



NOAA Scientific Support for Incident Response



NOAA

Emergency Response Division

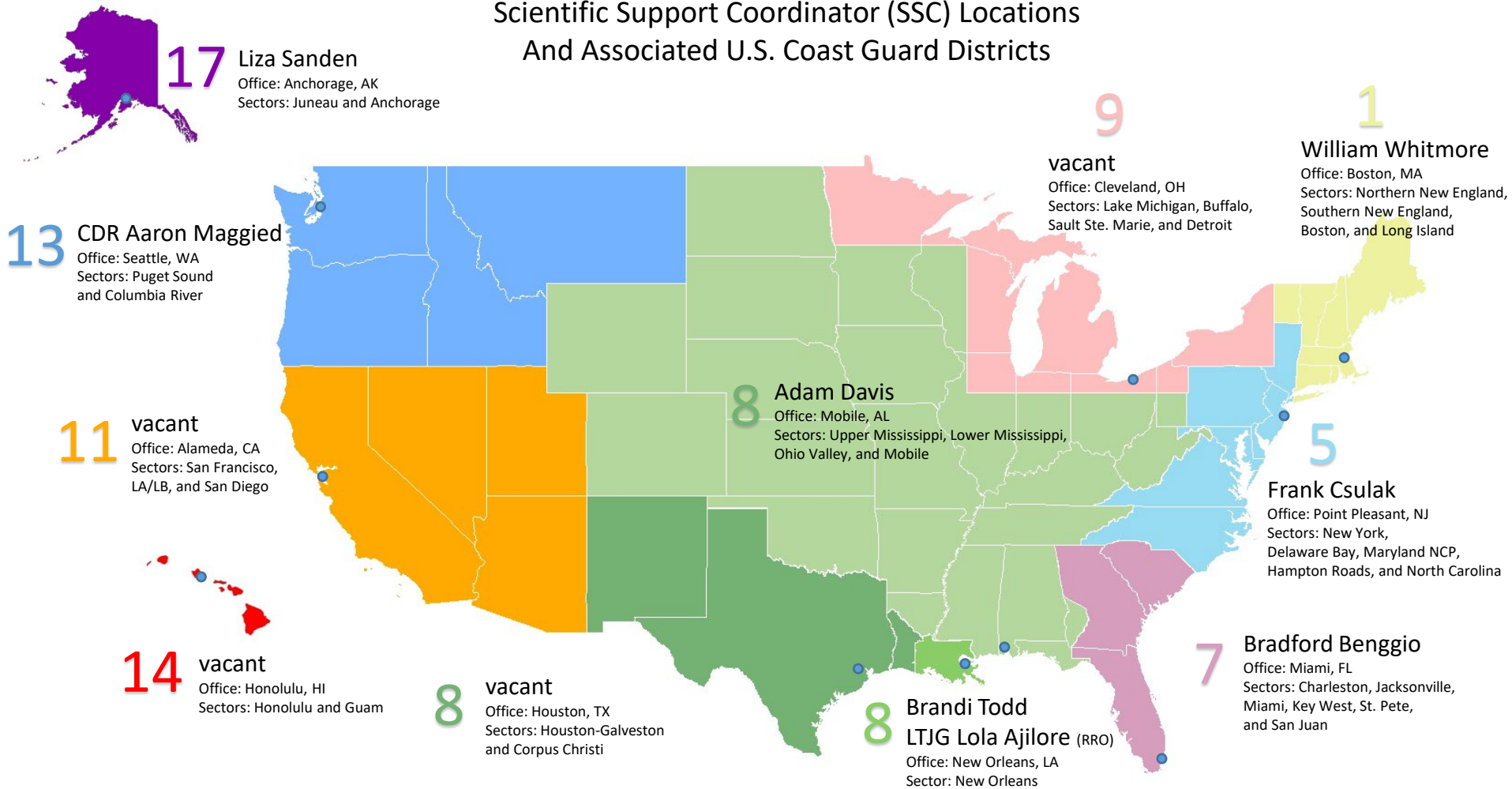
www.response.restoration.noaa.gov

Bradford Benggio
D7 Scientific Support Coordinator
24-hour: (206) 526-4911
E-mail: brad.benggio@noaa.gov

NOAA's Office of Response & Restoration

- **Business Services Group**
- **Marine Debris Program**
- **Disaster Preparedness Program**
- **Assessment Response Division**
- **Emergency Response Division**

Scientific Support Coordinator (SSC) Locations And Associated U.S. Coast Guard Districts



NOAA Scientific Support Coordinators

- Advisors to the FOSC for oil and chemical spills
- Manages NOAA's scientific support team during response: chemistry, oceanography/trajectories, biological resources and risk, shoreline assessment, info and data mgt, H&S, overflight support
- Accesses other NOAA resources as needed: ships, Aircraft, satellite and remote sensing, tides and currents analysis, diving, waterway surveys
- Coordinates with other expertise: State, industry, Federal gov agencies
- On UC Command Staff and coordinates closely with the Environmental Unit

NOAA Scientific Support Coordinators (cont)

- Member of all local area committees
- Member and DOC representative to the Regional Response Teams
- Provides and coordinates NOAA training: SCAT, SOS, SOCR, Other customized trainings
- Helps coordinate and facilitate federally mandated consultations (ESA, EFH, NHPA, THPO, NAGPRA as well as other resource interest coordinations MMA, MBA, NMSA, etc.) Assists with development of incident specific best management practices, conservation measures, and resource advisor program support.

U.S. COAST GUARD



INCIDENT MANAGEMENT HANDBOOK

JUNE 2025

U.S. Coast Guard COMDT PUB P3120.17C

U.S. Department of Homeland Security



OFFICE OF RESPONSE

The New U.S. Coast Guard Incident Management Handbook 2025 is Here ...

Visit >

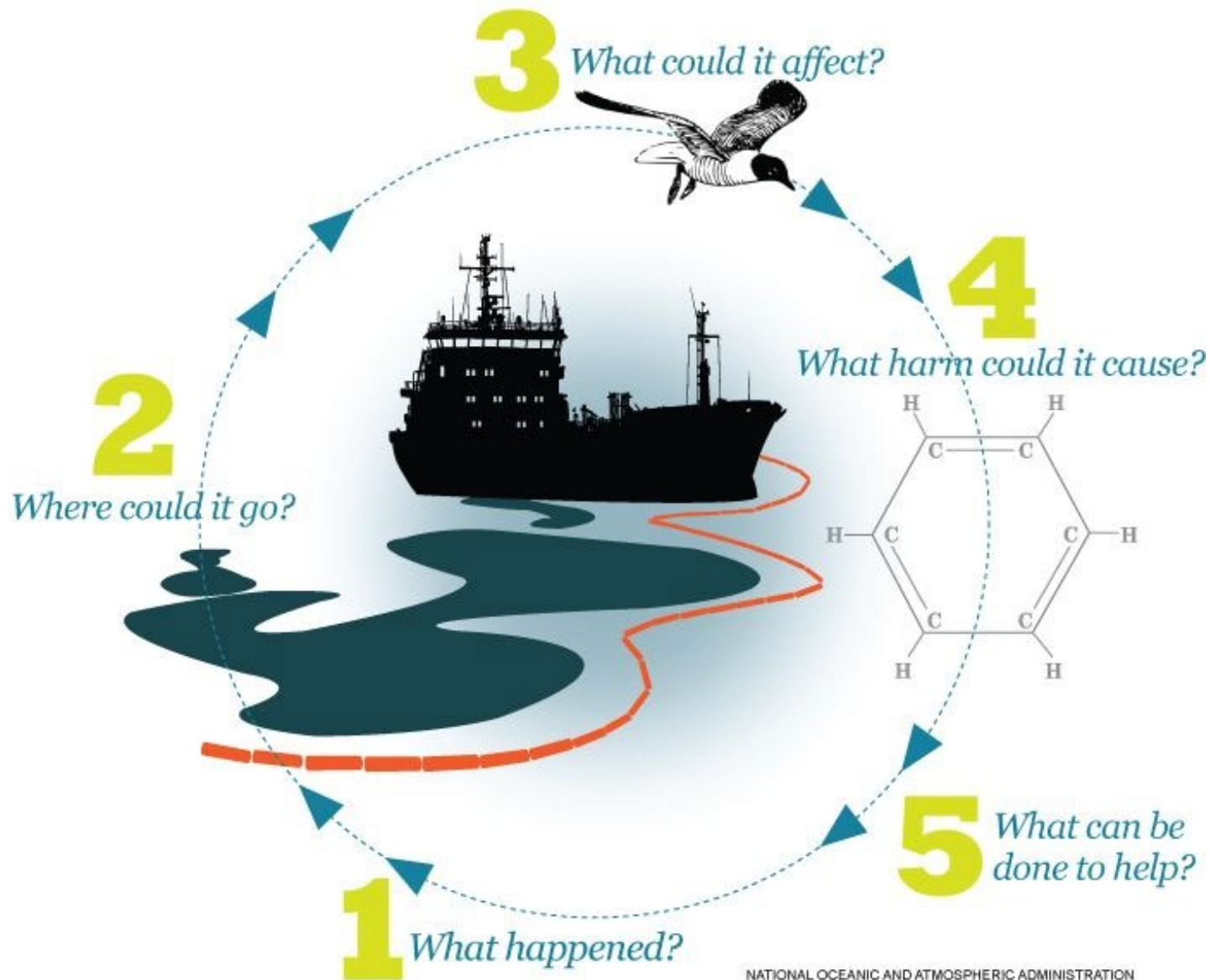
CE

A. Command Staff.

1. Legal specialist. 2. Senior Enlisted Technical Specialist. 3. Senior CG Auxiliary Technical Specialist. (Recommended when 15 or more CG Auxiliary members/units are activated to support the incident). 4. Chaplain. 5. Sexual Assault Response Coordinator. Volunteer Coordinator. **7. Scientific Support Coordinator.** 8. Source Control Support Coordinator. 9. NIMS/National Response Framework (NRF) Technical Specialist.



Questions Guiding NOAA's Oil Spill Science Recommendations





(206) 526-4911





Background

(M/V Argo Merchant - December 15, 1976)



A black and white photograph of the Exxon Valdez oil tanker ship. The ship's hull is dark, and the name "EXXON VALDEZ" and "WILMINGTON DEL." are printed in large, white, bold letters. The ship is viewed from a low angle, showing its massive scale. In the background, there are industrial structures, including large cylindrical tanks and a complex of pipes and walkways. The water in the foreground is dark, and the overall scene is industrial and somewhat somber.

EXXON VALDEZ
WILMINGTON DEL.

Background cont.

(Exxon Valdez - March 24, 1989)

(c) Scientific [Support Coordinators \(SSCs\)](#) may be designated by the OSC (and RPM in the case of [EPA SSCs](#)) as the principal [advisors for scientific issues](#), communication with the scientific community, and coordination of requests for assistance from [state](#) and federal agencies regarding scientific studies. The SSC strives for a [consensus on scientific issues](#) affecting the response, but ensures that differing opinions within the community are communicated to the OSC/RPM.

(1) Generally, SSCs are provided by NOAA in the coastal zones, and by [EPA](#) in the [inland zone](#). OSC/RPM requests for SSC [support](#) can be made directly to the SSC assigned to the area or to the agency member of the RRT. NOAA SSCs can also be requested through NOAA's SSC program office in Seattle, WA. NOAA SSCs are assigned to USCG Districts and are [supported](#) by a scientific [support](#) team that includes expertise in [environmental chemistry](#), [oil slick tracking](#), [pollutant transport modeling](#), [natural resources at risk](#), [environmental tradeoffs of countermeasures and cleanup](#), and [information management](#).

(2) During a response, the SSC serves on the federal OSC's/RPM's staff and may, at the request of the OSC/RPM, lead the scientific team and be responsible for providing [scientific support for operational decisions](#) and for coordinating on-scene scientific activity. Depending on the nature and location of the incident, the SSC integrates expertise from governmental agencies, universities, community representatives, and industry to assist the OSC/RPM in evaluating the hazards and potential effects of [releases](#) and in developing response strategies.

(3) At the request of the OSC, the SSC may facilitate the OSC's work with the [lead administrative trustee for natural resources](#) to ensure coordination between damage assessment data collection efforts and data collected in [support](#) of response operations.

(4) SSCs [support](#) the Regional Response Teams and the Area Committees in [preparing regional and area contingency plans](#) and in conducting spill training and exercises. For area plans, the SSC provides leadership for the synthesis and integration of environmental information required for spill response decisions in [support](#) of the OSC.



PREMIUM

[Website](#)
[Email](#)
[Profile](#)

James M. Beard



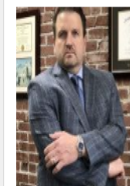
PREMIUM

(452) 822-2242

 Kirkland, WA
 Insurance Claims, Maritime, Pe...

[Website](#)
[Email](#)
[Profile](#)

Mark David Nusz



PREMIUM

(877) 878-2952

 Everett, WA
 Bankruptcy, Estate Planning, Ta...

[Website](#)
[Email](#)
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What to Expect From NOAA During A Response





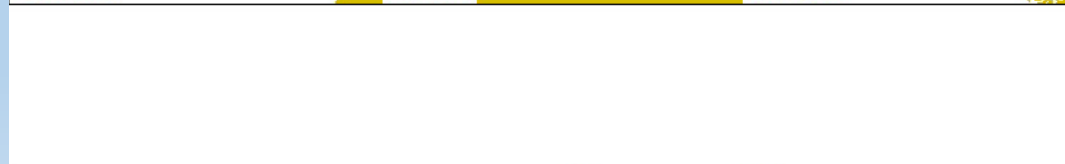
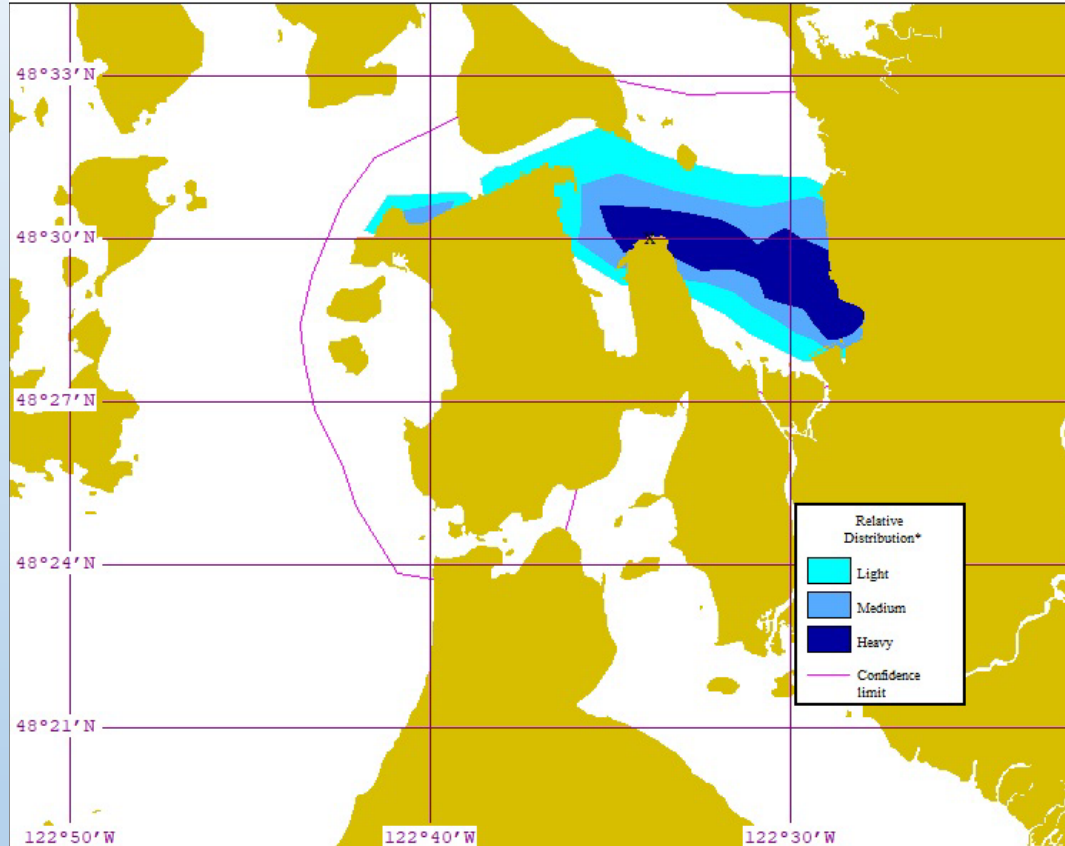


Estimate for: 1200, 8/22/18

Prepared: 1118, 8/8/18

NOAA/HAZMAT (206) 526-4911

These estimates are based on the latest available information. Please refer to the trajectory analysis briefing and your Scientific Support Coordinator (SSC) for more complete information. This output shows estimated distributions of heavy, light, and medium concentrations as well as an outer confidence line. The confidence line is based on potential errors in the pollutant transport process.



* this scale bar shows the meaning of the distribution terms at the current time

File Edit Format View Help

Oil Name = ALASKA NORTH SLOPE

API = 26.8

Pour Point = -8 deg C

Wind Speed = constant at 10 mph

Wave Height = computed from winds

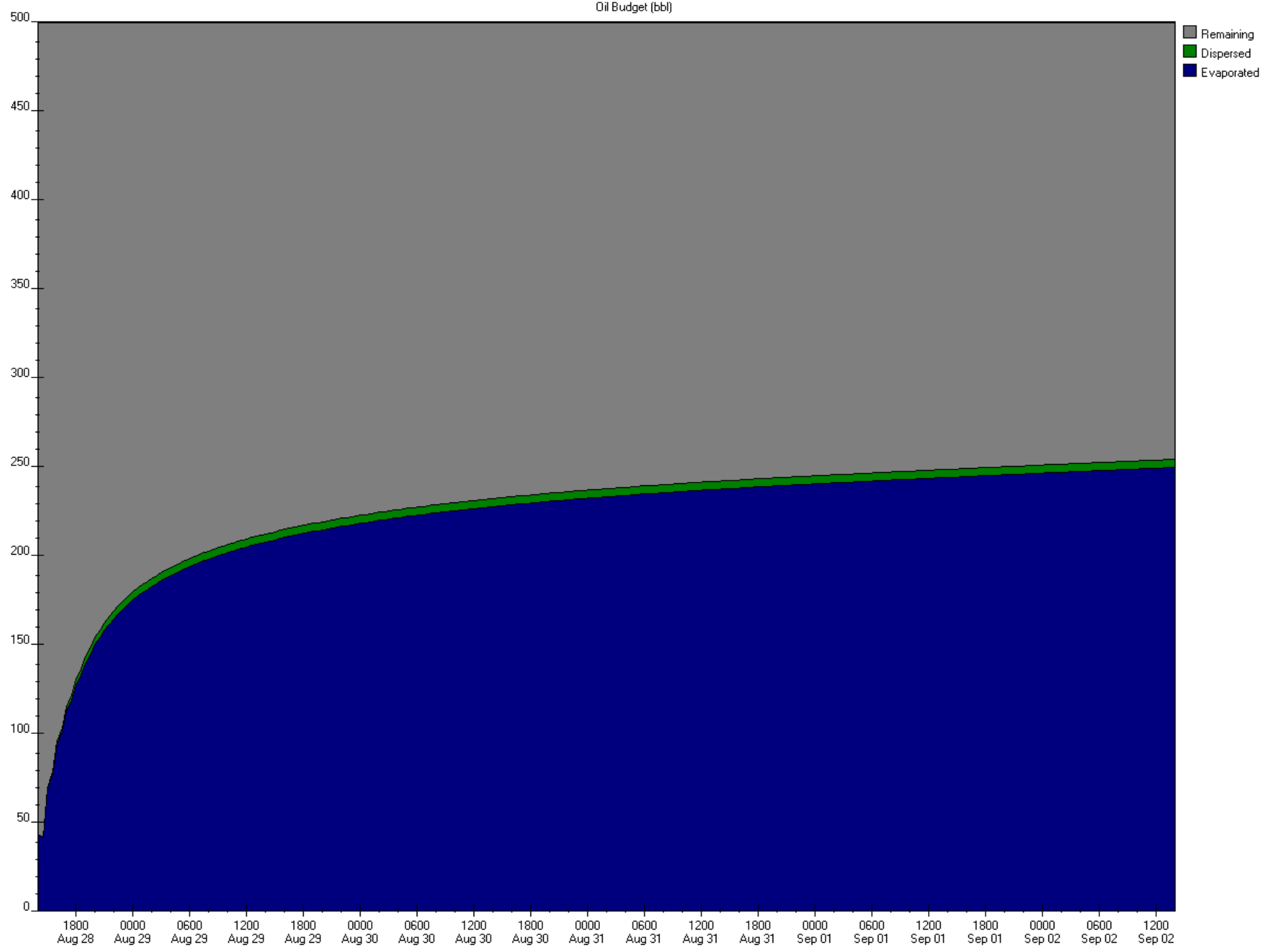
Water temperature = 56 deg F

Time of Initial Release = August 21, 0500 hours

Total amount of Oil Released = 500 bbl

Hours Into Spill	Released bbl		Evaporated percent		Dispersed percent		Remaining percent
1	500	-	3	-	0	-	97
2	500		11		0		89
4	500	-	19	-	0	-	80
6	500		21		0		78
8	500	-	22	-	1	-	77
10	500		23		1		76
12	500	-	24	-	1	-	75
18	500		26		1		72
24	500	-	29	-	1	-	70
30	500		30		1		68
36	500	-	32	-	2	-	66
42	500		33		2		65
48	500	-	35	-	2	-	64
54	500		35		2		63
60	500	-	36	-	2	-	62
66	500		37		2		62
72	500	-	37	-	2	-	61
78	500		38		2		61
84	500	-	38	-	2	-	60
90	500		39		2		60
96	500	-	39	-	2	-	60
102	500		39		2		59
108	500	-	39	-	2	-	59
114	500		39		2		59
120	500	-	39	-	2	-	59

Oil Budget (bbl)



- Remaining
- Dispersed
- Evaporated

Detailed Forecast

Synopsis: PZZ100-290115- 903 AM PDT Tue Aug 28 2018 .Synopsis for the northern and central Washington coastal and inland waters...High pressure will give light pressure gradients to the waters today. Onshore flow will increase tonight through early Thursday resulting in small craft advisory conditions at times over portions of the Strait of Juan de Fuca. Onshore flow will relax somewhat later Thursday through Saturday. \$\$

This Afternoon N wind around 6 kt. Sunny. Wind waves 1 ft or less.

Tonight Variable winds less than 5 kt becoming SSE 5 to 7 kt after midnight. Partly cloudy. Wind waves 1 ft or less.

Wednesday Variable winds 5 kt or less. Partly sunny. Wind waves 1 ft or less.

Wednesday Night Variable winds 5 kt or less. Partly cloudy. Wind waves 1 ft or less.

Thursday Variable winds 5 kt or less. Partly cloudy. Wind waves 1 ft or less.

Thursday Night Variable winds 5 kt or less. Partly cloudy. Wind waves 1 ft or less.

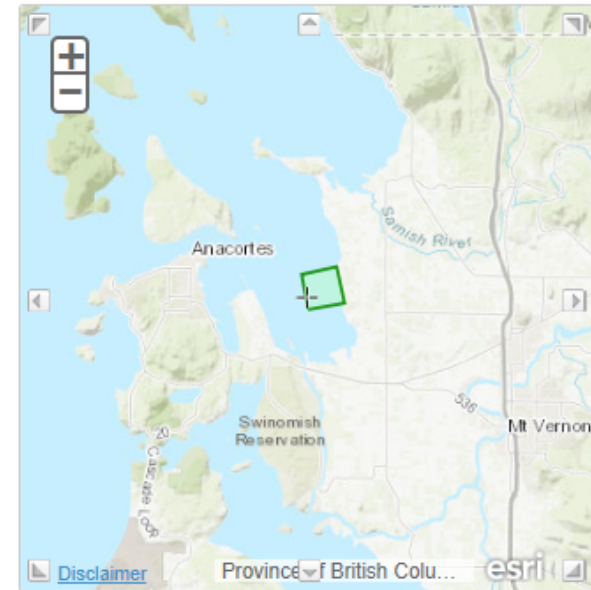
Friday Variable winds 5 kt or less. Partly sunny. Wind waves 1 ft or less.

Friday Night Variable winds 5 kt or less. Partly cloudy. Wind waves 1 ft or less.

Saturday Variable winds 5 kt or less. Mostly sunny. Wind waves 1 ft or less.

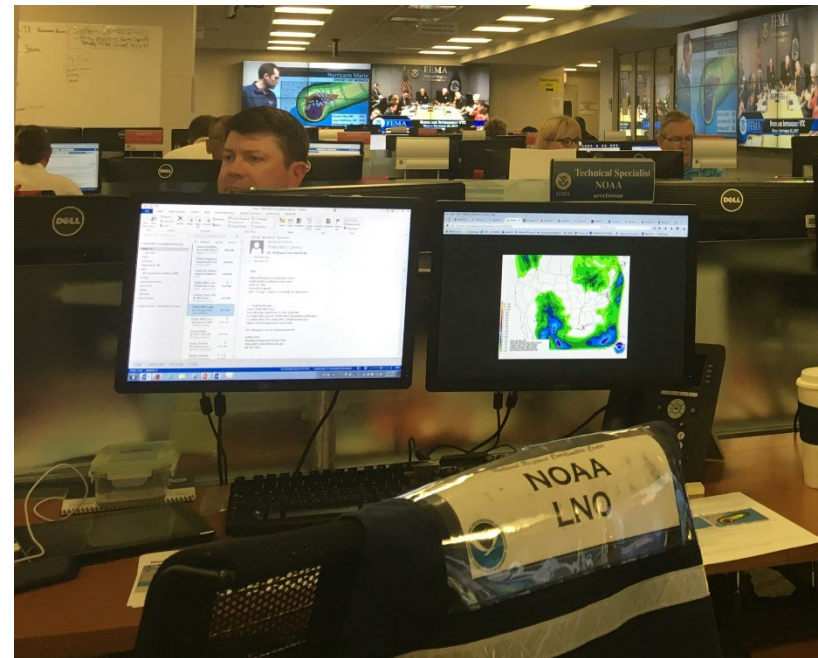
*Notices:

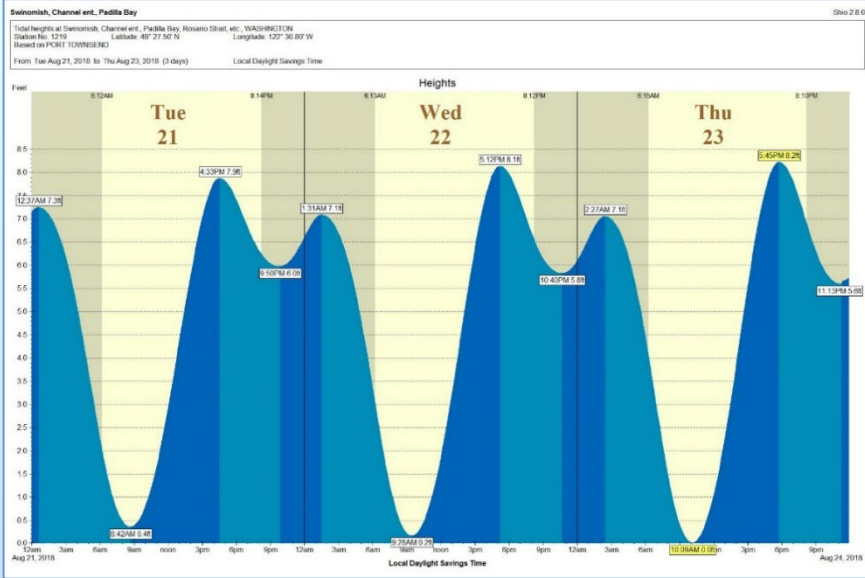
Topographic
Select Another Point



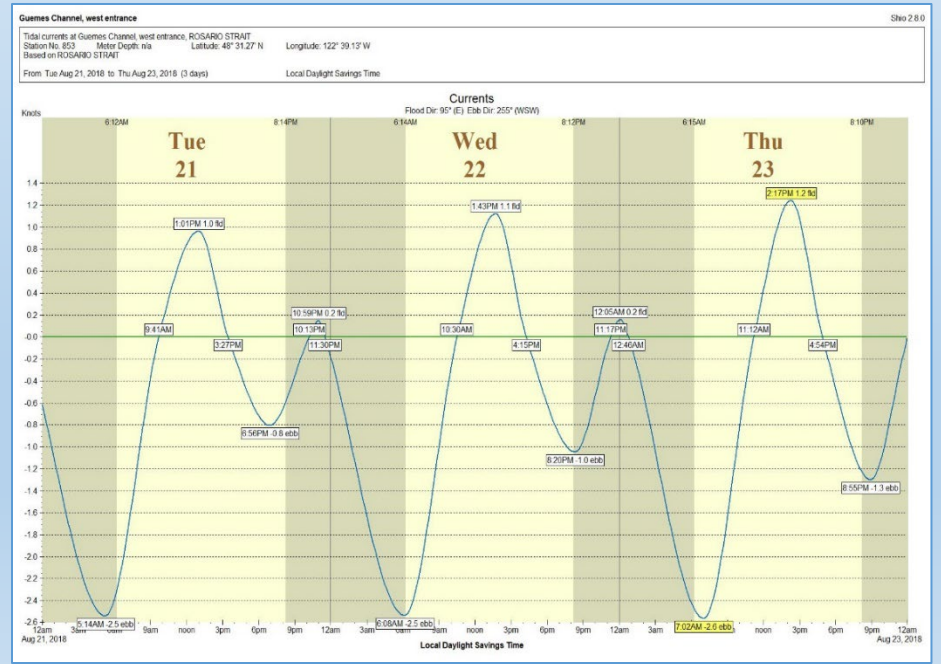
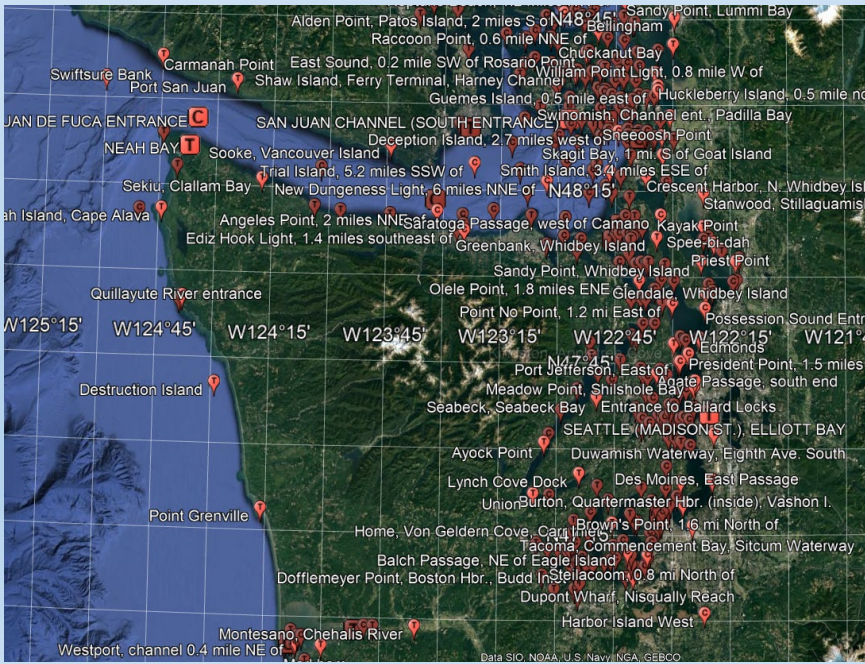
Requested Location Forecast Area

Weather





Tides and Currents





4. Archaeo-cultural and Socio-economic Issues

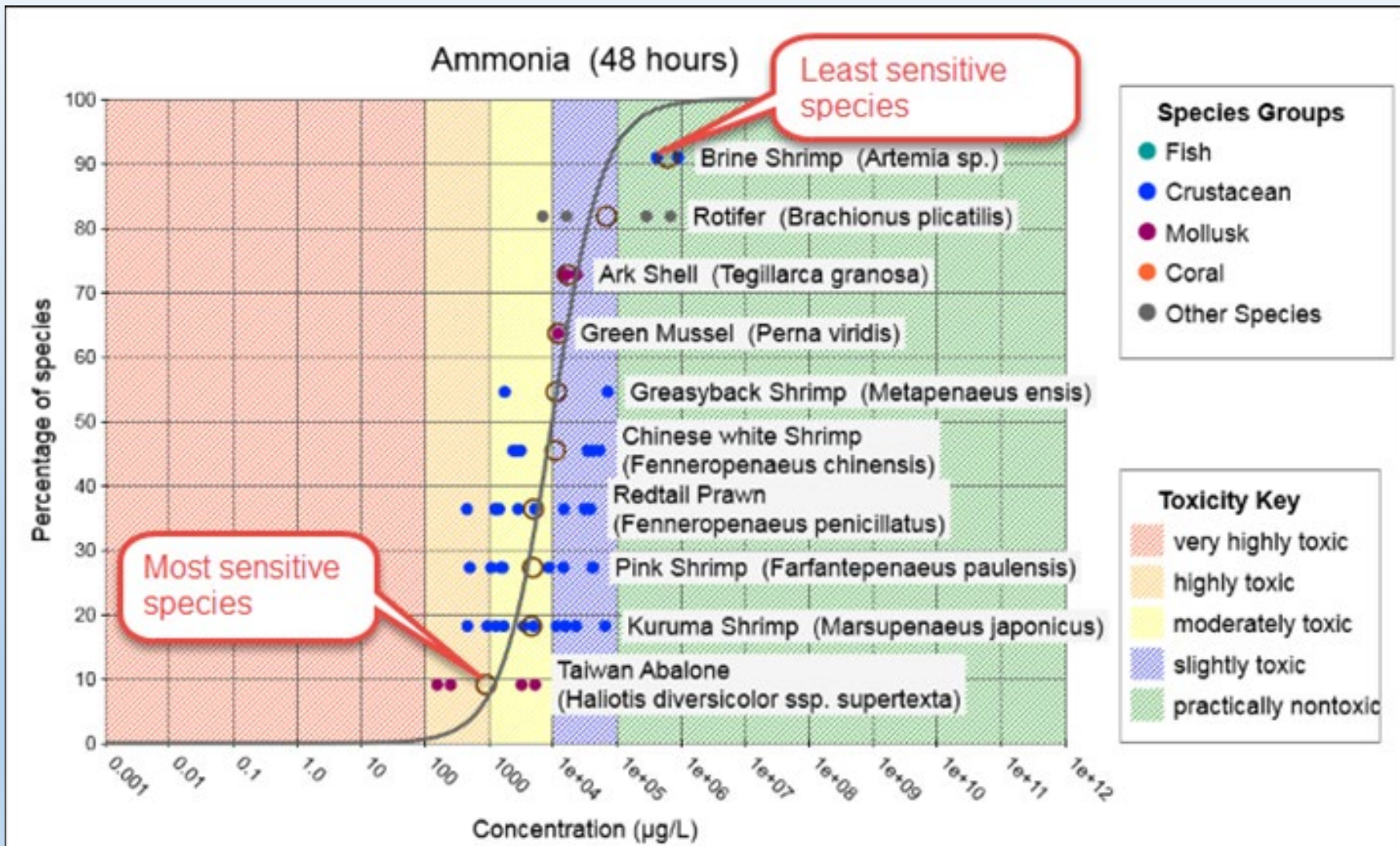
Salmon Bay National Register of Historic Places



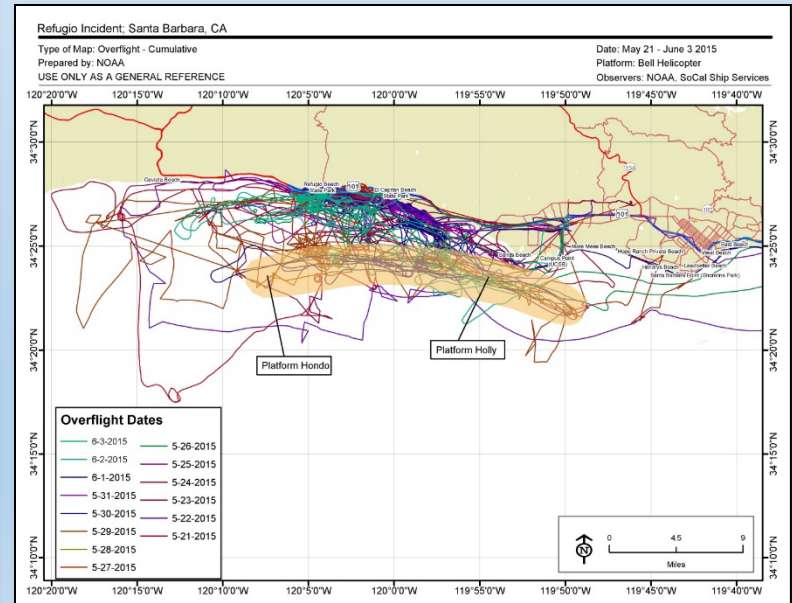
Site #	Priority	Site Name and/or Physical Location	Site Issues
78002751 (National Register Listing number)	1	Chittenden Locks and Related Features of the Lake Washington Ship Canal	Historic District listed on the National Register (and the Washington Heritage Register) 12/14/1978 includes the Hiram M. Chittenden Locks, the Fremont Cut, and the Montlake Cut of the Lake Washington Ship Canal
89001448 (National Register Listing number)	1	Fireboat Duwamish	National Historic Landmark. This ship is listed on the National Register (and the Washington Heritage Register) 06/30/1989. DUWAMISH (1909) is the second oldest surviving fireboat built specifically as a firefighting vessel in the U.S.
82004231 (National Register Listing number)	1	Ballard Bridge	The Ballard Bridge located at 15 th Ave NW is listed on the National Register (and the Washington Heritage Register) 07/16/1982

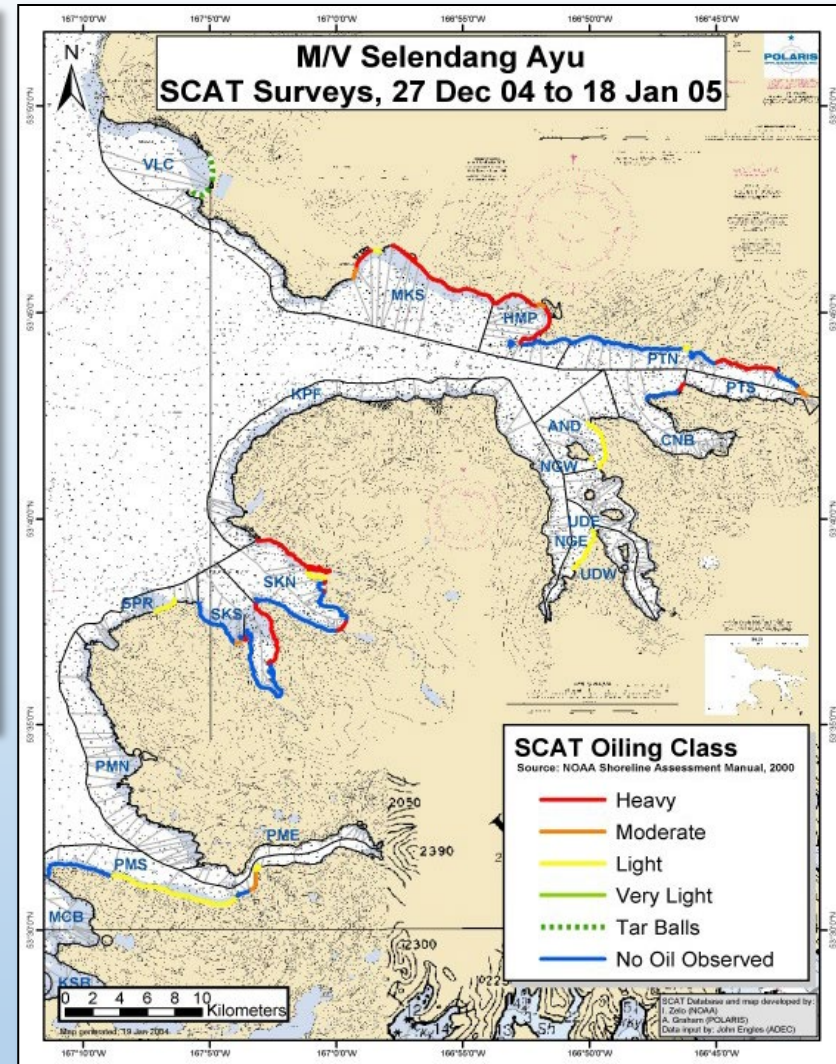


Chemical Aquatic Fate and Effects



Overflight Expertise

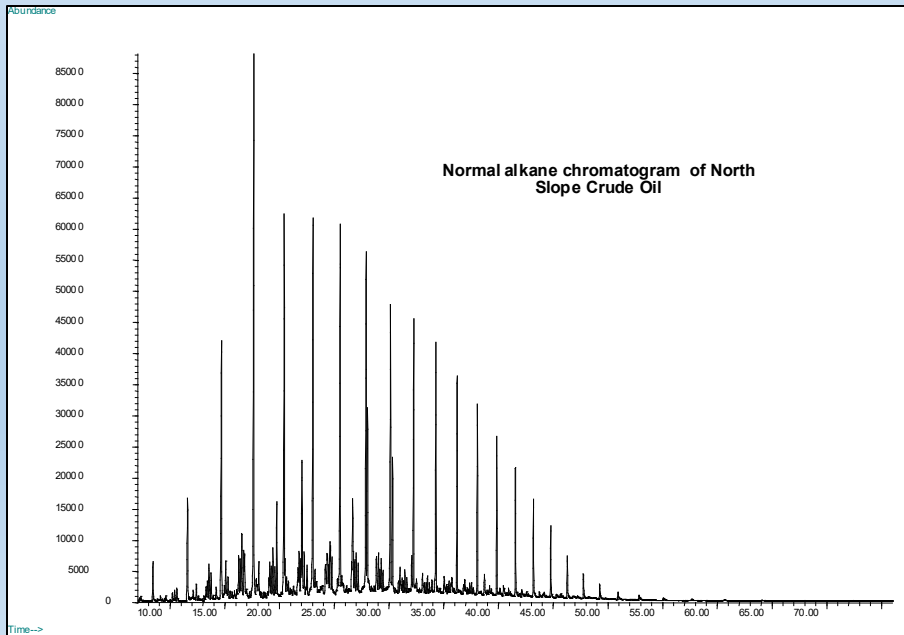
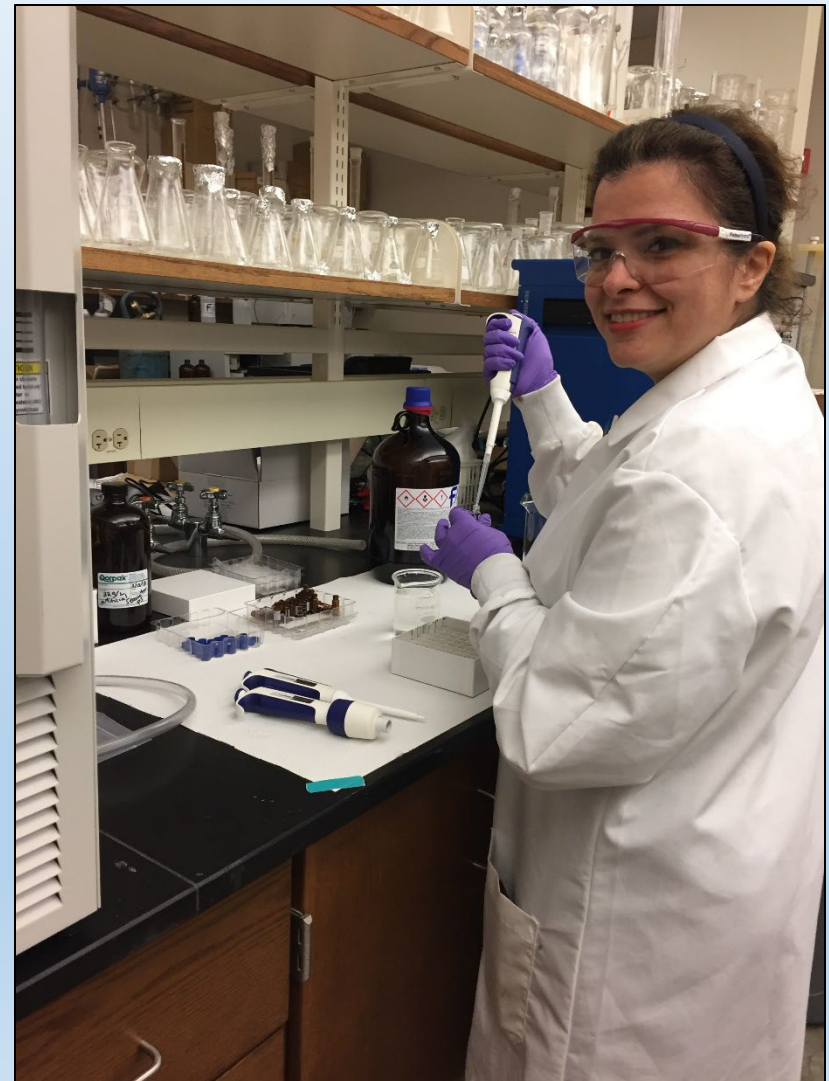




(SCAT)

Shoreline Surveys

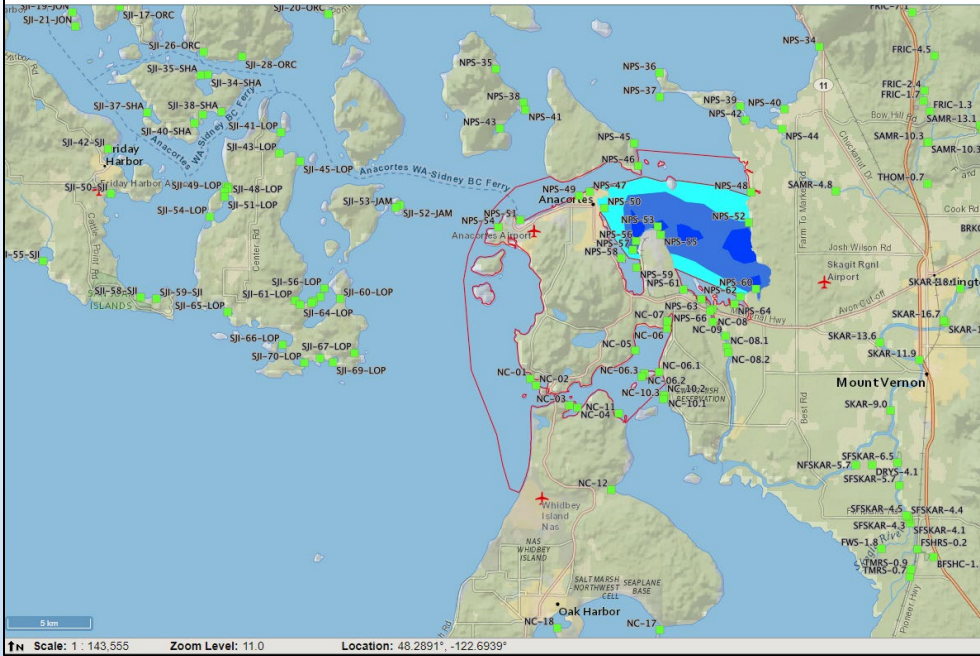
Chemistry & Analytics





Clean-up Recommendations & Oversight





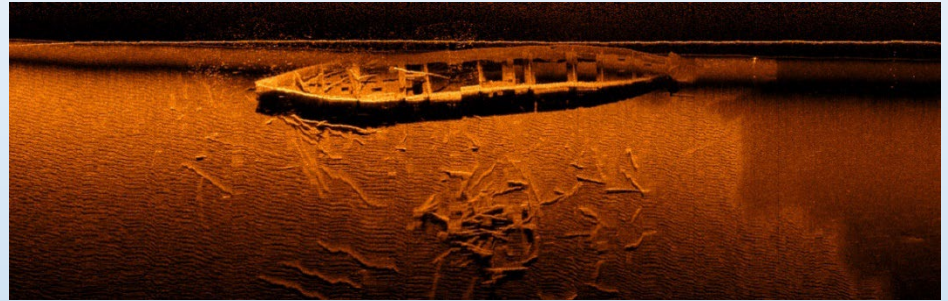
Information Management & GIS Support



Data Integration Visualization
Exploration and Reporting (DIVER)
Explorer allows users to search and download a broad array of **environmental characterization** and **project planning data** specific to geographic regions or activities.

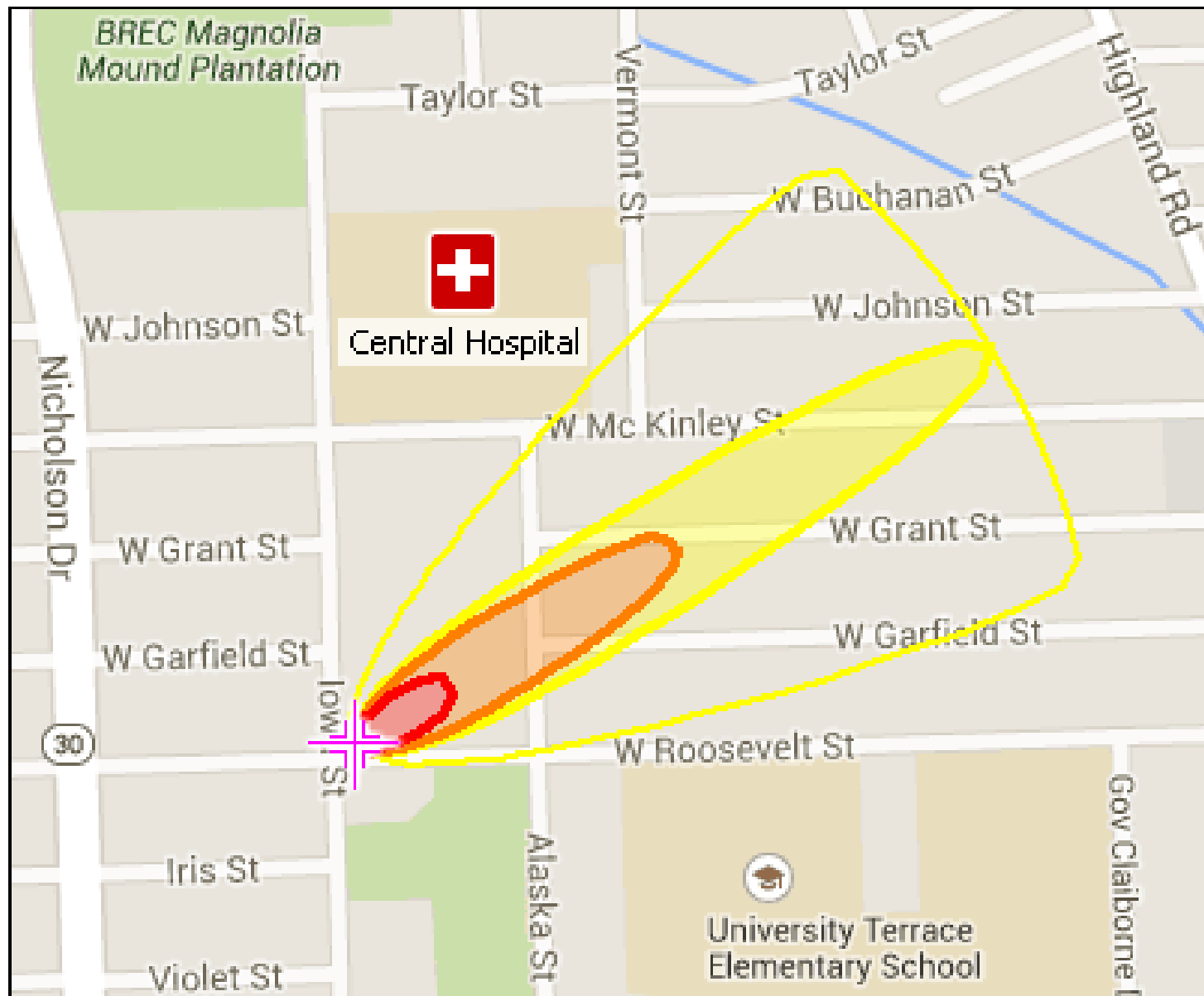


Hydrographic Surveys





**And For a
Chemical Incident...**



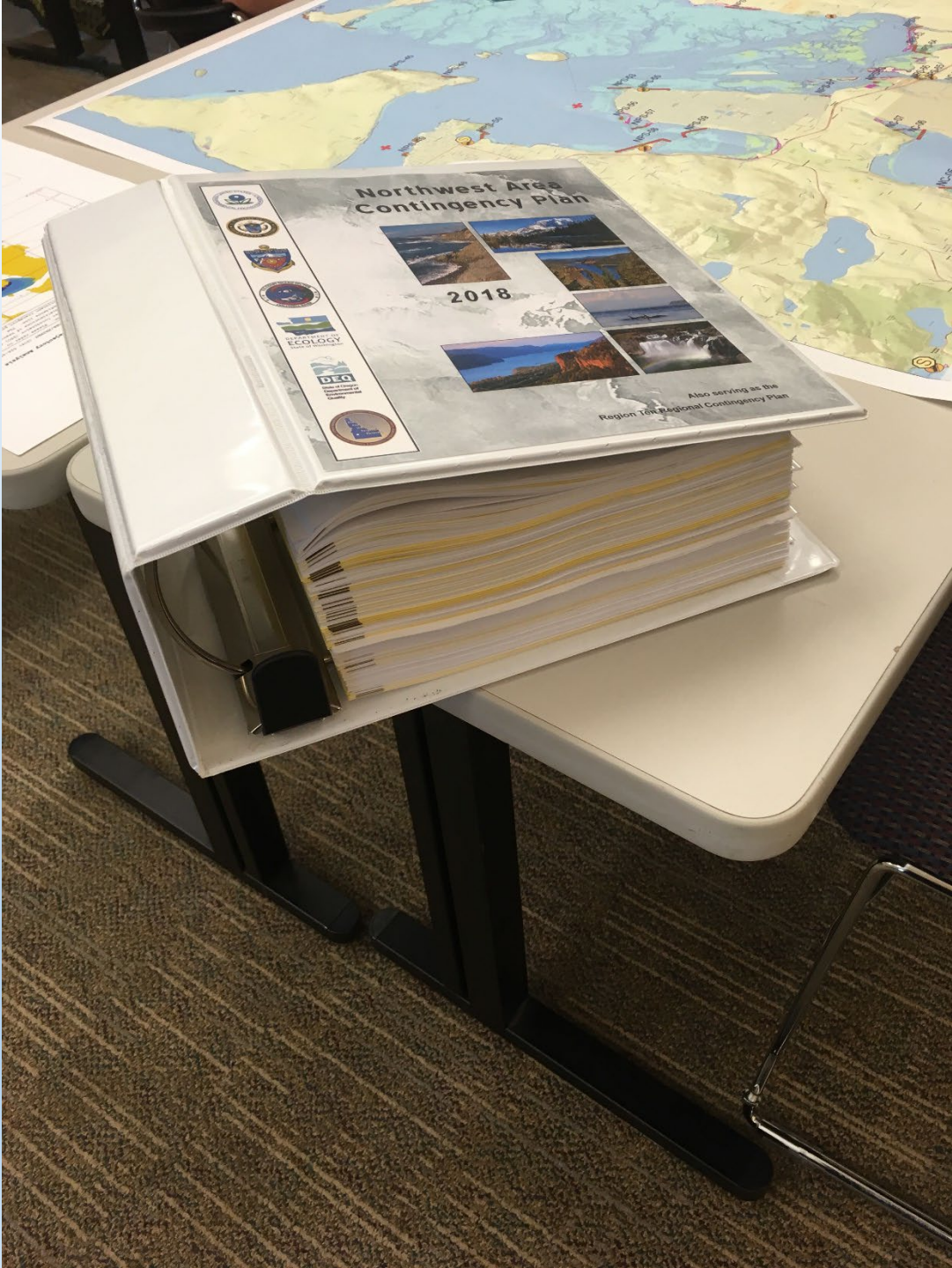


NOAA Scientific Support Between Incidents



Training







Dispersant Ap

NOAA/NOS/Hazardous Materials
Seattle, Washington



Habitats Costeros Car

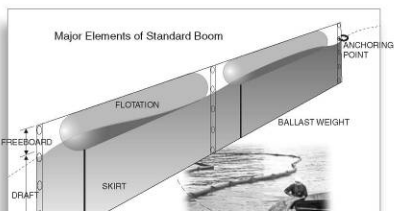


Characteristic Coastal Habitats Choosing Spill Response Alternatives



Characteristics of Response Strategies:

A Guide for Spill Response Planning in Marine Environments



Shoreline Assessment Job Aid

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



Oil Spills in Mangroves

PLANNING & RESPONSE CONSIDERATIONS

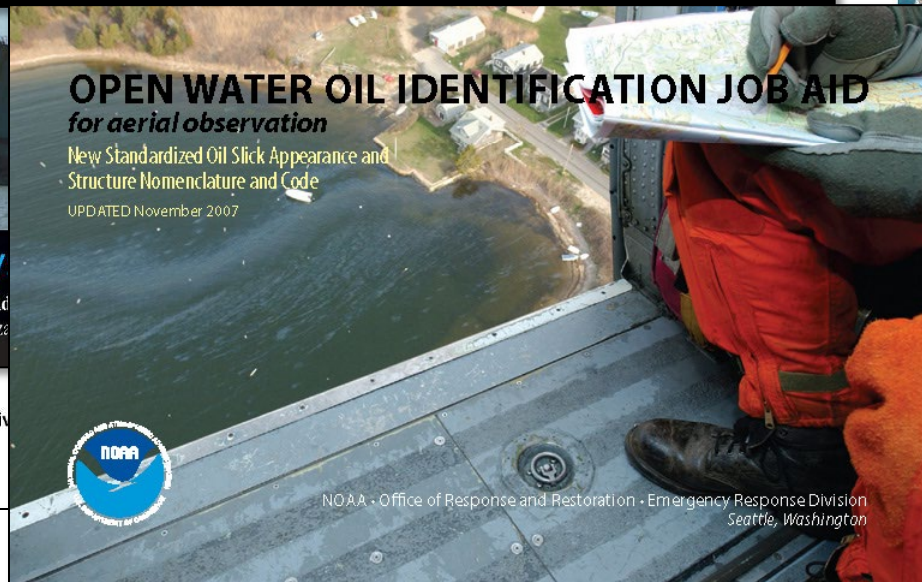


Oil and Sea Turtles

BIOLOGY, PLANNING, AND RESPONSE



Oil Spills in Coral Reefs



OPEN WATER OIL IDENTIFICATION JOB AID for aerial observation

New Standardized Oil Slick Appearance and
Structure Nomenclature and Code

UPDATED November 2007



NOAA - Office of Response and Restoration - Emergency Response Division
Seattle, Washington

Managing Seafood Safety after an Oil Spill



Observers Guide to

SEA ICE

RESPONDER TOOLS

MARPLOT® (Mapping Application for Response, Planning, and Local Operational Tasks) is a mapping program in CAMEO that allows users to add objects to maps, as well as view and edit data associated with those objects.

DIVER Explorer (Data Integration Visualization Exploration and Reporting) provides public access to NRDA data, including photographs, telemetry, field observations and results of laboratory analysis.

ERMA® (Environmental Response Management Application) is an online mapping tool integrating static and real-time data in an easy-to-use format for environmental responders and decision makers.

CAMEO® (Computer-Aided Management of Emergency Operations) is a software suite designed to help prepare for and respond to chemical emergencies.

ALOHA® (Areal Locations of Hazardous Atmospheres) is an air hazard modeling program in CAMEO that estimates how a toxic cloud might disperse after a chemical release, including fire and explosion scenarios.

ESI Maps (Environmental Sensitivity Index maps) provide a concise summary of coastal resources at risk if an oil spill occurs nearby.

CAMEO Chemicals is a database program in CAMEO with thousands of hazardous chemical datasheets and a tool for predicting possible hazards from mixing chemicals.

TAP (Trajectory Analysis Planner) analyzes statistics from potential spill trajectories generated by the oil spill trajectory model.

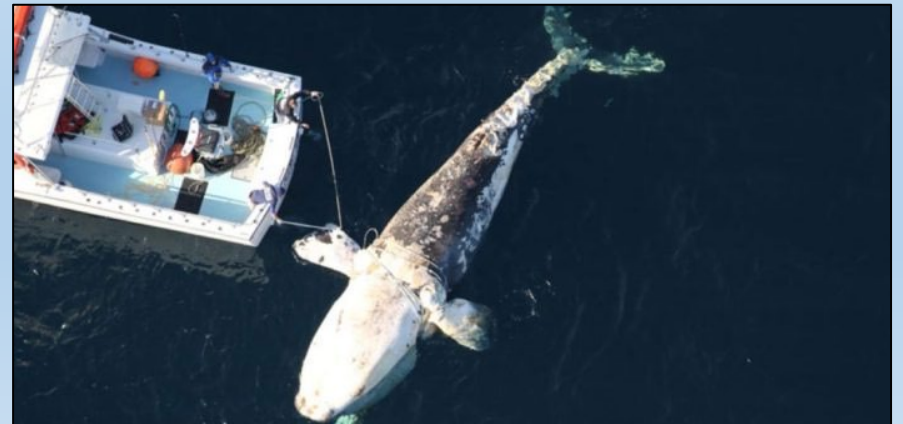
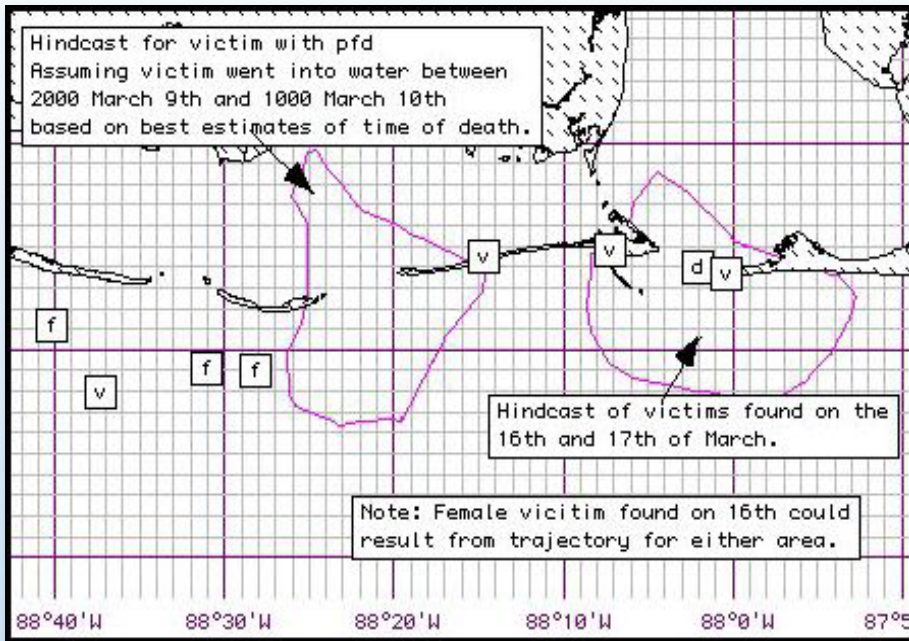
ROC (Response Options Calculator) predicts how spilled oil will change and degrade over time and the volume of oil that can be recovered, burned, or treated using different response tactics.

GNOME™ (General NOAA Operational Modeling Environment) is a software modeling tool used to predict how oil and other pollutants might move and spread on the water.

CAFE (Chemical Aquatic Fate and Effects) is a database program that helps responders assess potential harm to aquatic life from chemical or oil spills.

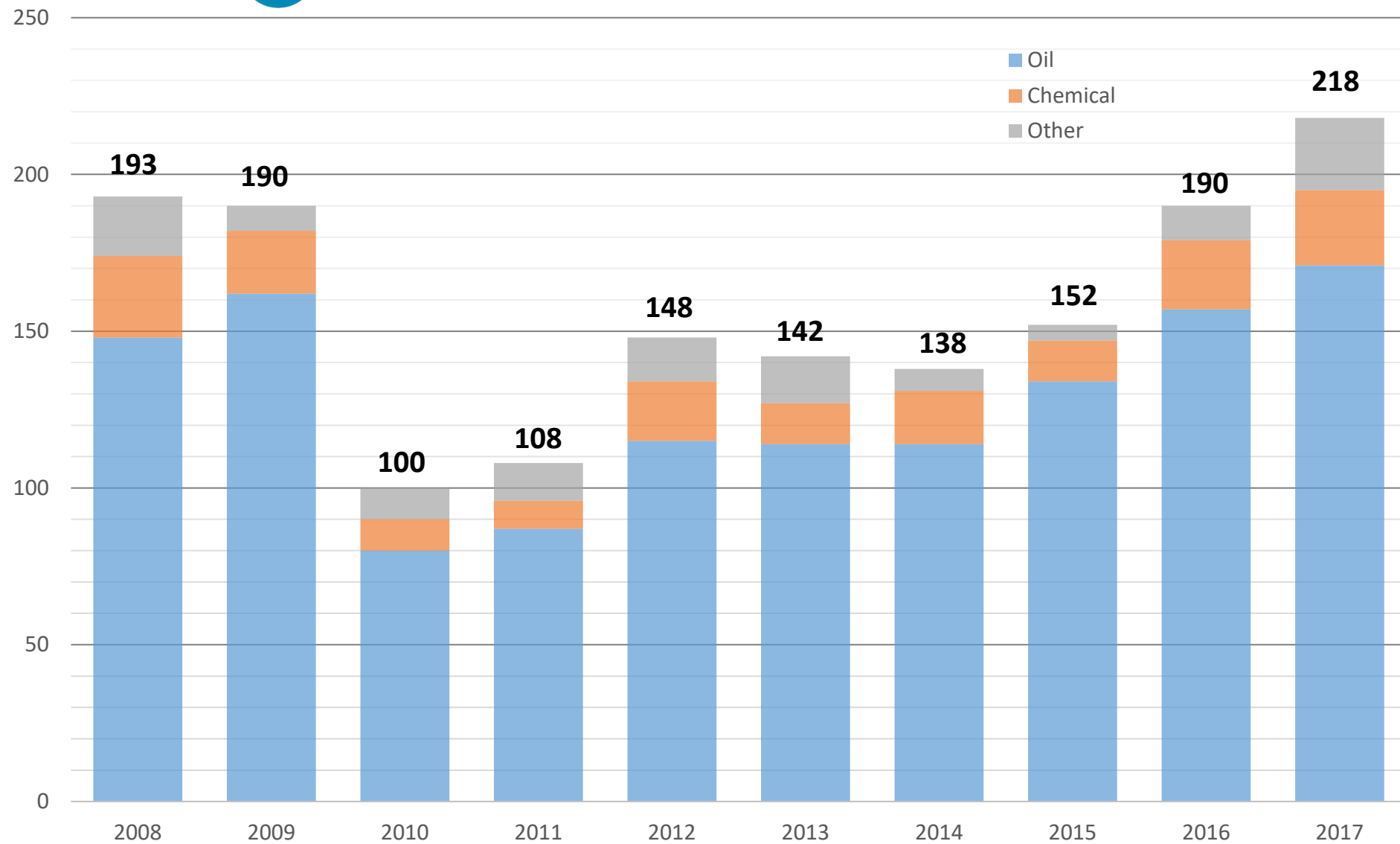
ADIOS® (Automated Data Inquiry for Oil Spills) models how different types of oil change and degrade in the marine environment.

Other...





ERD-SUPPORTED INCIDENTS 2008-2017





NOAA Supported Incidents (2017)

Getting to Restoration via a Natural Resources Damage Assessment



Who does the Consultations?

- Consultations are the responsibility of the Federal action agency, as represented by the Federal On-Scene Coordinator (FOOSC)
- In a response, typically are delegated to the Environmental Unit, with assistance from the SSC
- Depending on size of response, appropriate resource agency representatives may be on-scene

SSC Role Coordinating Consultations From IMH

F. Facilitate in the Endangered Species Act consultation process. G. Develop a prioritized list of resources at risk, including threatened and endangered species, in conjunction with Natural Resource Trustee Representatives and the FOSC's Historical/Cultural Resources THSP



Key Contacts for Coordinating Consultations

ESA-NOAA Trustee Representative (SSC), NMFS protected Species Division

ESA-DOI RRT Representative, USFWS

EFH- NOAA Trustee Representative (SSC), NMFS Habitat Conservation Division

NHPA- DOI RRT Representative, SHPO

THPO & NAGPRA –DOI RRT Representative, Bureau of Indian Affairs, Affected Federally Recognized Tribes



Other Resource Coordination Requirements

Migratory Bird Act

National Marine Sanctuary Act

Marine Mammal Protection Act

Special Managed Areas

etc



Permitting Considerations

USACOE-any impacts to navigable waterways, water bottoms, wetlands

States-Varies, habitat, wetlands impacts, etc

NMS-Impacts to their managed resources/coral, seagrass, wetlands, etc

Other Special Managed Areas, sanctuaries, preserves, parks, etc



For More In Depth Reading on the Subject of Consultations:

Addressing the Uncertainty and Requirements for Oil Spill Response Consultations

A comprehensive paper presented at IOSC 2014
By Benggio et al

<https://ioscproceedings.org/doi/abs/10.7901/2169-3358-2014.1.1881>



NOAA Resources for Oil Spill Responders

- **Website:** response.restoration.noaa.gov
 - Job aids, GNOME model, ADIOS model, ALOHA, CAMEO, CAFÉ, Reactivity data base, dispersant and ISB mission planners
- **NOAA Response Link:** | orr.incidentnews@noaa.gov to request a ResponseLink account and Incident News (public)
- **ERMA (COP):** orr.erma@noaa.gov to request an account

Questions?



NOAA

Emergency Response Division

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