

SCAT

- Shoreline
- Clean-up
- Assessment
- Team



OBJECTIVE OF SHORELINE CLEANUP ASSESSMENT TEAM

 When oil contaminates shoreline habitats, responders must survey the affected areas to determine the appropriate response. Though general approvals or decision tools for use of the shoreline cleanup methods may be developed during planning stages, responders must base specific cleanup recommendations on field data on the shoreline habitats, types and degree of shoreline contamination, and spill-specific physical processes.

PURPOSE OF SCAT

- Assessment of the need for shoreline cleanup
- Selection of the most appropriate cleanup method
- Determination of priorities
- Documentation of the spatial oil distribution over time
- Internally consistent historical record of shoreline oil distribution for use by other scientific surveys of impacts (i.e. NRDA)

WHAT IS SCAT?

- A SYSTEMATIC approach that uses STANDARD terminology to collect data on shoreline oiling conditions and support decision making for shoreline cleanup;
- FLEXIBLE in terms of scale of the survey and detail of the data sets collected; and
- MULTI-AGENCY, with TRAINED representatives from all interested parties who have authority to make decisions

The SCAT process uses eight steps:

- 1. Conduct reconnaissance survey
- 2. Segment the shoreline
- 3. Assign teams and conduct shoreline surveys
- 4. Develop cleanup guidelines and endpoints
- 5. Submit reports and sketches to Planning Section
- 6. Monitor effectiveness of cleanup
- 7. Post cleanup inspections
- 8. Do final evaluation of cleanup activities

What Makes a Team

- o RP
- o Fed
- o State
- Landowner or other stakeholder
- "Calibrate" team
 - agree on how the oiling descriptors will be applied

Team responsibilities

- Collect data using a collaborative consensus-building approach
- Evaluate oiling conditions
- Factor in shoreline types
- Identify sensitive resources
- Determine need for cleanup
- Recommend cleanup methods and endpoints
- Place constraints on cleanup if necessary, due to ecological, economic, or cultural concerns

SCAT ROLES, RESPONSIBILITIES

Coordinator
Leader
Member
Database Manager

Coordinator

- Conducts aerial reconnaissance survey, as appropriate, to scope the shoreline oiling issues
- Develops a survey and reporting schedule to produce survey results in time for incorporation into the Incident Action Plan
- Receives reports from field teams and synthesizes them into a daily summary that is accessible to the field teams if problems arise
- Helps the team reach consensus and reports dissenting opinions when consensus is not reached
- Briefs the response management team on issues raised by the SCAT, particularly where cleanup methods must be modified to increase effectiveness or decrease impacts
- Continues to lead evaluation of targeted cleanup endpoints and modifies them as necessary

Coordinator

- Serves as the primary point of contact for all SCAT activities, both at the Incident Command Post and in the field
- Ensure that all SCAT field teams are present and accounted for
- Ensures that teams use proper terminology and apply guidelines uniformly
- Ensures that all teams have the necessary representation and all members have the necessary training and equipment
- Develops daily assignments for each team and gives a daily safety brief
- Coordinates with other members of the response effort with concerns on shoreline assessment to optimize data sharing, including NRDA team
- Integrates cleanup concerns of the various resource agencies and managers into the decision-making process
- Arranges for equipment and transportation for the SCAT Teams

Leader

- Is usually the most experienced person on the team
- Ensures that documentation and equipment for SCAT teams (maps, photography equipment, gear, communications, etc.) is adequate and assembled prior to deployment
- Reviews each SCAT segment assigned to teams prior to deployment for issues such as access sites (vehicle, boat, helicopter), problematic terrain (eg: streams, cliffs), special safety considerations, communications, limitations, etc.
- Manages the team while it conducts field surveys
- Ensures that all SCAT team members are properly equipped
- Acts as the team Safety Officer
- Makes sure that the forms and sketches are 100% completed in the field

Leader

- Guides the team toward consensus on cleanup recommendations, priorities, special constraints, etc., and notes dissenting opinions
- Briefs the SCAT Coordinator and other SCAT Leaders on field survey results
- Reports on cleanup issues and any other spill specific issues identified by the team that need to be addressed
- Recommends modifications to cleanup methods and target cleanup endpoints
- Can serve as Deputy SCAT Coordinator
- Assists with field documentation of observed oiling conditions and/or record photo/waypoint details
- May request additional expertise to address specific sites or needs, i.e. anthropologist, geomorphologist, state historic preservation officer (SHPO), response clean-up experts, etc.

Member

- Assist in data collection on oiling conditions and special considerations
- May include experts in resource sensitivity and priorities for response considerations
- Recommend site-specific constraints or precautions to be followed during cleanup
- Determine need for cleanup, considering cleanup guidelines and endpoints, site safety, and sensitive resources
- Recommend cleanup methods, priorities, and endpoints considering cleanup guidelines, site safety, and sensitive resources
- Assists with field documentation of observed oiling conditions and/or record photo/waypoint details
- Responsible for personal safety

Database manager

- Modify existing SCAT data entry forms as needed (working with SCAT Coordinator)
- Review daily SCAT forms for completeness and consistency
- Enter or supervise the entry of daily SCAT data
- Conduct data QA/QC; identify common data problems and train SCAT members how to prevent future problems
- Generate daily summary reports, maps, and data summaries
- Maintain an archive of all SCAT data, forms, photographs, GPS data, etc.
- Provide access to all SCAT data entry forms and field manuals
- Prepared to work odd and extended hours
- Be aware of health and safety issues for particular work site

Step 1: Conduct reconnaissance survey

• Objectives

- Obtain overall perspective on shoreline types and degree of contamination for a gross overview
- Determine areal extent of oiling on the shoreline
- Identify logistical constraints to shoreline access for both shoreline assessment and cleanup teams
- Coordinator
- o Methods
 - Review Area Plans, ESIs
 - Overflights



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SHORELINE HABITATS





10A SALT- AND BRACKISH-WATER MARSHES



10B FRESHWATER MARSHES



1

10C SWAMPS

10D SCRUB / SHRUB WETLANDS

SENSITIVE BIOLOGICAL RESOURCES









SMALL MAMMAL

UNGULATE













MULTIPLE ELEMENTS



THREATENED / ENDANGERED

RAR NUMBER 123

HUMAN-USE FEATURES



BOAT RAMP

AQUACULTURE / HATCHERY



COAST GUARD

FERRY



LOCK AND DAM





\land PARK



RECREATIONAL FISHING



SUBSISTENCE FISHING



Step 2: Segment the Shoreline

- Divide the shoreline into units, called segments, for recording and tracking survey data and making cleanup recommendations.
- Coordinator
- Methods
 - Use detailed maps (topos)
 - Mark segments based on similarity of geomorphology, degree of oiling, etc
 - Use incident common naming convention (Ops)

CAPE MOHICAN Incident

Shoreline Division& Segment Map prepared by NOAA Date/Time: 04 NOV 96, 1300

USE ONLY AS A GENERAL REFERENCE

Graphics do not show precise amounts or locations of oil



Step 3a: Team Assignments/Logistics

- Determine areas to be surveyed and logistical and team assignments.
- Coordinator
- Methods
 - Identify
 - Assemble
 - Organize
 - "Calibrate"

Step 3b: Develop spill-specific cleanup guidelines and endpoints

• Objective

- Guide Operations in conducting a specific *cleanup method* to minimize adverse environmental impact.
- Provide Ops with environmental and safety constraints on conducting cleanup activities in a specific habitat.
- Identify resource-specific constraints on cleanup activities.
- Coordinator, Federal, state, major landowners, and Team Leaders
- Methods
 - Varied, segment specific, complex, POLITICAL
 - If your lucky they are already spelled out in an Area Plan

Step 4: Shoreline Survey

o Objective

- Collect data on shoreline types, oiling conditions, and ecological and human-use resources for specific segments.
- Reach agreement on cleanup recommendations for specific segments.
- Confirm that recommendations are effective and beneficial to the environment
- SCAT Team
- o Methods
 - Documentation
 - Discuss and agree
 - Report



Shoreline Assessment Job Aid

National Oceanic and Atmospheric Administration • NOAA Ocean Service Office of Response and Restoration • Emergency Response Division



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Forms

Maps



Step 5: Submit Reports to Planning Section

- Provide data needed to support shoreline cleanup decisions and operations.
- Team Leader
- Methods
 - Check all data for accuracy, completeness, and legibility
 - Summarize cleanup recommendations by segment
 - Debrief Coordinator

Step 6: Cleanup Eval/Effectiveness Monitoring

- Evaluate field data routinely to monitor progress of cleanup activities and assess the need for modifying cleanup methods or endpoints.
- Coordinator, Federal and State agency representatives, major landowners, and Team Leaders
- Methods
 - Field check cleanup activities
 - Is it working for Ops? If not, change it.
 - Innovative cleanup methods to test?
 - Modify cleanup endpoints?

Step 7: Post-Cleanup Inspections

- Inspect segments that Operations declares ready for sign-off before final approval.
- SCAT Team
- Methods
 - This is where documentation comes into play...
 - Ground Truth the cleanup
 - Identify additional cleanup if needed
 - Recommend segment for final inspection.
 - Recommend any longer-term monitoring

Step 8: Final Sign off of Cleanup Activities

- Approve the termination of cleanup activities at each segment.
- Sign-off Team (SOFT)—FOSC, SOSC, RPIC
- Methods
 - Ops notifies Planning that the segment has passed inspection
 - SOFT inspects the segment against the cleanup endpoint guidelines
 - A formal sign-off sheet for each segment is signed by each member

Now back to Step 5.....

Shoreline Survey

How do we make this....

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But first, lets pack...SURVEY GEAR

- Maps or charts of the survey area
- Clipboards and rubber bands
- Pencils, erasers, waterproof markers
- Field forms (code sheets, shoreline form, sketch sheets, photo logs)
- Field estimation charts (sand size, gravel size, percent cover)
- Field notebooks (waterproof)
- Segment map sheets
- Base sketch maps, if available
- Shovels
- Camera (35 mm) and color print film (ASA 64 and 100); extra batteries
- Videocamera and video tapes, if required; extra batteries
- Photo scale (15 cm)
- Tape measure (30 m) and ruler
- Range finder
- Hand-held GPS
- Compass, preferably Brunton
- Field pack
- Communication device (e.g., radio or cellular phone)
- First-aid kit



Shoreline Assessment Job Aid

National Oceanic and Atmospheric Administration • NOAA Ocean Service Office of Response and Restoration • Emergency Response Division



Photographs are included for the following terminology

- Oil distribution (as ranges in percent oil cover)
- Surface oiling thickness descriptors
- Surface oiling type descriptors
- Subsurface oiling type descriptors
- Sediment types
- Shoreline types
- Cleanup methods



SURFACE OIL DISTRIBUTION – Per cent Cover



Continuous

91-100% cover

(seen here as black oil on light sand beach)

Broken

51-90% cover

(seen here as brown oil on tan sand beach)





SURFACE OIL DISTRIBUTION – Per cent Cover

Patchy 11-50% cover

(seen here as black oil bands on a white sand beachface)

Sporadic 1-10% cover

S

(seen here as brown oil bands on a white sand beachface)





Surface Oil Descriptions – Thickness



Pooled Oil

fresh oil or mousse > 1 cm thick

(seen here as accumulation around a large boulder)

Cover

oil or mousse > 0.1 cm to < 1 cm thick

(seen here as oil covering sand beach surface and running into a small trench)







Surface Oil Descriptions – Thickness

Coat

CT

visible coating of oil < 0.1 cm – can be scraped off with fingernail

(seen here as a thin layer of oil on riprap)

Stain visible oil which cannot be scraped off with fingernail



(seen here as splotches on cobbles)





Surface Oil Descriptions – Thickness



Film

transparent or iridescent sheen, or oily film

(seen here as oil sheen floating on water)



FR

Surface Oil Descriptions -- Type

Fresh Oil unweathered, liquid oil Mousse emulsified oil (seen here as brown oil coating cobbles)







Surface Oil Descriptions -- Type

Tarballs

TB

discrete accumulations of oil < 10 cm in diameter

(seen here scattered on sand beach)

Patties discrete accumulations of oil > 10 cm in diameter PT

(seen here as single black patty on sand beach)





Surface Oil Descriptions -- Type

Tar

TC

highly weathered oil of nearly solid consistency

Surface Oil Residue

non-cohesive, heavily oiled surface sediments characterized as soft, incipient asphalt pavements







Surface Oil Descriptions -- Type



Asphalt Pavements cohesive, heavily oiled surface sediments (seen here as thick black deposit on a beachface)



SubSurface Oil Descriptions -- Type



Subsurface Asphalt Pavement

a buried layer of hardened oil (seen here as black layer buried in a white sand beach)

Oil-filled Pores

pore spaces are completely filled with oil to the extent that oil flows out of sediments when disturbed



(seen here as brown oil pebbles)





SubSurface Oil Descriptions -- Type



Partially Filled Pores

pore spaces filled with oil, but generally does not flow out when disturbed

Oil Residue

sediments visibly oiled with black/brown coat or cover on clasts, but little or no accumulation of oil within pore spaces







SubSurface Oil Descriptions -- Type



Oil Film

sediments are lightly oiled with an oil sheen or stain on the clasts.





Bedrock Outcrop

Boulder >256 mm in diameter









Cobble 64 – 256 mm in diameter **Pebble** 4 – 64 in diameter







Granule 2 – 4 mm

G

Sand 0.06 – 4 mm









Mud silt and clay



Shoreline Types

Exposed Rocky Shores

(also includes exposed seawalls)

Exposed Rocky Platforms

(also includes clay scarps)







Shoreline Types

Fine-grained Sand Beaches (also includes scarps in sand)

3



Course-grained Sand Beaches Mixed Sand and Gravel Beaches (also includes mixed sand and shell beaches)











Gravel Beaches (also includes shell beaches)

6a



Riprap Structures Exposed Tidal Flats









Sheltered Rocky Shores



Shoreline Types

Sheltered Man-made Structures Sheltered Tidal Flats











Shoreline Types

Salt to Brackish Marshes

Freshwater Marshes









Shoreline Types







Barriers/Berms

Physical Herding







Manual Oil Removal/Cleaning

Mechanical Oil Removal







Sorbents

Vacuum







Debris Removal

Sediment Reworking/Tilling







Vegetation Cutting/Removal

Flooding (deluge)







Low-pressure Flushing

High-pressure Flushing





High-pressure, Hot-water Flushing



Percent Coverage Estimation (oil bands)

- Sporadic
- o Patchy
- o Broken
- o Continuous



* Trace = < 1%

Percent Coverage Estimation- discrete oil deposits (tarballs)



1%





3%

30%





5%

40%





10%

50%



Important things to remember

 Importance of Liaisons
QA/QC data daily
Develop and establish a SCAT database prior to response
Maintain SCAT personnel continuity



