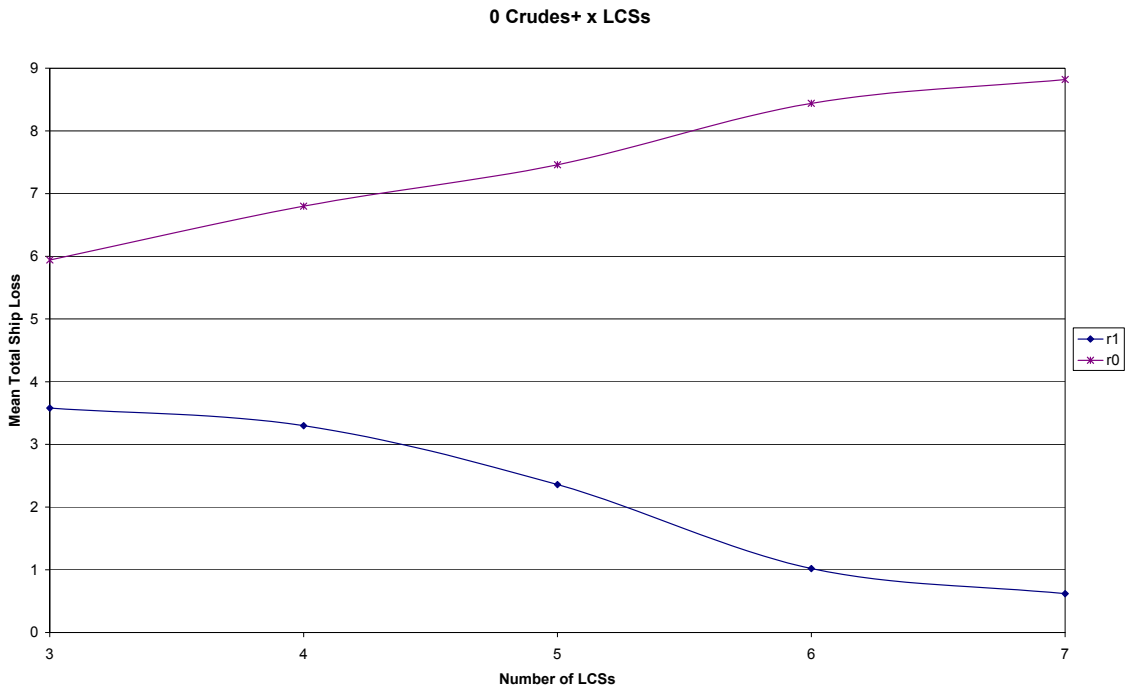

Figure 24 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r0 and r1

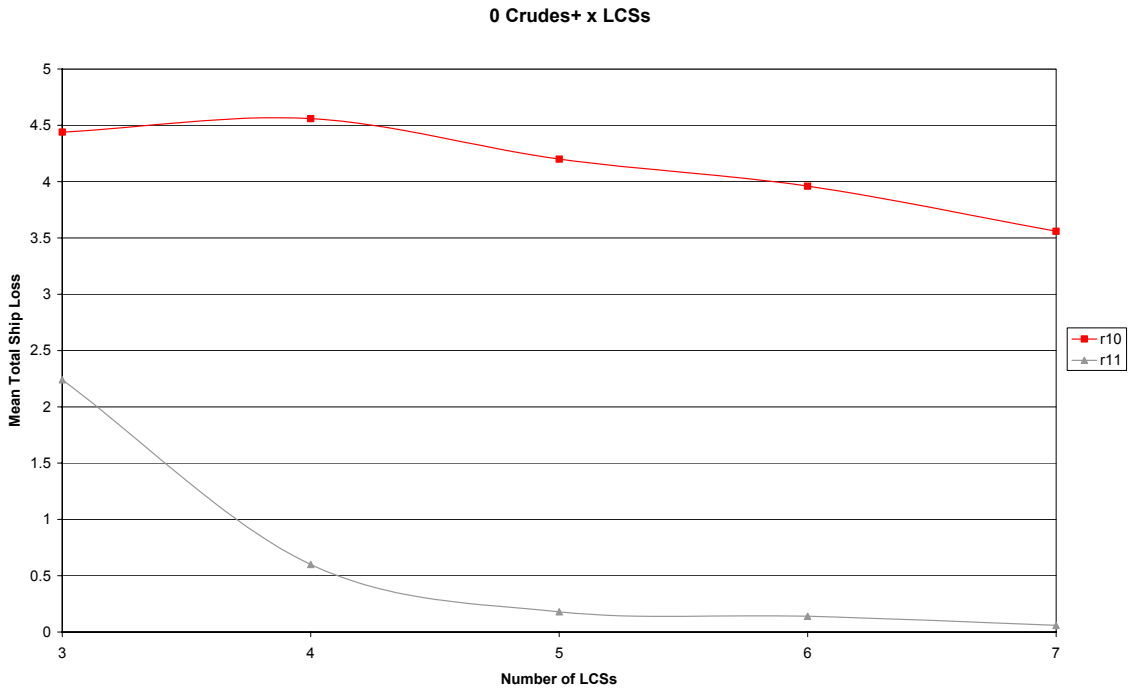

Figure 25 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r10 and r11

D. STEALTH COMPARISONS

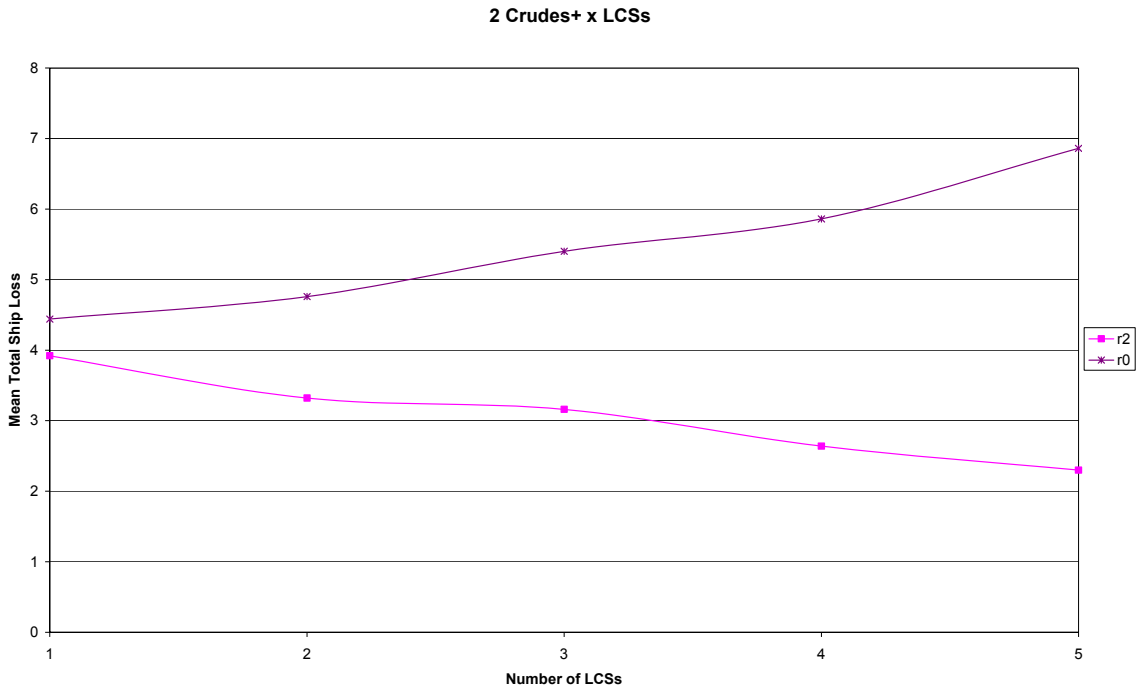

Figure 26 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r0 and r2

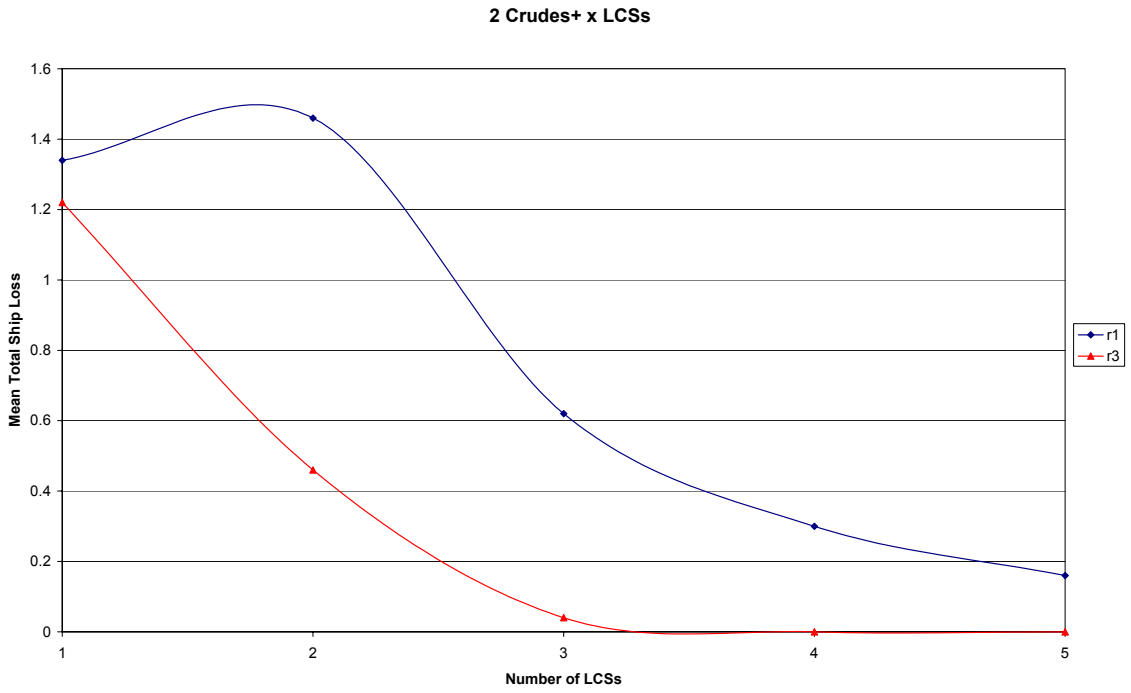

Figure 27 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r3

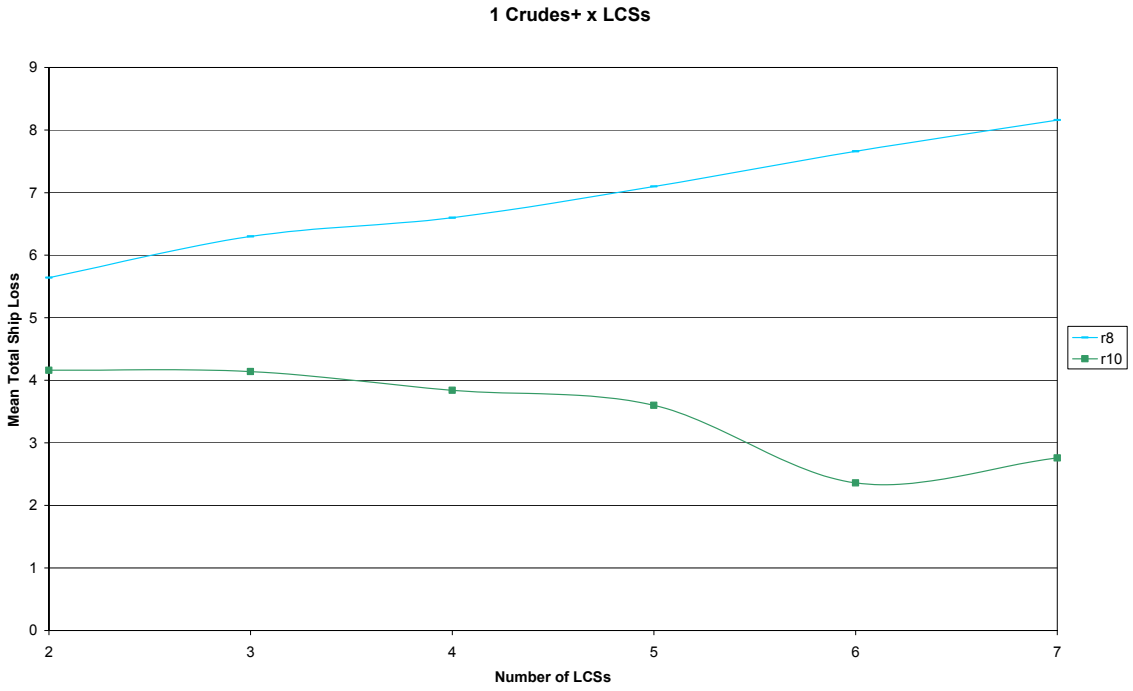

Figure 28 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r8 and r10

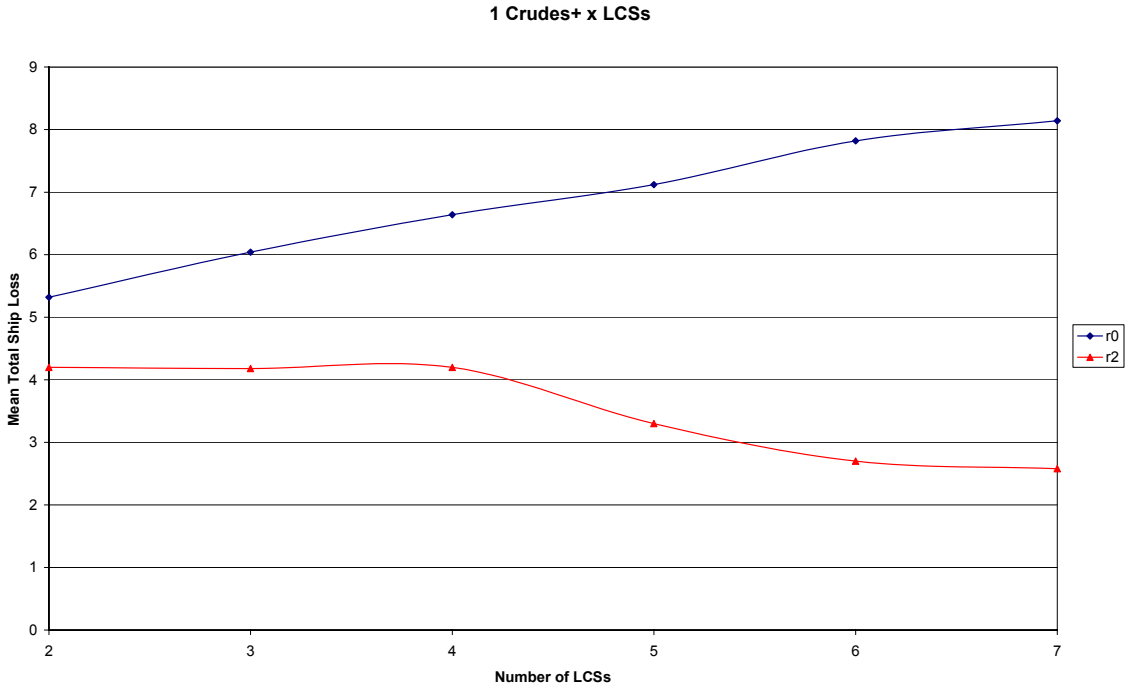

Figure 29 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r0 and r2

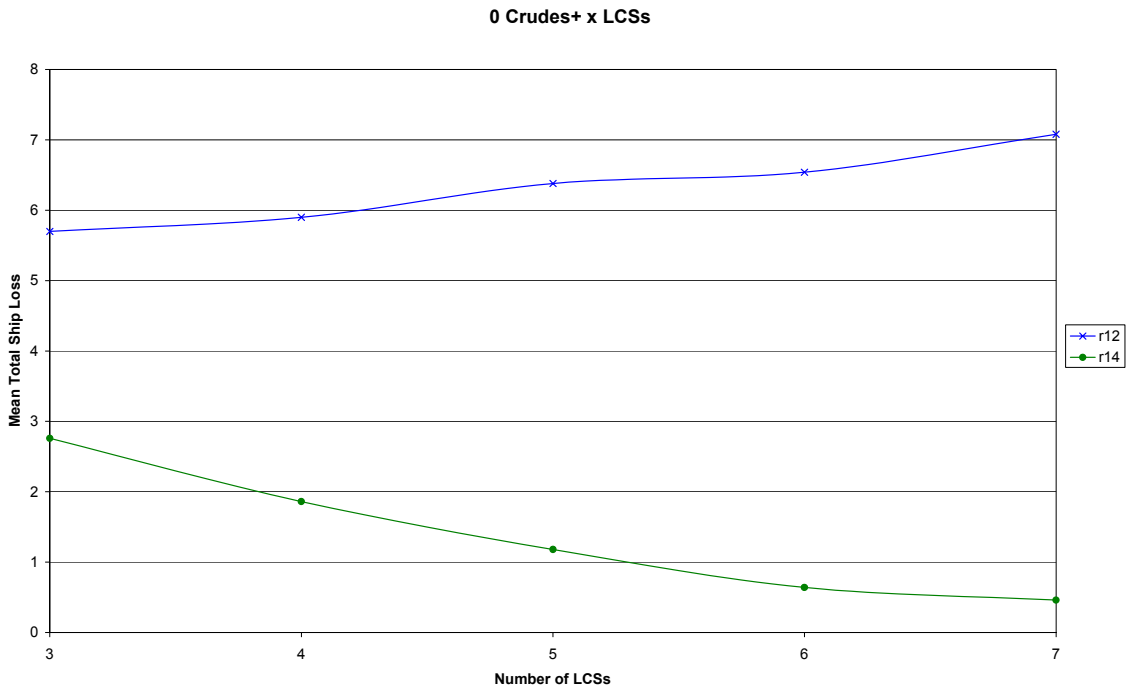

Figure 30 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r12 and r14

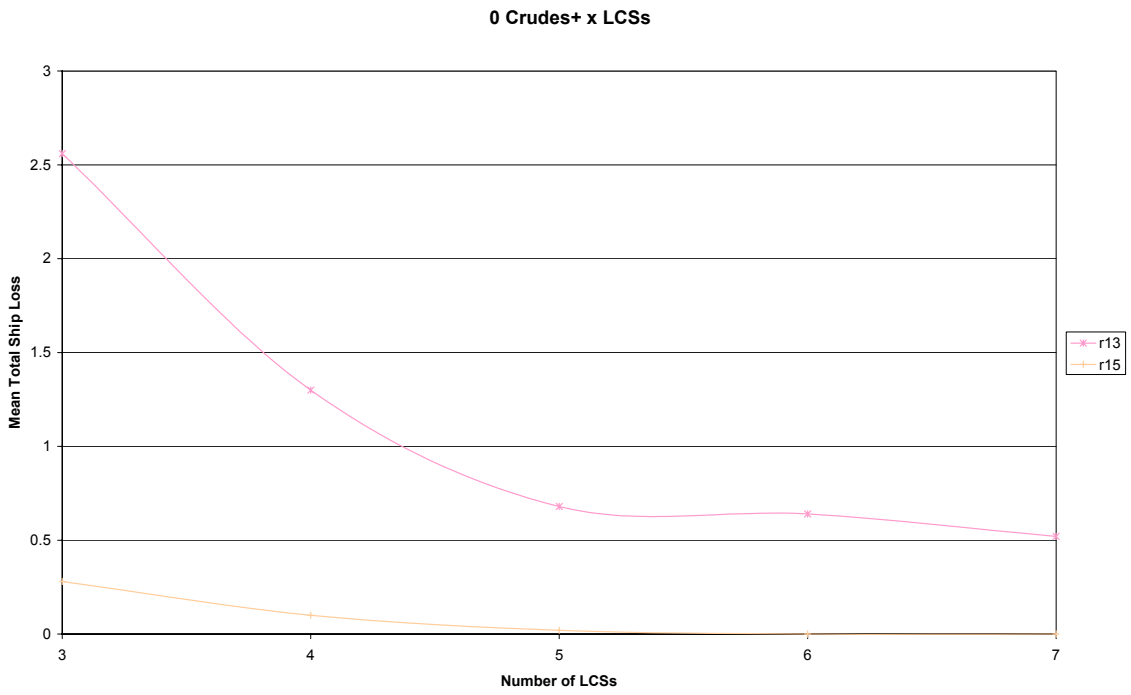

Figure 31 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r13 and r15

E. FIREPOWER COMPARISONS

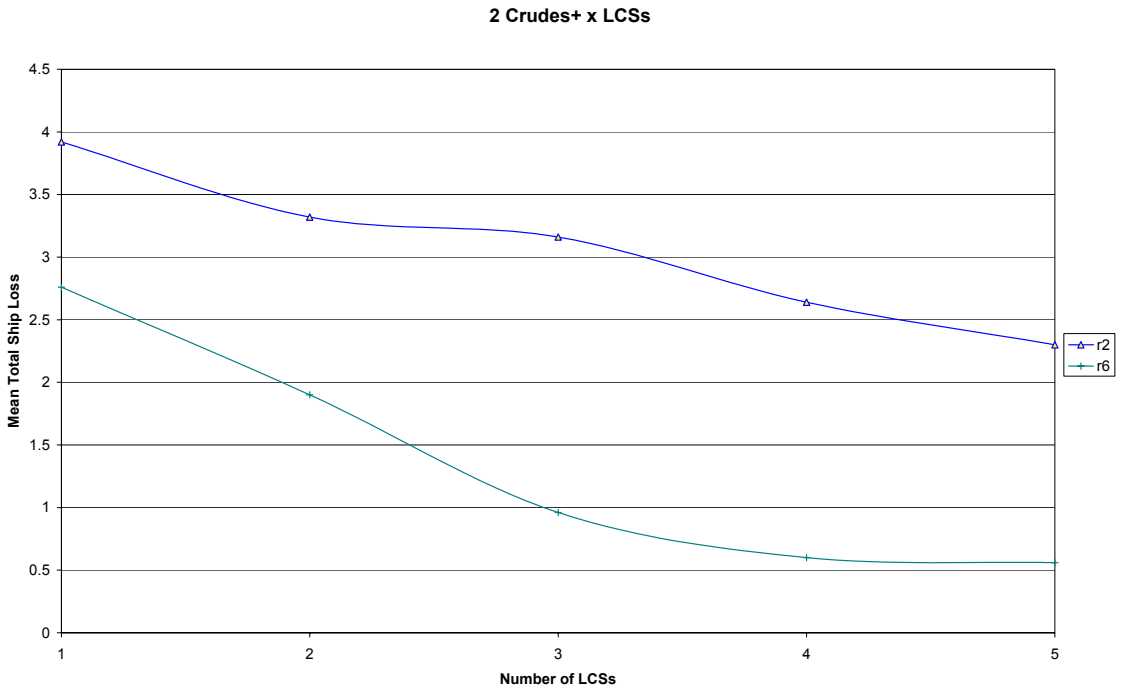

Figure 32 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r2 and r6

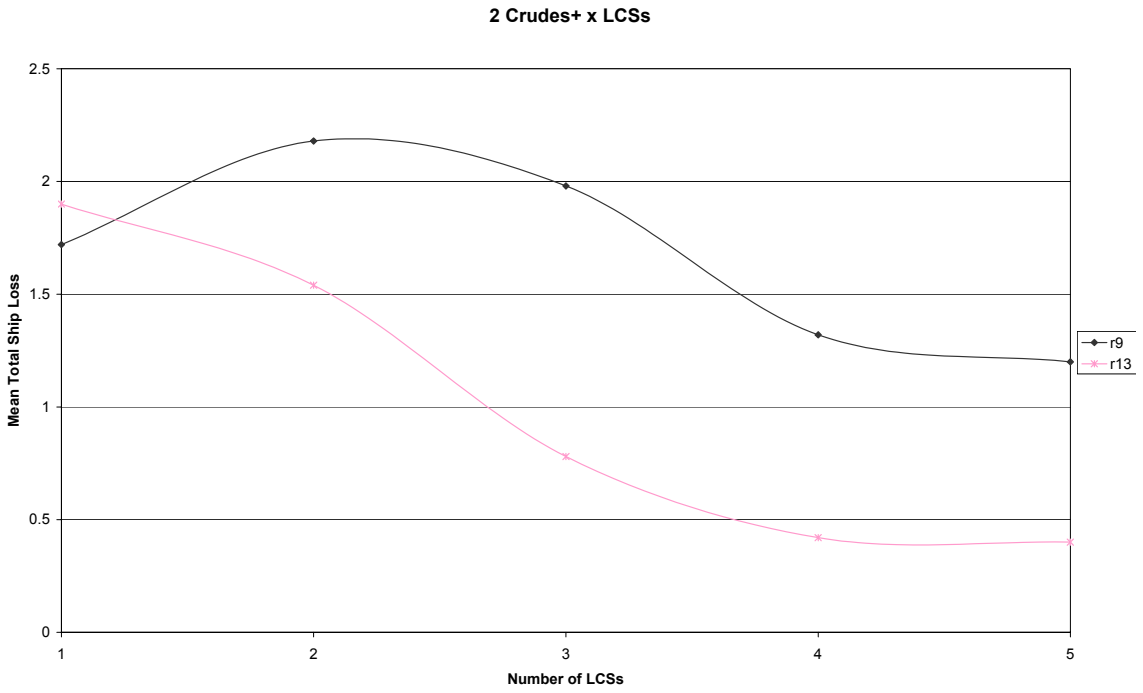

Figure 33 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r9 and r13

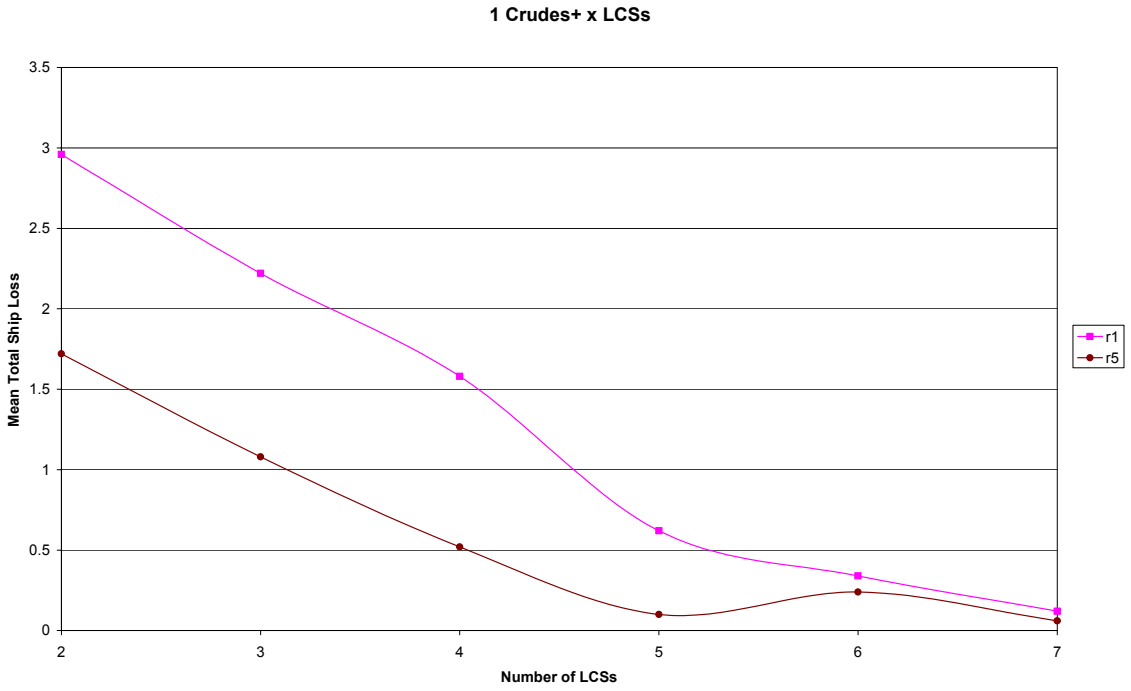

Figure 34 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r5

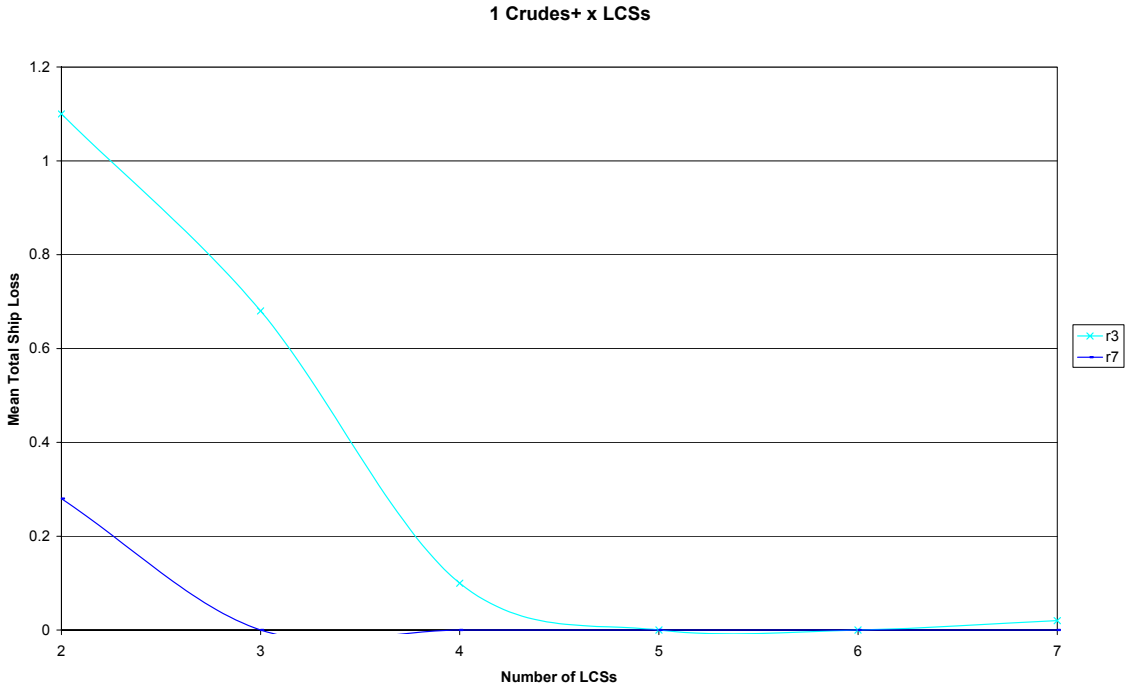

Figure 35 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r3 and r7

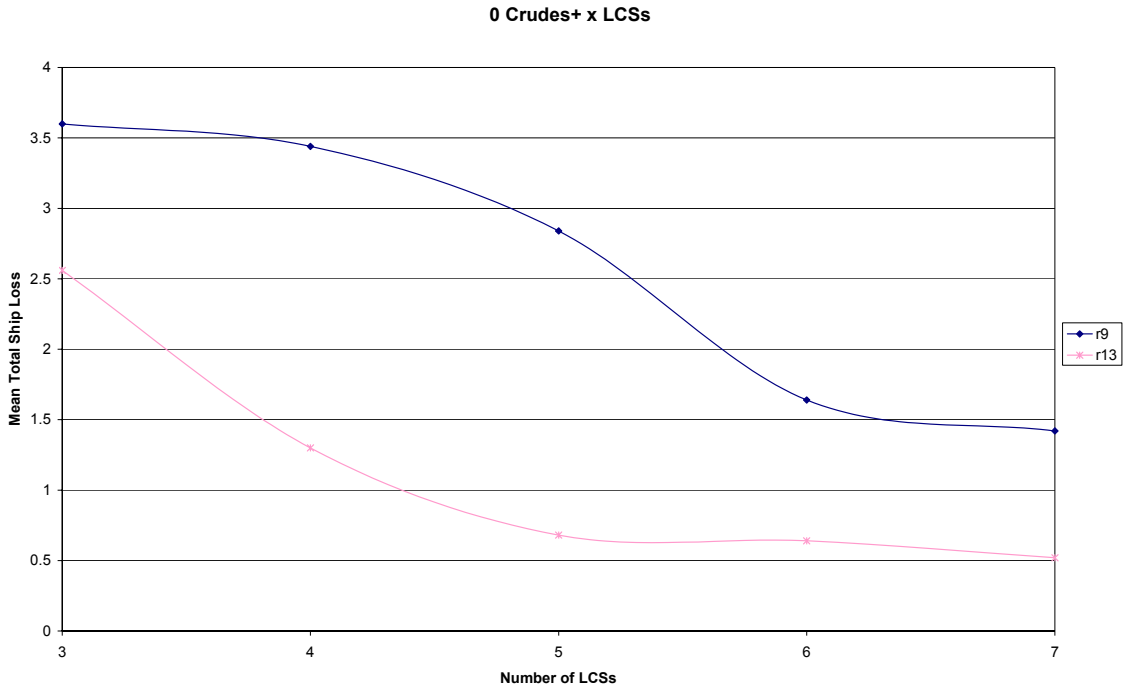

Figure 36 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r9 and r13

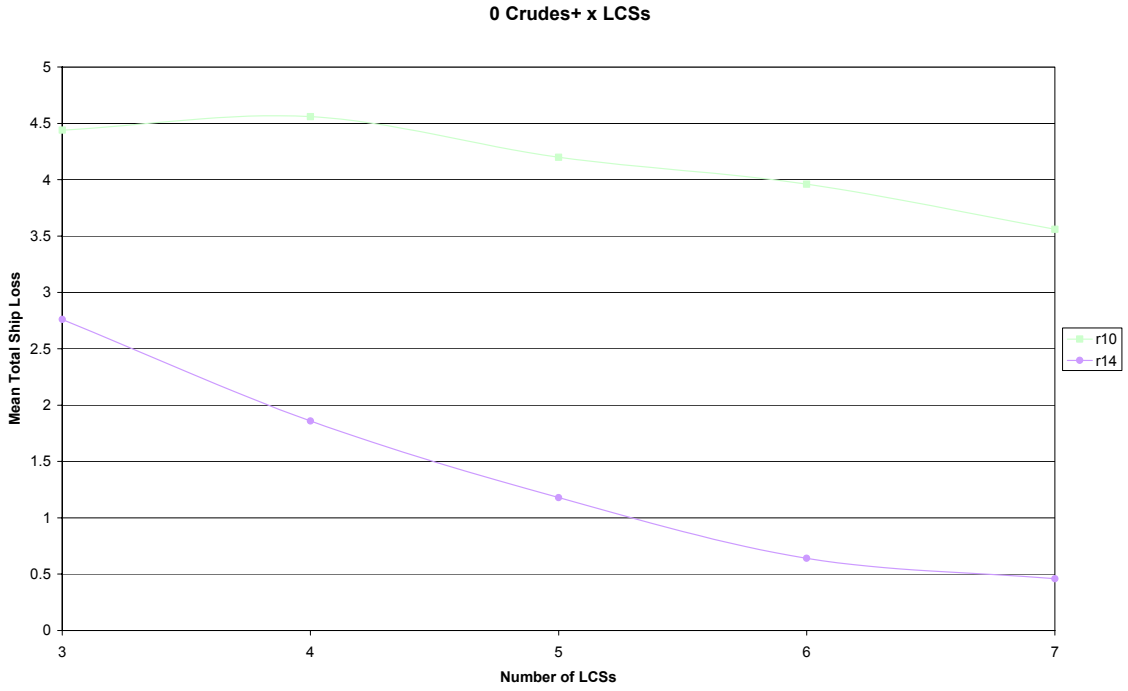

Figure 37 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r10 and r14

F. SPEED COMPARISONS

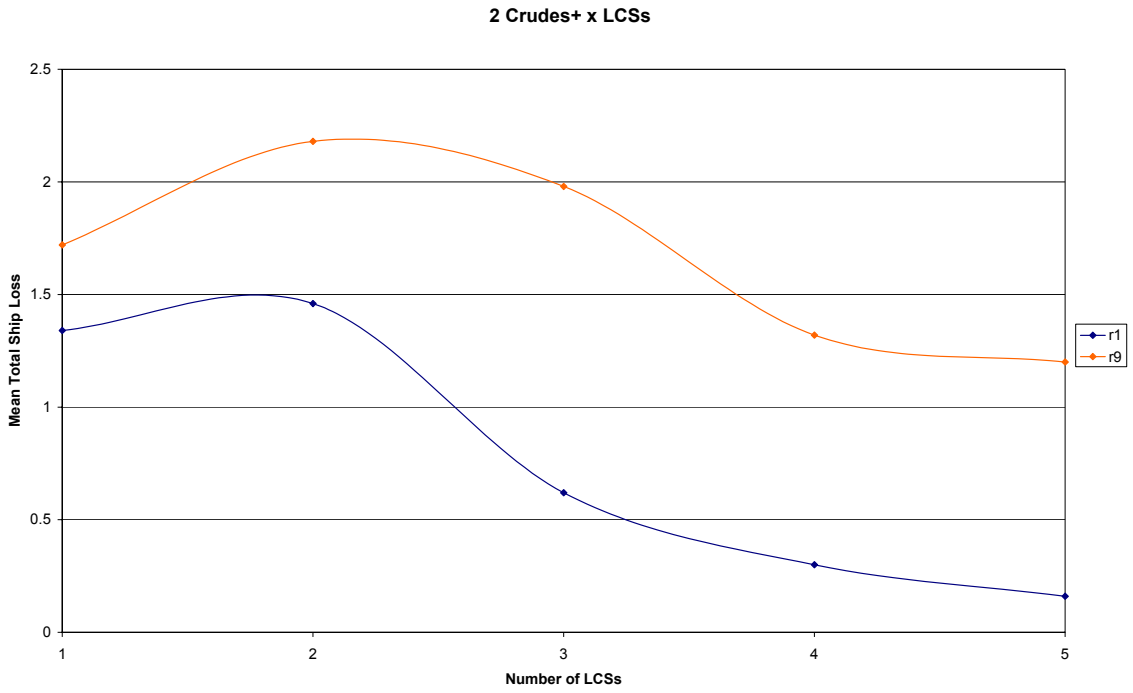

Figure 38 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r9

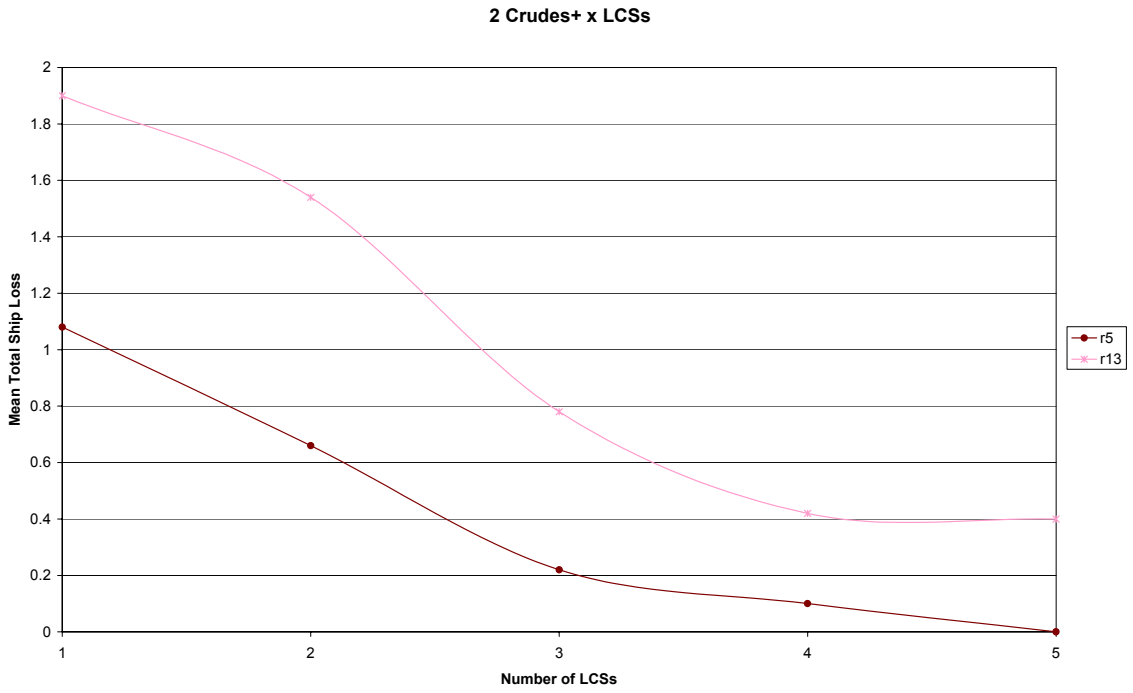

Figure 39 2 CRUDES + X LCS, Ship Loss vs. Number of LCS, r5 and r13

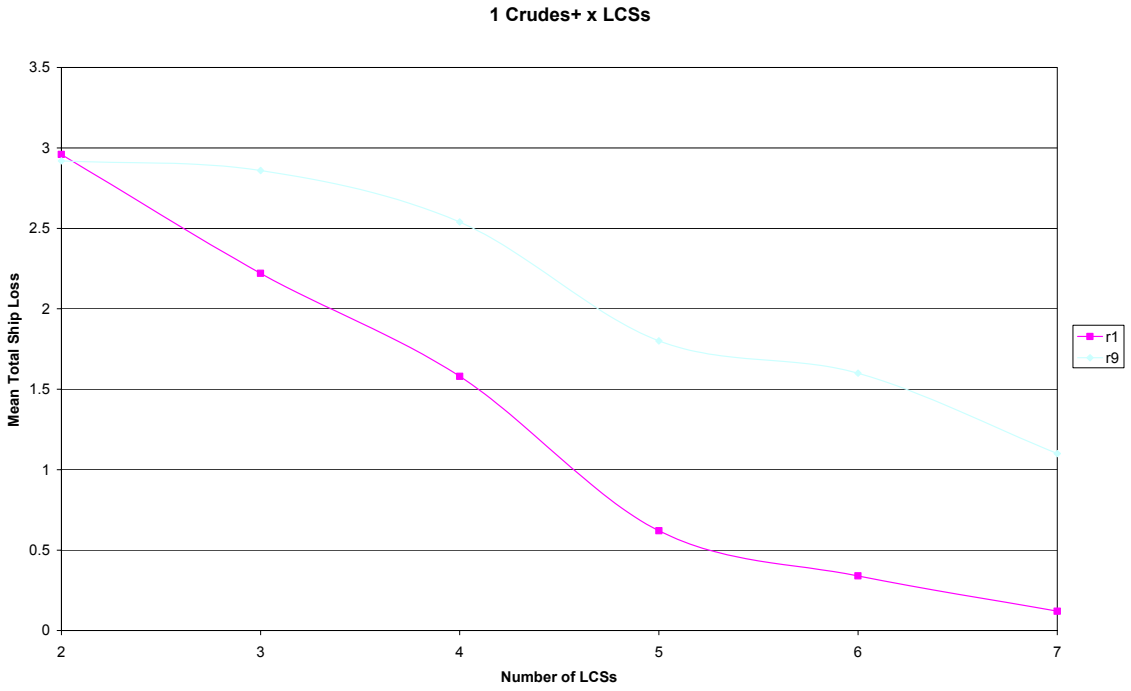

Figure 40 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r9

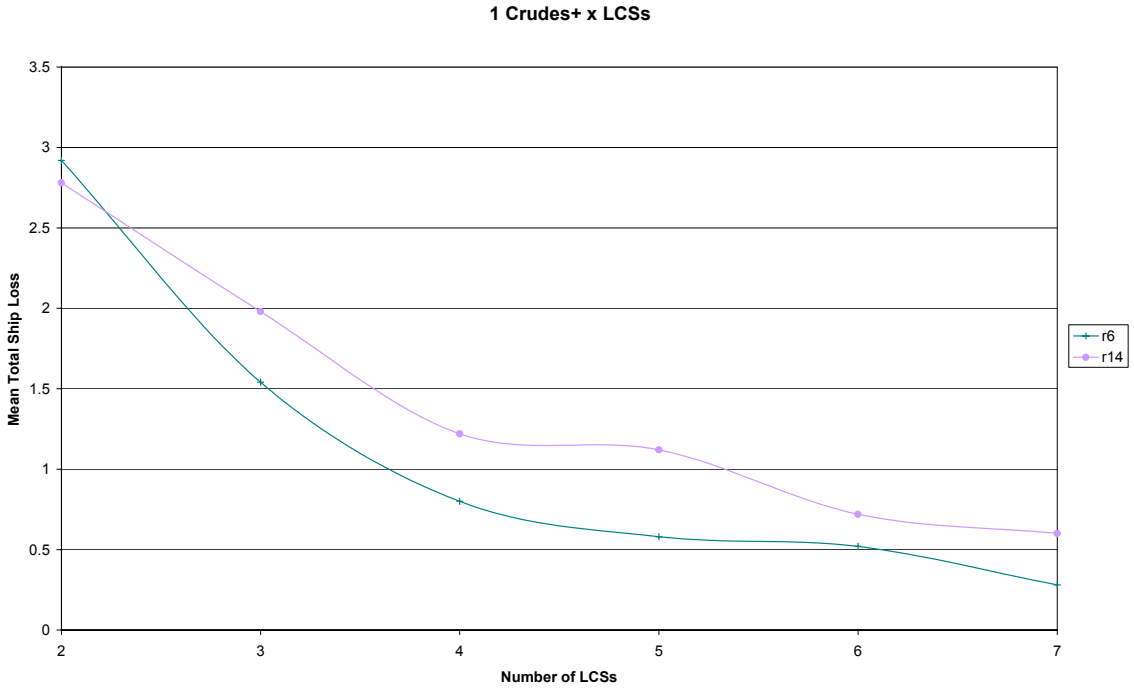

Figure 41 1 CRUDES + X LCS, Ship Loss vs. Number of LCS, r6 and r14

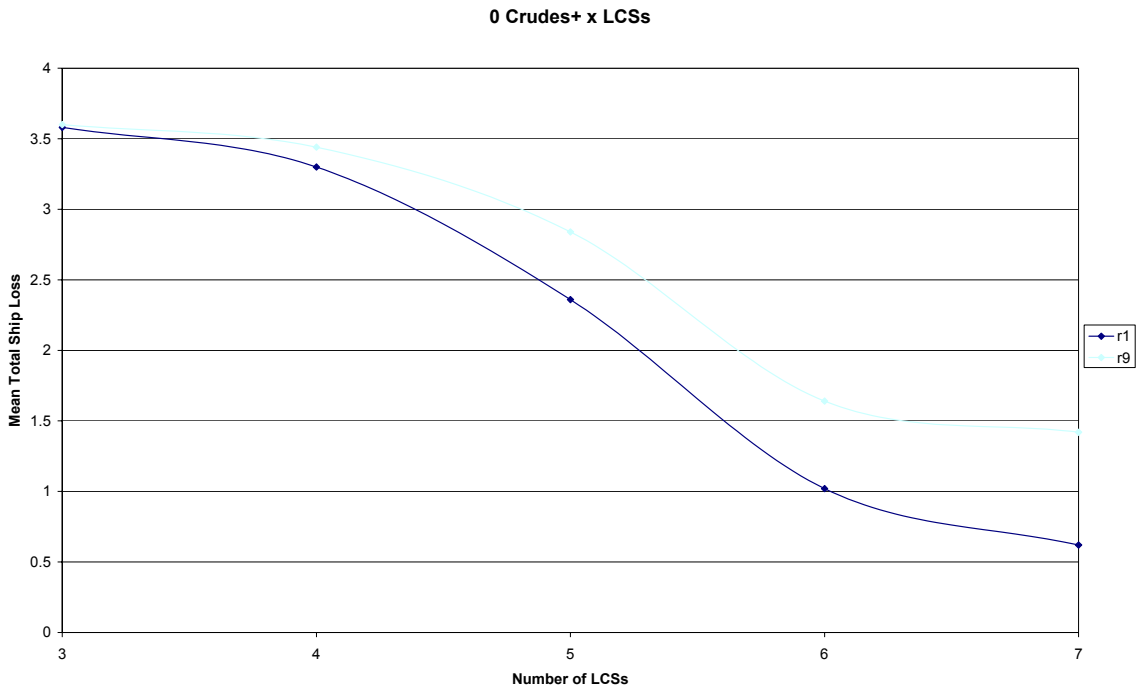

Figure 42 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r1 and r9

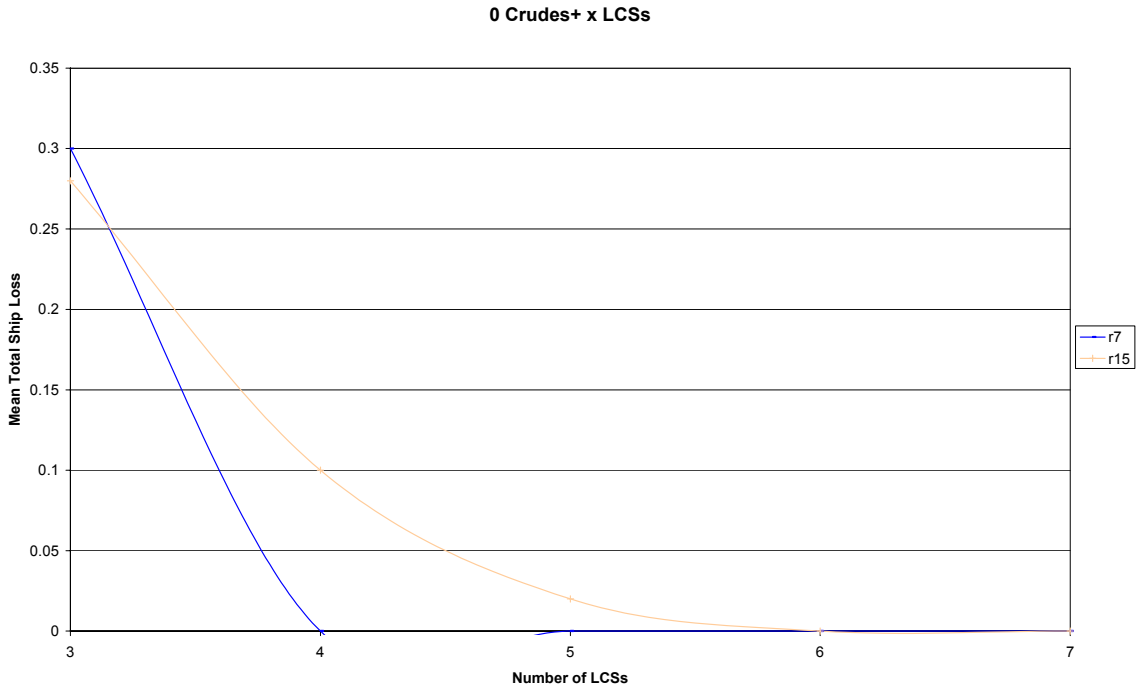

Figure 43 0 CRUDES + X LCS, Ship Loss vs. Number of LCS, r6 and r14

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