



## Shoreline Cleanup Assessment Techniques (SCAT) for Oil Spills in Marine Temperate Environments <sup>1</sup>

### Course Outline

*Shoreline Cleanup Assessment Techniques (SCAT)\** is a systematic and comprehensive approach used during an oil spill to provide timely information on shore oiling conditions and to determine the best cleanup (treatment) options.

Within the dynamics of a spill, SCAT brings the field perspective to the Response Team to develop the objectives and strategies for cleanup operations.

The SCAT process strives for both *environmentally-sound* and *cost-effective* response activities to achieve an overall *net environmental benefit*. The goal is to maximize the recovery of oiled environments and resources while minimizing the risk of further ecological injury from cleanup.

Effective application of SCAT:

- ✓ Reduces spill response costs and meets the criteria of reasonable cost, and
- ✓ Meets the Responsible Party, environmental agency, and community expectations.

\*\* Also referred to as: *Shoreline Cleanup Assessment Team*

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**Course Objective:** to train personnel to be proficient in SCAT from the field to incident management response levels, as well, as to understand the range of shore-based cleanup measures in which SCAT is operationally applied in a temperate (cold water) marine environment.<sup>1</sup>

**Approach:** to provide a combination of classroom instruction that includes SCAT concepts, field data collection and command post data management. Course is structured in subject modules. Instruction includes a field tour for SCAT application wherever locating to various shore-types is feasible.

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<sup>1</sup> EnviroEmerg's SCAT courses are also available for tropical marine environments that have mangrove, seagrass and reef ecosystems, as well as for inland environments with freshwater: lake, river, stream and wetland ecosystems.



**Style:** The course is delivered with a style that emphasizes the human relations dynamics of working together and addressing the Responsible Party, government agency, and community concerns. Emphasis is placed on participant interaction and dialogue to explore issues and concerns as they arise.

**Audience:** Government and industry personnel who are either interested in field delivery of SCAT, the management or application of SCAT information, or both. Between 8 to 14 people is the optimal class size.

**Framework:** Course content is according to the *Incident Command System (ICS)* for emergency management and the SCAT standards and process established by *US National Oceans and Atmospheric Administration* and *Environment Canada*. Oil spill response training is focussed on shore cleanup operations in which SCAT is mainly applied.

**Length & Venue:** A three day course in a location that is near a variety of shoreline types to facilitate a field tour.

**Logistics:** Training room rental and transportation for field tour, lunches and coffee to be provided by sponsor. Box/catered lunches should be provided in-class and in-the-field to optimize class time.

**Expenses:** As per EnviroEmerg Fee and Expenses schedule for travel, meals, accommodation, and consumables.

**Instructor Fee & Materials:** \$3,000 CAN for instructor fee. Budget approximate \$30 per student for SCAT manual and CD reference materials. Cost does not include applicable taxes.

SCAT Course Outline	
Part 1 - The SCAT Framework	
<b>Module 1 – Course Objectives and Content</b>	Class introductions and an overview of course structure and contents
<b>Module 2 – SCAT Definition, Purpose, Principles, and Benefits</b>	Defines SCAT and explains its purpose and benefits
<b>Module 3 – Net Environmental Benefit Analysis</b>	Examines fundamentals of net environmental benefit to achieve the correct balance to meet stakeholder interests in the best practicable manner, and to compare tactical response options with the advantages and disadvantages of natural cleanup.
<b>Module 4 – SCAT Process</b>	Outlines the SCAT tasks and processes, explains the phases of an oil spill and introduces the Incident Command System.



SCAT Course Outline	
<b>Part 2 - SCAT within the Incident Command System</b>	
<b>Module 5 – SCAT Process within Incident Management</b>	Provides an overview of the Incident Command System for environmental emergency response and where and how the SCAT process fits within.
<b>Module 6 - Working Relationship with Operations</b>	Speaks of the essence of SCAT is to guide and work with operational personnel. Introduces Incident Action Plans, and communications with operation’s division supervisors.
<b>Module 7 – SCAT Job Descriptions</b>	Explains standard SCAT job descriptions as “technical specialists” within the ICS and Incident Management Team. Looks at duties and tasks.
<b>Part 3 - Case Studies</b>	
<b>Module 8 - Case Studies</b>	<p>A photo essay of four case studies:</p> <ul style="list-style-type: none"> <li>•<i>M/T Prestige</i> oil tanker No 2 Fuel spill on November 13th, 2002 in Galicia, Spain</li> <li>•<i>M/V Westwood Anette</i> freighter Bunker C Spill on August 4th 2006 in Squamish, British Columbia</li> <li>•<i>M/V Queen of the North</i> ferry Marine Diesel spill on March 22nd 2006 near Gil Island (Central Coast), British Columbia</li> <li>•<i>M/T Hebie Spirit</i> oil tanker crude oil spill, December 7, 2007 in South Korea</li> </ul> <p>Case studies explore opportunities for SCAT process to achieve a net environmental benefit in shoreline response activities.</p>
<b>Part 4 - SCAT Working Environments (Marine coastal temperate)</b>	
<b>Module 9 - Environments: Tides, Waves, Winds,&amp; Currents</b>	Provides basics on tides, winds and currents and how they influence SCAT decisions on cleanup options and constraints.
<b>Module 10 - Geomorphology Processes, Shoreline Types &amp; Coastal Character</b>	Provides basics on processes that make and change shorelines. Defines shoreline types and character and their relevance to the SCAT process and cleanup options.
<b>Module 11 - Coastal Ecology</b>	Provides basics on coastal (temperate) ecology with focus on shore zonation process. Examines the aspects of species recruitment and oil impact vulnerability as it applies to SCAT decision-making. Tropical marine environments as a specific module on mangroves, seagrasses and reefs and their inter-relationships in ecology and cleanup decision-making.



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<b>Module 12 - Coastal Uses &amp; Values</b>	Examines the range of coastal uses - public, commercial, marine protection and first nations.
<b>Module 13 - Resource Inventory &amp; Oil Sensitivity Mapping</b>	Examines how SCAT environments (ecology, geomorphology, coastal uses) are inventoried and how to extract this information for use in the SCAT process.
<b>Part 5 - Shoreline Cleanup Methods</b>	
<b>Module 14 – Shoreline Cleanup Methods.</b>	Looks at a wide-range of shoreline cleanup options. Examines when and where to use, constraints and environmental effects of each option and other factors important to SCAT decision-making. Module is based on NOAA's <b>Characteristics of Response Strategies: A Guide for Spill Response Planning in Marine Environments</b> .
<b>Module 15 – Shoreline Characteristics &amp; Cleanup Options</b>	Examines the fundamental physical and biological characteristics of coastal shores; how oil is likely to behave in each of these characteristic areas, and what are the best options for treating oiled shores that are practical, safe and cost-effective.
<b>Part 6 - Shoreline Cleanup Constraints and End Points</b>	
<b>Module 16– Constraints for Shoreline Treatment</b>	Review “what not to do” as constraints to cleanup operations. Examines constraint categories (deferred, standard, holding, special consideration) examples of pre-established operational constraints for a variety of cleanup options (mechanical, flooding, burning, etc) and actual constraints used in incidents.
<b>Module 17 – End Points for Shoreline Treatment</b>	Explains how to establish and to write endpoints as measurable criteria assigned to a segment of oiled shore used to determine the completion of a specific treatment plan. Focusses on qualitative and quantitative end-points and stakeholder participation.
<b>Part 7 - SCAT Field Measurement &amp; Documentation</b>	
<b>Module 18 – Field Measurement Equipment</b>	Demonstration of field equipment such as hip-chains, range-finders, GPS, etc.
<b>Module 19 - SCAT Field Measurement</b>	Explains how to take measurements of oiling coverage, character, and thickness for each oiled shoreline segment. Also explains how to extract “pre-information” from shoreline coastal resource atlases.
<b>Module 20 – SCAT Field Documentation</b>	Explains how to complete forms and sketches for each segment to identify specific locations to be cleaned based on field measurements.



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Part 8 - SCAT Field Health and Safety	
<b>Module 21 - Field Health and Safety</b>	Module is based on the health and safety component of the April 2006, <i>Spill Tactics for Alaska Responders</i> (STAR), includes presentation of personal protective equipment and supplies that should accompany a SCAT field kit.
Part 9 - Field Tour	
<b>Module 22 – Field Application</b>	A field tour of selected shore types, habitats and environments to view the setting from the perspectives of: government agencies, industry (Responsible Party), stakeholders (community) and operations personnel. Other considerations include: safety, operational constraints, tactics end-points
Part 10 - SCAT Information Management	
<b>Module 23 – Automation of SCAT Field Data Collection</b>	This module examines the challenges and opportunities to use technology in-the-field, limitations and benefits of electronic field equipment, GPS photo geo-referencing and SCAT data collection using a Personal Digital Assistant (PDA)
<b>Module 24 – SCAT Data Management at the Command Post</b>	This module examines how - in the Incident Command Post - to take the field data either in hard-copy (paper) or electronic forms and compile, analyze and present the information to unified command, operations and stakeholders. Looks at data-management challenges and opportunities.
Part 11 - SCAT Integration Table-Top Exercise	
<b>Module 25 – Table top Exercise</b>	A table-top exercise to integrate the SCAT process from arriving at Command Post, for incident briefing SCAT standardization, safety etc, to going into the field, and returning to manage SCAT field data.
<b>Module 26 – Course Evaluation</b>	Course evaluation written submission by participants and verbal suggestions on course materials, presentations, relevance., etc