

2014 INTERNATIONAL OIL SPILL CONFERENCE

New Tools for the SCAT Program: An Innovative Approach to Assimilating Newer Responders into the Shoreline Cleanup Assessment Technique Program

Heather A. Parker
13th U.S. Coast Guard District
915 Second Avenue, Suite 3506
Seattle, WA 98104
206-220-7215
heather.a.parker@uscg.mil

Josie Clark
EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101
clark.josie@epa.gov

Linda Pilkey-Jarvis
WA Department of Ecology
Spills Preparedness Section Manager
300 Desmond Drive
Lacey, WA 98503
JPil461@ecy.wa.gov

Brad H. Martin
Ecology and Environment, Inc.
720 Third Avenue, Suite 1700
Seattle, WA 98104
BMartin@ene.com

Brian MacDonald
WA Department of Fish and Wildlife
600 Capitol Way N.
Olympia, WA 98501
Brian.MacDonald@dfw.wa.gov

ABSTRACT 300668:

As less experienced responders join spill response operations, concurrent with the loss of experienced responders to retirements and fewer large spills, the need for tools that capture and promote the best practices of spill response functions becomes imminently critical. Better, more practical tools help less-experienced responders assimilate not only the basics of the planning assignments but also provide them with guidance gained from seasoned responders. The Shoreline Cleanup Assessment Technique (SCAT) program within the Incident Command System (ICS) is one assignment that often sees a number of less experienced participants. In many instances, responders participate on SCAT Field Teams and are not adequately exposed to planning or managing the overall SCAT program. Most SCAT tools are oriented towards field work, or focus only on single components of the SCAT process (e.g. treatment recommendations, endpoints). Comprehensive guidance that unites the elements of planning for SCAT, that highlights timing, integration into ICS and best management practices has previously not been available. The Northwest Area Committee (NWAC) in the Pacific Northwest region of the United States created a SCAT Task Force in 2012, comprised of Federal and State agencies, industry and experienced consultants, to develop “smarter” checklists and innovative tools that assist responders from “pre-SCAT” activities through the Treatment Endpoints and Sign Off process, within the ICS framework. Through a collaborative process, this Task Force developed a suite of unique products designed to guide new and less experienced responders to walk

through the process of establishing a comprehensive SCAT program and empower them with best practices learned over many years of spill response experience, including those gleaned from some of the larger responses around the United States in the last ten years. This paper will describe this NWAC suite of SCAT checklists and products in greater detail, and describe how they might be used in other regions to help less experienced responders expedite their working knowledge in performing the range of SCAT program tasks, responsibilities and functions.

INTRODUCTION:

In recent years, the Northwest Area Committee (NWAC) has adopted a strategy to reorganize the Northwest Area Contingency Plan by improving usability and regaining lost momentum in collaboration on annual plan updates. Operational guides, checklists and response tools were moved out of the body of the plan into appendices in Chapter 9000 that can be easily removed and used for responding. The NWAC also launched an annual NWACP Summit, during which a series of short-lived, annual Task Forces are proposed and voted upon. The Summit is a call for ideas for improvement to the NWACP; discussion of lessons learned as proposals for new or improved policies; and ideas for development of response tools. Task Forces differ from standing Workgroups or Subcommittees in that they last only one year and have very specific tasking – typically development of a product, tool or section for the ACP or a policy rewrite – which all must be completed in time to match the ACP’s annual revision cycle. This approach has been very successful at renewing energy and encouraging broader involvement with maintaining and updating the Northwest ACP.

In 2012 an NWAC Task Force was formed and assigned the development of a set of SCAT Tools. Their task was to provide step-by-step guidelines to set-up and manage an entire SCAT program. The Task Force was also asked to develop tools that explicitly linked the SCAT program to ICS and the Planning P, something which no published guidelines or manual has done to date (de Bettencourt *et al*, 1999). The resulting product underwent a rigorous, thorough review and editing process, by local as well as national and international parties, during the 2013 work cycle. The final NWAC SCAT Tools have been included in Chapter 9000 of the 2014 NWACP as a stand-alone response pullout guide.

DISCUSSION of the NWAC SCAT Tools:

Overview of the “Establishing a Shoreline Assessment Program” Document

The NWAC SCAT Tools are comprised of two “stand-alone” documents. The first is an overarching document called “Establishing a Shoreline Assessment Program” (Program Document). This Program Document provides a comprehensive approach to the key elements in setting up, running, maintaining, and completing a thorough Shoreline Assessment program for the duration of an oil spill response.

The Program Document’s front matter summarizes the objective, use and contents whereas the remainder is comprised of the tools themselves. The introductory material, useful for training responders, outlines principals driving oiled shoreline response in the Pacific Northwest of the United States – including the need to incorporate the concerns of stakeholders

in achieving an overall benefit to the environment for the proposed response actions and treatment endpoints.

The Program Document is not a text based document, but a compilation of checklists and diagrams connected via hyperlinks, designed to maximize efficiency and ease of use for responders who won't have time to sit down and read through lengthy manual during a response. These are "grab and go" tools. The lists of the individual tools contained within the Program Document include:

- An organization chart for smaller, less complex spills and another for larger, more complex spills. There are color-coded descriptions of the roles For SCAT positions within the ICS.
- Work flow/process diagram with major milestones for SCAT in a simplified format to show the life cycle of a SCAT program. This can also serve as a SCAT Coordinator's checklist during a smaller, less complex response.
- Depiction of key SCAT program tasks relating to the ICS Planning P process diagram depicting information flow from the field to decision makers. Long-form SCAT Coordinator's Checklist, designed to aid users in establishing a comprehensive SCAT program, showing three phases: Reconnaissance Phase, Systematic Survey Phase, Monitoring/Inspection Phase. It is further organized by position-specific responsibilities (also color-coded) and includes Best Practices where applicable.

Small Spill Organizational Chart

Two organization charts provides a SCAT organization for a small response (Figure 1) and a large response (Figure 2). Note the Communication Channels shown as dotted lines to indicate the best practice of interaction with members in other sections and units. Descriptions and responsibilities for these roles are outlined in the long form SCAT Coordinator's checklist. One of the newer positions in a SCAT Program in use since the *Selendang Ayu* SCAT program in 2006 (Owens *et al*, 2006) and formalized during the *Macondo* spill in 2010 (Owens *et al* 2011), is the SCAT/OPS Liaison function. Responsibilities for this position are described in more detail in the long form SCAT Coordinator's checklist in the Program Document.

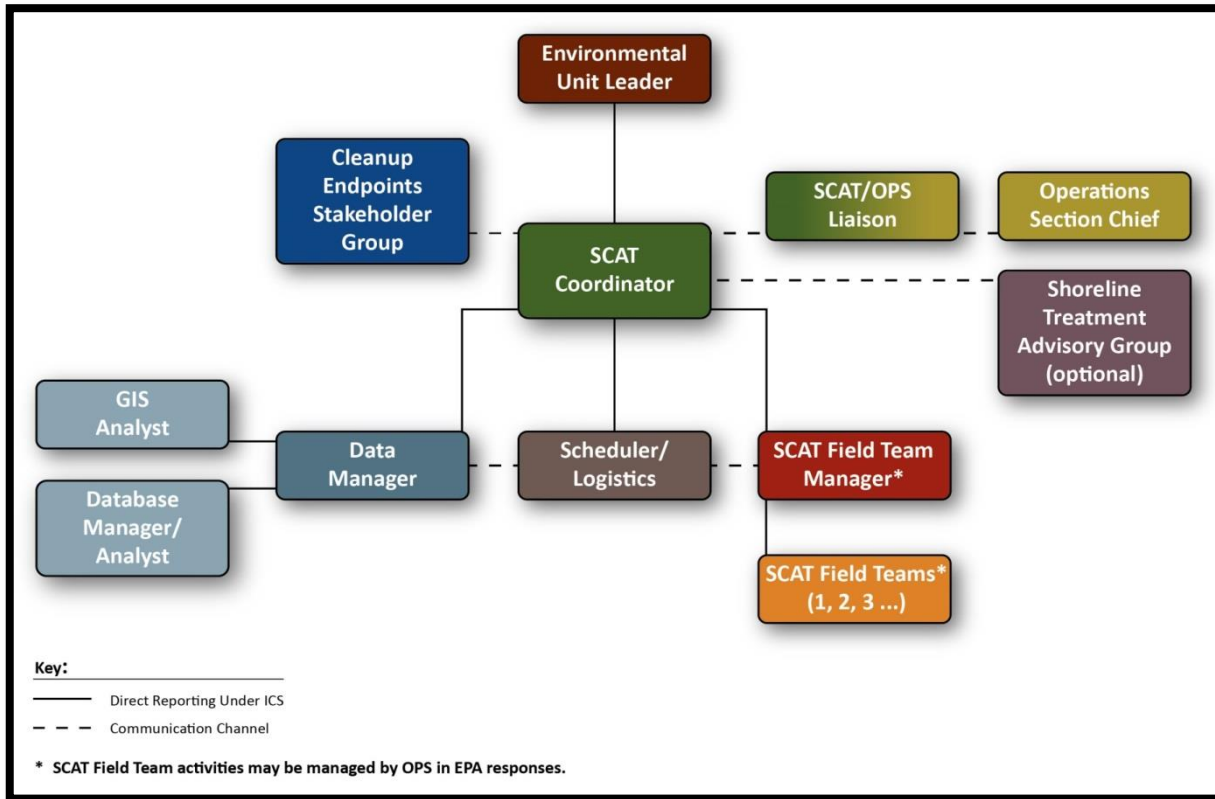


Figure 1. Organization Chart Small Response from the NWAC SCAT Tools.

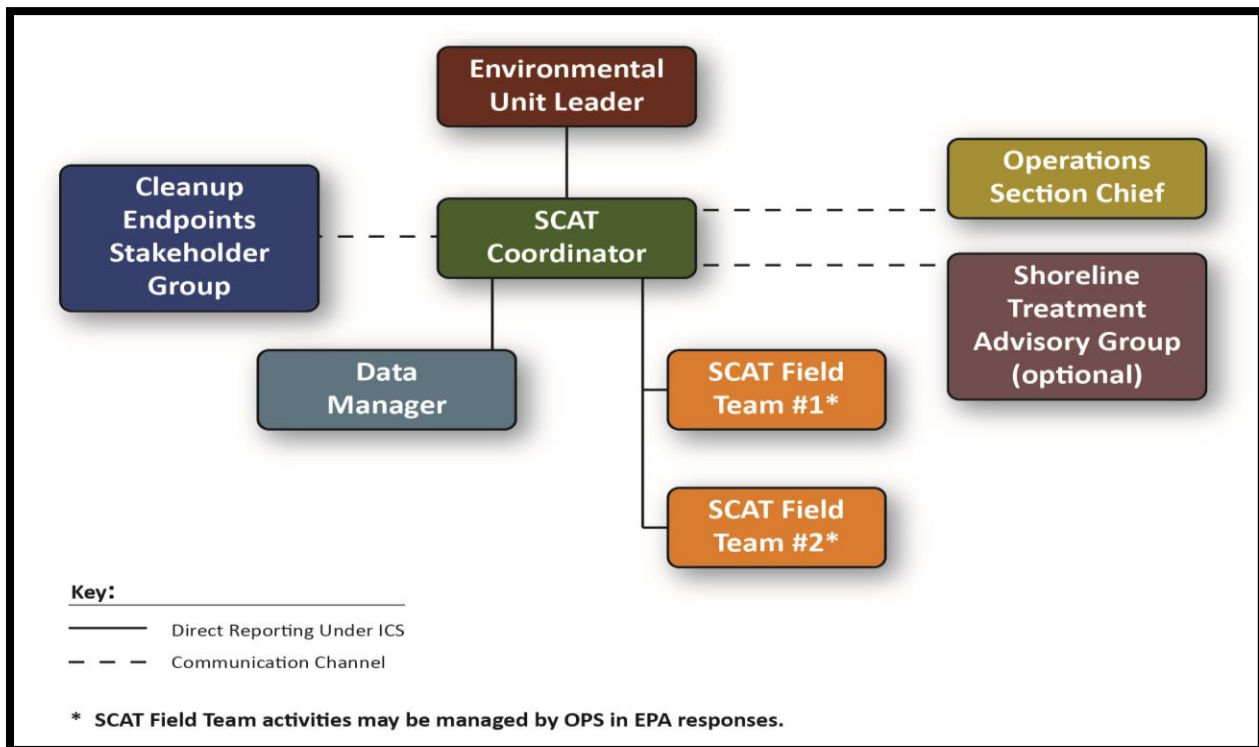


Figure 2. Organization Charts Large Response from NWAC SCAT Tools.

Roles and Responsibilities List

This list outlines the major members and positions in a comprehensive SCAT Program and outlines key duties (Figure 3). One unique feature in this document and not found in other SCAT guidelines is the linkage to ICS and key meetings in the Planning P cycle, in particular the Prep for Tactics Work Period (USCG IMH, 2006).

Workflow and Milestones Diagram

This diagram, also unique to the NWAC SCAT Tools (Figure 4), is a “snapshot” of the life cycle of a SCAT Program. There are three logical phases: Reconnaissance Phase (the initial phase of a response, gearing up for a full SCAT Program); Systematic Survey Phase (Full SCAT Program implementation); and Monitoring/Inspection Phase (after cleanup activities are completed).

SCAT in the Planning “P”

This diagram is designed to familiarize and refresh SCAT Program members about the key meetings and events in the typical daily Planning Cycle, or Planning P, and where products, work flow and tasking fits into the SCAT process as well as to help plan the timing of their daily activities (Figure 5). The SCAT Program is singularly a response activity that is designed to support Operations. SCAT data and recommendations must be managed in a way that follows the development of the Incident Action Plan, leading to the ICS-204 Work Assignments. While SCAT data summaries, maps and treatment recommendations are all valuable tools in keeping the Unified Command and external stakeholders aware of shoreline oiling conditions and associated treatment plan, the primary purpose of SCAT is guiding Operations. The timing of their flow must match the tempo of the ICS Planning P.

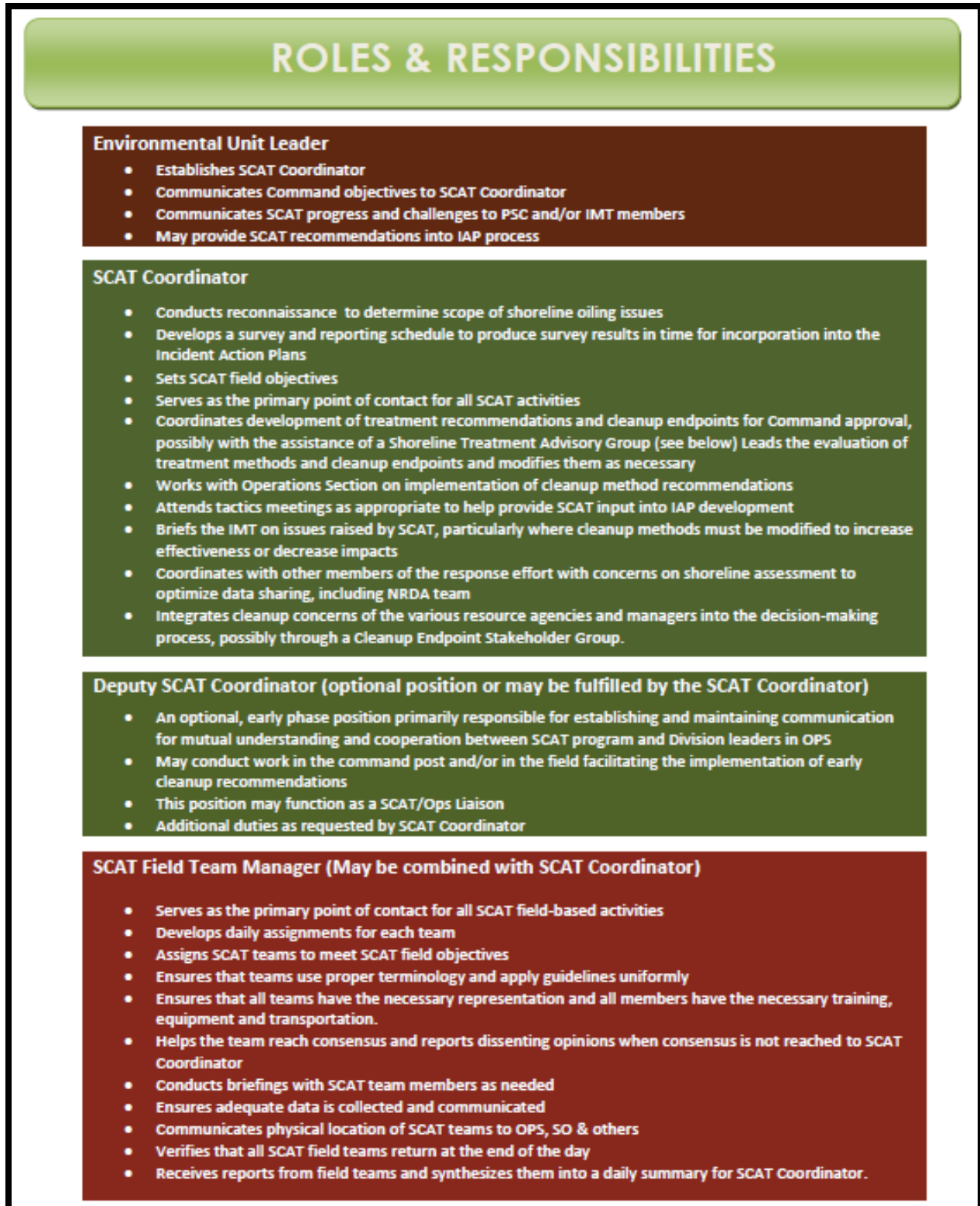


Figure 3. Roles and Responsibilities list from the NWAC SCAT Tools.

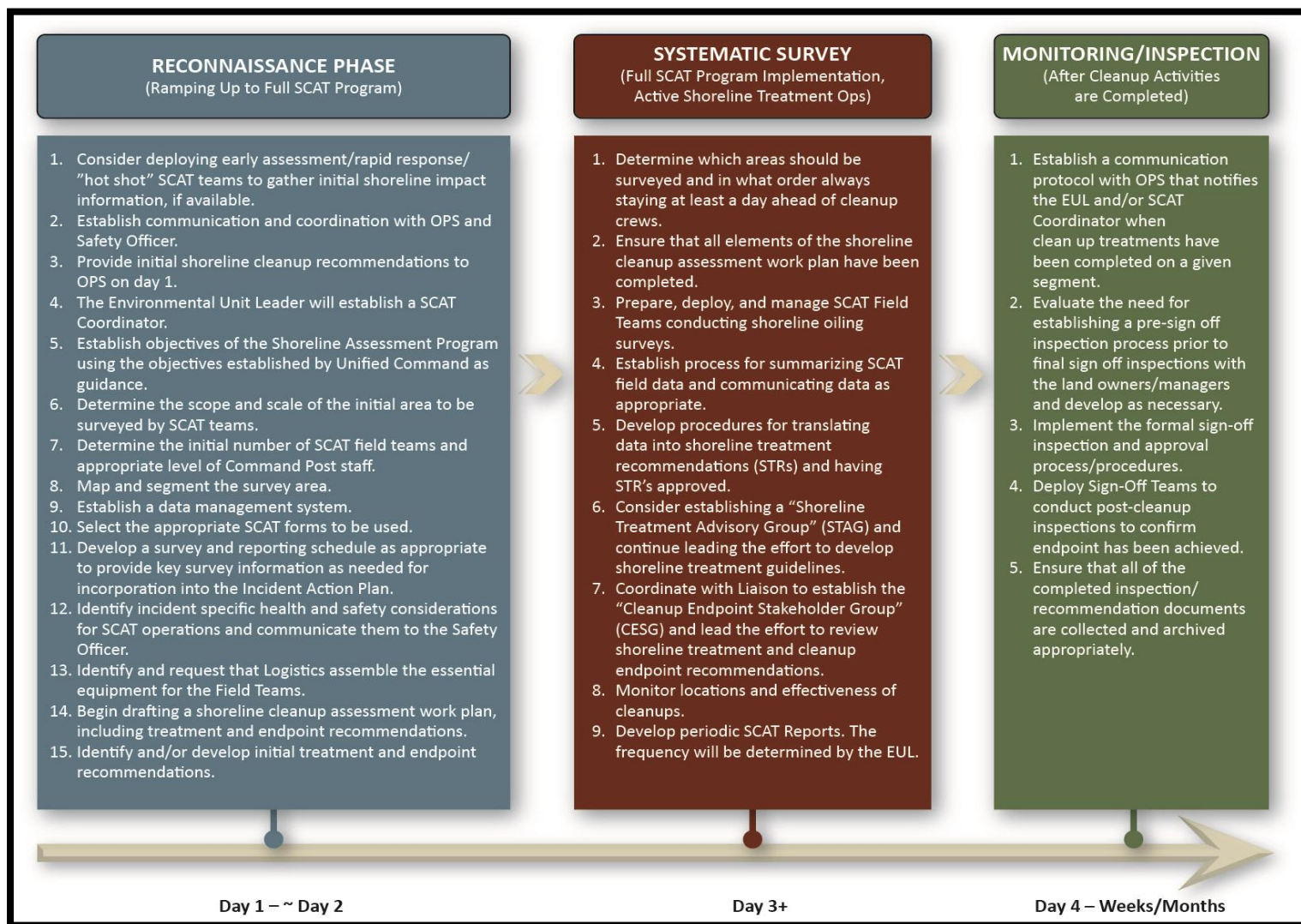


Figure 4. Workflow and Milestones Diagram from the NWAC SCAT Tools.

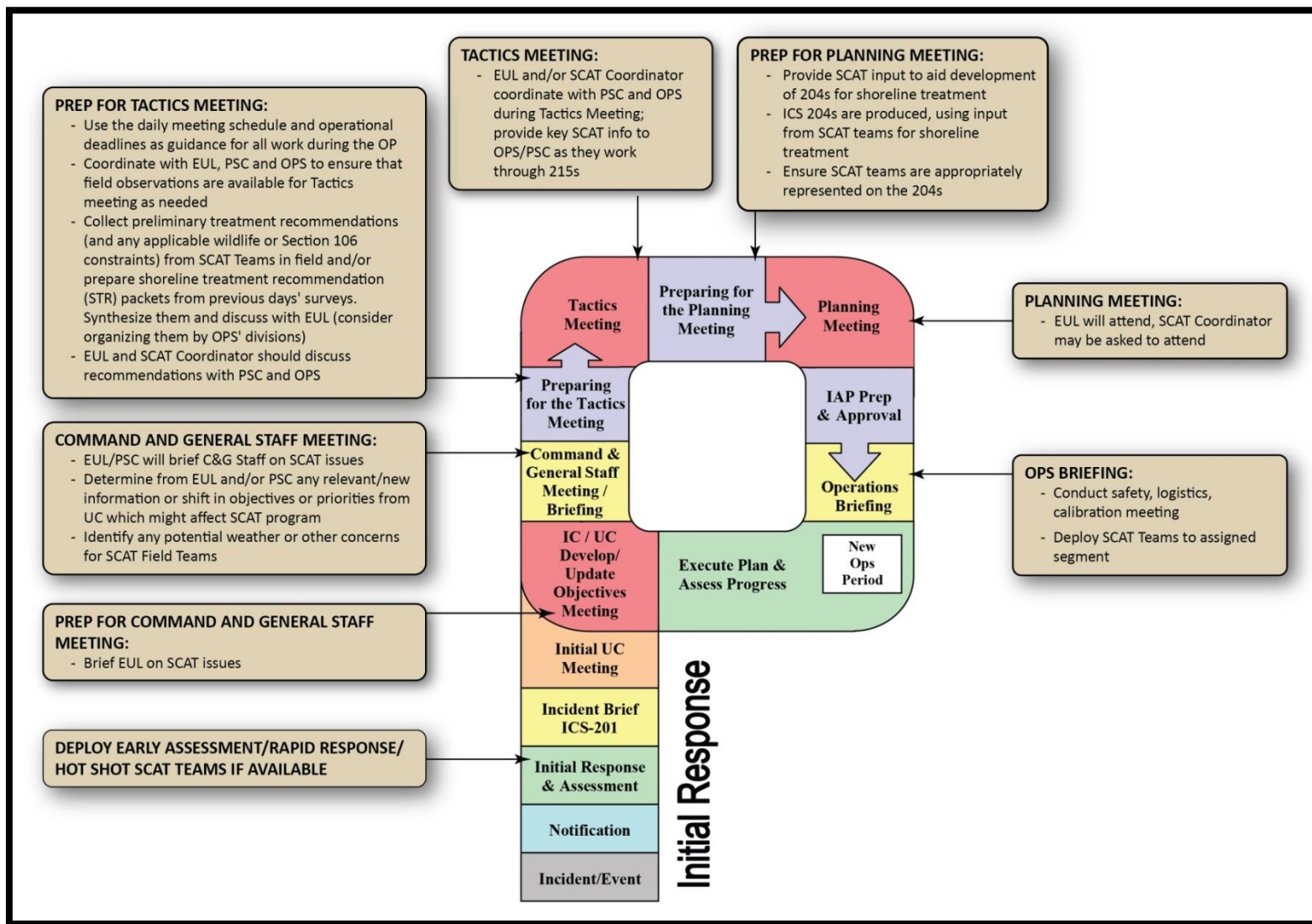


Figure 5. Diagram of SCAT in the Planning P from the NWAC SCAT Task Force.

SCAT Process Flow Diagram

The Process Flow diagram provides an overall sense of how the data received in the field will be translated into treatment recommendations which eventually, in most cases, lead to treatment completion and segment sign off (Figure 6). It is modified from a version found in the NOAA Shoreline Assessment Manual for ease of use (NOAA, 2013).

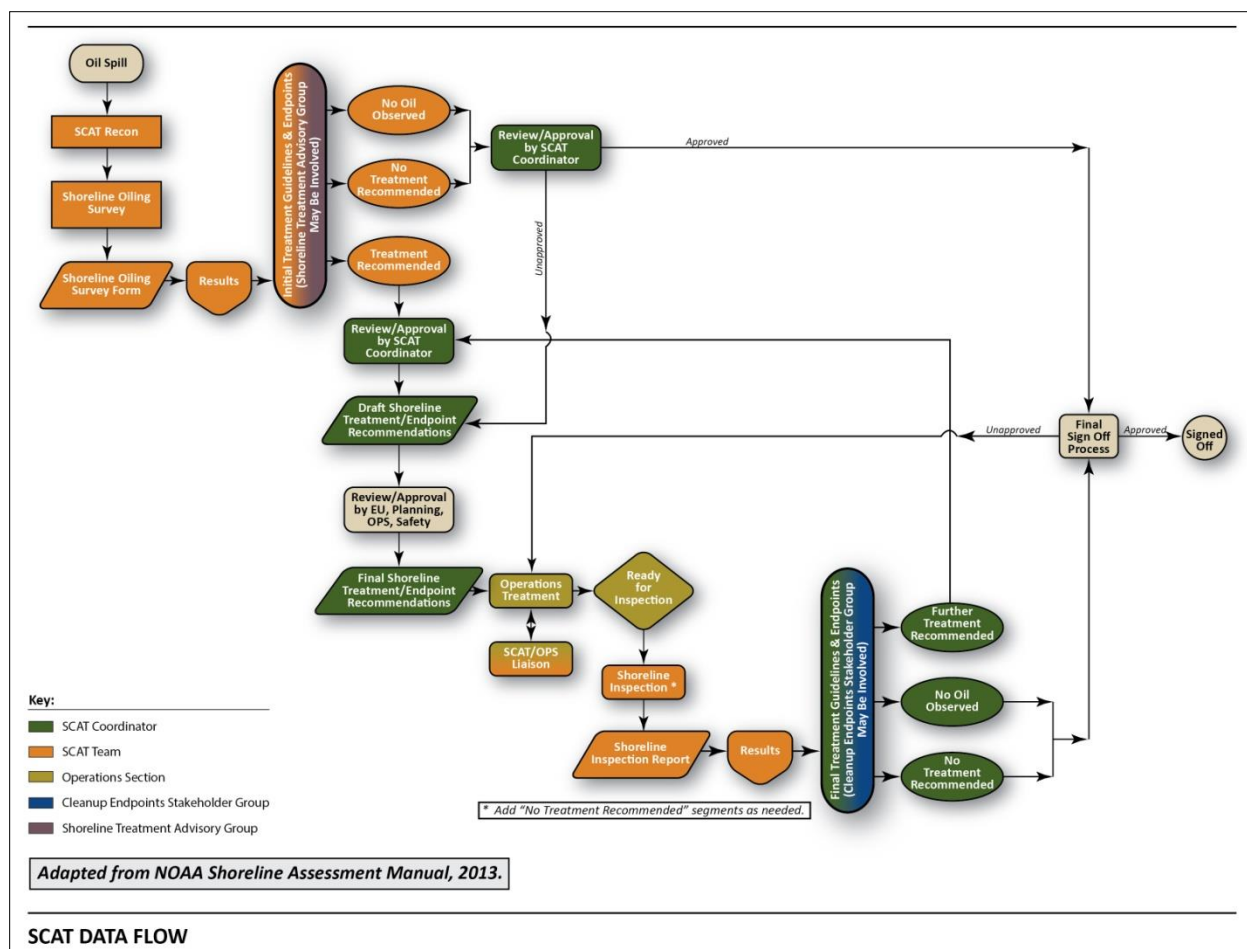


Figure 6. SCAT Process Flow Diagram

SCAT Program Implementation Checklist

This three-phase checklist is essentially a “recipe” to for the establishment and management of a comprehensive SCAT Program.

Reconnaissance, Systematic Survey, Monitoring and Inspection.

The Reconnaissance Phase begins when initial responders receive notification that a spill has occurred. This phase may last no more than a few days and is comprised of planning and preparation for the Systematic Survey Phase.

2014 INTERNATIONAL OIL SPILL CONFERENCE

The Systematic Survey Phase may begin one and several days into the response. This phase involves field surveys, data collection/analysis, treatment/cleanup endpoint recommendations, as well as shoreline treatment monitoring.

The Monitoring/Inspection Phase begins when Operations has completed the treatment or cleanup of affected shoreline segments and requests confirmation inspections by SCAT Teams and land owner/managers.

The Reconnaissance Phase checklist (a portion of which is captured in Figure 6) contains a broad range of considerations, elements and best practices. It has important elements not found in other SCAT guidance, such as a list of Potential Initial Cleanup Guidelines, information on incorporating Endangered Species Act and National Historic Preservation Act consultation requirements into a SCAT Program. The checklist also provides cues to the SCAT Coordinator such as providing early shoreline cleanup recommendations to Operations in the first days before the SCAT Program is up and running. Historically SCAT may have taken several days to start their surveys, organize their data before providing treatment recommendations to Operations. To account for this, this section of the NWAC SCAT Tools provides some suggested approaches to deal with this concern (Figure 7).

RECONNAISSANCE PHASE CHECKLIST

The Reconnaissance phase begins when initial responders first receive notification that a spill has occurred. This phase typically lasts no more than a few days after the incident is reported and is comprised of planning and preparation for the Systematic Survey phase.

ENVIRONMENTAL UNIT LEADER

- ❑ Consider deploying early assessment/rapid response/"hot shot" SCAT teams to gather initial shoreline impact information, if available.
 - The goal is to obtain a general snapshot of the impacted areas or areas that may be impacted. These teams can provide valuable information that will support planning activities for the formal SCAT process as well as near-real time information to OPS. Any assessment conducted by these teams should be broad in scope and scale.
 - Reconnaissance should include:
 - Location and thickness of oil
 - Observed oil movements
 - Potential access points
 - Areas where no oil is observed

BEST PRACTICE: Start aerial reconnaissance as early as possible in the response.

BEST PRACTICE: Consider recommending the use of "hot shot" cleanup crews that are able to implement passive and other low-impact methods to prevent re-oiling.

- ❑ Establish communication and coordination with OPS and Safety Officer.
 - Determine the most appropriate point of contact in OPS. This may be the OPS Section Chief, or Division/Group Supervisor (e.g. Shoreline Cleanup Supervisor).
- ❑ Provide general shoreline cleanup recommendations to OPS on day 1. This may be done on the ICS 204. Specify the passive and low impact techniques as well as ecological constraints. Refer to the [Potential Initial Cleanup Guidelines](#) on the following page.

Figure 6. Reconnaissance Phase Checklist from NWAC SCAT Tools

POTENTIAL INITIAL CLEANUP GUIDELINES

Potential Initial Cleanup Guidelines

For Collection of Oil Floating Adjacent to the Shoreline and Pooled Bulk Oil on the Shoreline:

- Highest priorities for oil removal are areas with thick, mobile oil that is at risk of re-mobilizing and contaminating clean areas.
- Do not stage boats such that shoreline vegetation is crushed. Boats should not be resting on or pressed against vegetation at any time.
- During flushing and herding, use the lowest pressure that is effective and prevent suspension of bottom sediments (do not create a muddy plume). All flushing adjacent to marshes is to be conducted from boats; there will be no foot traffic in marshes.
- In areas with intertidal and subtidal seagrass, avoid flushing oil over the seagrass and boat operations that results in anchor or prop-scoring of the vegetation.
- Sorbents may be placed at the water edge to recover floating oil. Sorbents should be used as a secondary treatment method after gross oil removal, and in sensitive areas where access is restricted. Recovery of all sorbent material is mandatory.
- Maintain a buffer of 100 yards from marine mammals (whales, sea lions, seals). If approached by a marine mammal, put the engine in neutral and allow it to pass.

For Gross Oil Removal from Shorelines:

- Use only established routes to access areas to be cleaned. No new roads or trails can be created unless specifically approved by the Environmental Unit.
- Establish work zones and access in a manner that reduces contamination of clean areas.
- Conduct flushing operations on the shoreline only when the lower intertidal zone is covered with water, to prevent contamination of these areas, which are usually clean or lightly oiled. Use only low pressures to remove bulk oil.
- Minimize removal of unoiled sediments during cleanup. Dig no deeper than necessary to remove the surface layer of heavily oiled sediment.
- Do not enter or attempt to clean oil in the interior of marshes or vegetated shorelines unless specifically approved by the Environmental Unit. Vacuuming pooled oil on the marsh edge, working from boats, is allowable.
- Do not walk in marshes and mudflats. Use wood plank walkways where possible if needed to cross vegetated areas.
- Do not cut, burn, or otherwise remove vegetation unless specifically approved by the Environmental Unit.
- Do not remove clean wrack; instead, move large accumulations of clean wrack to above the high-water line to prevent it from becoming contaminated.
- Remove all trash or anything that would attract wildlife to the site on a daily basis.
- Report oiled wildlife sightings to the Wildlife Hotline number (xxx-xxx-xxxx). Do not attempt to capture oiled wildlife. **Confirm incident specific wildlife reporting and collection procedures with wildlife and/or NRDA staff.*

Figure 7. Potential Initial Cleanup Guidelines from NWAC SCAT Tools

The Systematic Survey Phase Checklist involves recommendations for field surveys, data collection/analysis, treatment/cleanup endpoint recommendations, and shoreline treatment monitoring during active cleanup (Figure 8).

SYSTEMATIC SURVEY PHASE CHECKLIST

The Systematic Survey Phase may begin between one and several days into the response, depending on spill-specific conditions. This phase involves field surveys, data collection/analysis, treatment/cleanup endpoint recommendations, as well as shoreline treatment monitoring.

SCAT COORDINATOR (or DEPUTY)/FIELD TEAM MANAGER

- Determine which areas should be surveyed and in what order always staying at least a day ahead of cleanup crews.
 - Initial assessment from SCAT team should triage each segment into one of three categories:
 - Deferred – no oil observed or no treatment recommended at this time
 - Standard –the initial or generic shoreline treatment recommendations are appropriate
 - Holding – Segment requires special consideration, and will need a unique shoreline treatment recommendation from SCAT
 - Coordinate with the Operations Section.

BEST PRACTICE: Stay at least a day ahead of cleanup crews if possible, but not get too far ahead as conditions may change.

- Continue to re-assess the scope and scale of the survey areas and adjust as needed.

BEST PRACTICE: Daily surveys should be prioritized based on shoreline oiling conditions noted during aerial reconnaissance flights. Segments where heavy oiling has been observed or which are of specific ecological importance should be prioritized for surveys first.

BEST PRACTICE: Ideally, surveys should be conducted during daylight hours and at low tide (if applicable). If the area had been flooded, remember to survey the extent of the flooding which may be well beyond the shoreline.

- Ensure that all elements of the shoreline cleanup assessment work plan have been completed.
- Prepare, deploy, and manage SCAT Field Teams conducting shoreline oiling surveys. (may be managed by SCAT Field Team Manager). A variety of tools to help manage SCAT Teams are available in Appendix F of the Example SCAT Work Plan.

Figure 8. Selection of the Systematic Survey Phase Checklist from NWAC SCAT Tools

The Monitoring/Inspection Phase Checklist includes considerations and best practices for the final phase of shoreline treatment completions and segment sign off (Figure 9).

MONITORING/INSPECTION PHASE CHECKLIST

The Monitoring/Inspection Phase begins when OPS has completed cleanup of affected shoreline segments and requests confirmation inspections by SCAT Teams and land owner/managers.

SCAT COORDINATOR (or DEPUTY)/FIELD TEAM MANAGER

- Establish a communication protocol with OPS that notifies the EUL and/or SCAT Coordinator when clean up treatments have been completed on a given segment.
- Evaluate the need for establishing a pre-sign off inspection process prior to final sign off inspections with the land owners/managers and develop as necessary. A pre-sign off inspection is a particularly valuable practice during larger spills.
- Implement the formal sign-off inspection and approval process/procedures.
 - Determine which team members have signatory authority and which can only provide comments. One FOSC representative, one SOSC representative, and one RP representative typically sign shoreline inspection report to indicate no further treatment (NFT) or no oil observed (NOO) for a segment. Landowners can comment but will not necessarily be signatories on the shoreline inspection report. In this manner, sign off participants will only be necessary when they will be most productive.
 - Depending on the conditions of the spill, the signatory authority of the team could be limited to simply making the "official" recommendations to UC for their signature or, if appropriate, the team could have the authority to represent the UC and serve as the "final" sign-off authority for a segment.
 - Identify or develop an appropriate segment inspection report (SIR) form to use with input from EUL/PSC/UC.
 - Determine composition of the sign-off team(s). If possible use the original SCAT team plus any additional representatives (e.g. land owner/manager)
 - After the Operations Division Supervisor or Shoreline Supervisor considers that cleanup in a segment has been completed, the segment is inspected by a SCAT team.

Figure 9. Selection from Monitoring/Inspection Checklist from the NWAC SCAT Tools.

Example SCAT Work Plan

This second of the two NWAC SCAT Documents is a template to develop a SCAT Work Plan. This provides a single source to capture the elements of a comprehensive SCAT Program, and is recommended to be completed or started during the Reconnaissance Phase. The template contains standard items, such as Purpose, Objectives, Fundamental Principles, etc. The template also suggests including details on safety for the field survey teams and recommends where each SCAT organization position will function (i.e. Command Post vs. in the field).

The Example SCAT Plan recommends including tabularized guidance on various activities, such as SCAT Survey Methods, as shown in Figure 10.

Survey Method	Key Objectives	Purpose
Aerial Reconnaissance	Define the overall incident scale to develop regional objectives. Mapping or documentation not required.	Make specific observations, but not to map or document the oiling conditions, so that relatively large areas can be covered in a relatively short time period.
Aerial Survey	Systematically document or map to (i) create segments, (ii) develop regional strategies and plans, and (iii) define lengths of oiled shorelines.	Prepare a map or maps that show the locations of stranded oil and the distribution and character of that oil by flying low altitude (<100 feet) in a helicopter using a videotape camera linked to (1) an audio system for a detailed commentary, (2) a real time, moving map display, and (3) a Geographical Positioning System (GPS).
Systematic Ground Survey	Systematically document shoreline oiling conditions in all segments within the affected area.	Systematically document shoreline oiling conditions in all segments within the affected area and to complete shoreline oiling summary ("SOS") forms, generate sketch maps for each oiled segment and complete Shoreline Treatment Recommendations. ("STRs").
Spot Ground Survey	Systematically document shoreline oiling conditions for selected segments within the affected area.	Systematically document oiling conditions for selected segments within the affected area and to complete SOS forms, generate sketch maps for each oiled segment and complete Shoreline Treatment Recommendations ("STR").

2014 INTERNATIONAL OIL SPILL CONFERENCE

Inspection Survey	Evaluate effectiveness of treatment methods employed by Operations in meeting shoreline treatment standards.	Systematically document shoreline conditions after treatment and cleanup of segments within the affected area against the applicable treatment standards and complete shoreline oiling summary forms and generate sketch maps for those segments. Make recommendations for closure or further cleanup actions and complete Shoreline Inspection Reports ("SIRs") for each segment for which "No Further Treatment" is being recommended.
-------------------	--	--

Figure 10. Summary of SCAT Survey Methods from NWAC SCAT Tools

Other guidelines that are recommended for inclusion in a SCAT Plan include:

- Segmentation Strategy for shorelines
- Field Documentation and Information Transfer and Data Management Protocols and timelines
- Cleanup Endpoint – development procedures and how they will be utilized in the Sign Off process

Lastly, the Appendices contain a range of helpful items such as SCAT forms to be used, as well as newly developed forms to help manage SCAT field team deployment assignments.

CONCLUSIONS:

The SCAT documents discussed above finished final editing and vetting in early 2013 and were published in January 2014 as part of the NWACP 2014 revision. They are available for download from the NWAC website: www.rrt10nwac.com

These documents are designed to be flexible, scalable and adaptable on small to large incidents. The documents and tools are broad enough to be easily adapted in any region. Finally, the development of the NW Area Committee SCAT Tools serves as a successful demonstration of how knowledge gained over many years by numerous experts, representing agencies, industry, contractors and consultants, can be captured, organized, and presented to the benefit of current and next generations of responders. As experienced responders retire or leave the field, mechanisms for capturing and publishing knowledge in formats that are easily digestible, field ready, and operationalized are becoming more important to produce and use. The NWAC SCAT Tools are one example of that type of collaborative effort that memorializes best practices based upon a range of experiences and backgrounds, that allows responders to “hit the ground” ready to respond.

REFERENCES/BIBLIOGRAPHY:

De Bettencourt, M., J. Tarpley, and LT K. Ward. 1999. Problems and Opportunities Integrating SCAT and ICS. Proceedings International Oil Spill Conference, American Petroleum Institute, Washington DC.

NOAA, 2013. Shoreline Assessment Manual.

Owens, E.H., H. A. Parker-Hall, G.S. Mauseth, A. Graham, T. Allard, P.D. Reimer, J.W. Engles, S. Lehmann, J. Whitney, S. Penland, C. Williams and C. Wooley. 2005. Shoreline and Surveillance Surveys on the M/V Selendang Ayu Spill Response, Unalaska Island, Alaska. Proceedings 28th Arctic Marine Oilspill Program (AMOP) Technical Seminar, Environment Canada, Ottawa ON, 509-525.

Owens, E.H., J. W. Engles, S. Lehmann, H. A. Parker-Hall, P.D. Reimer and J. Whitney. 2008. *M/V Selendang Ayu Response: Shoreline Surveys and Data Management; Treatment Recommendations; and the Completion Inspection Process.* Proceedings International Oil Spill Conference, American Petroleum Institute, Washington DC.

Owens, E.H., Santner, R., Cocklan-Vendl, M., Michel, J., Reimer, P.D. and B. Stong. 2011. Shoreline Treatment during the Deepwater Horizon-Macondo Response. Proceedings International Oil Spill Conference, Amer. Petr. Institute, Washington DC.

Parker, H.A., E.H. Owens, and G. A. Sergy. 2011. SCAT - The Evolution of a Response Tool from the "Nestucca" to the Deep Water Horizon-Macondo. Proceedings International Oil Spill Conference, Amer. Petr. Institute, Washington DC.

RRT 10 Northwest Area Contingency Plan. 2014. www.rrt10nwac.com

Santner, R., M. Cocklan-Vendl, B. Stong, J. Michel, E.H. Owens, and E. Taylor. 2011. Deep Water Horizon MC252-Macondo Shoreline Cleanup Assessment Technique (SCAT) Program. Proceedings International Oil Spill Conference, Amer. Petr. Institute, Washington DC.

USCG IMH 2006. https://etesting.uscg.mil/mstrefs/Incident_Management_Handbook.pdf

Washington Coastal Atlas. <https://fortress.wa.gov/ecy/coastalatlas/>