

00R005



Oil and Hazardous Materials Response Reports

October 1998—September 1999

May 2001

National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division
Seattle, Washington 98115

00R005

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Additional copies of the responses may be obtained from the appropriate Scientific Support Coordinator or U.S. Coast Guard office.

INTRODUCTION

Between October 1, 1998 and September 30, 1999, NOAA's Office of Response and Restoration Division's Scientific Support Coordinators and scientific staff were notified of 69 spill incidents. These incidents included potential spills, false alarms, and very minor spills for which reports were not prepared (marked with an asterisk in the list of 1999 spills). Technical and operational assistance provided to the U.S. Coast Guard for spill incidents in the Nation's coastal zone included 19 potential oil spills, 34 actual oil spills, 9 chemical spills, 2 spills of unknown material, and 5 miscellaneous spills. In addition to the spills listed, NOAA assisted the U.S. Coast Guard with 40 simulation exercises.

This volume of reports follows the format established for the Oil Spill Case Histories Report prepared in 1992 by the Division with U.S. Coast Guard Research and Development Center support so that major spills meeting the criteria for inclusion may be incorporated easily into updated case histories reports.

Each report in this volume is organized as follows:

- A list of headers that summarizes the spill name; location; product; size; use of dispersants, bioremediation, and in-situ burning; other special interests; shoreline types affected; and keywords.
- A brief *incident summary* including weather conditions and description of the overall spill response.
- A description of the behavior of the spilled material including movement, evaporation, mousse formation, and dispersion.
- A discussion of countermeasures and mitigation.
- A description of other *special interest issues* such as communication problems, unusual hazards encountered, and large losses of organisms.
- A list of *references* that document the response operations.

Although the master list on the following pages includes all of the incidents for which the Division provided support, only those incidents where the pollutant actually entered the environment are reported on in this volume. These reports are abbreviated and are meant to serve only as a summary of the Division's response to requests from Federal On-Scene Coordinators for each of the events.

Additional details on any of the responses may be obtained from the appropriate Scientific Support Coordinator or U.S. Coast Guard office.

Spill Report Keys

Name of Spill:

NOAA SSC:

Date of Spill (mmddyy):

Location of Spill: text description

Latitude: degrees, minutes, N or S

Longitude: degrees, minutes, E or W

Spilled Material: specific product

Spilled Material Type:

Type 1 - Very Light Oils (jet fuels, gasoline)

Type 2 - Light Oils (diesel, No. 2 fuel oil, light crudes)

Type 3 - Medium Oils (most crude oils)

Type 4 - Heavy Oils (heavy crude oils, No. 6 fuel oil, bunker c)

Type 5 - Hazardous material

Amount: (Barrels, gallons, or weight in pounds if hazardous material):

Source of Spill: tank vessel, non-tank vessel, barge, facility, pipeline, platform

Resources at Risk: See A

Dispersants: Yes or No

Bioremediation: Yes or No

In-situ Burning: Yes or No

Other Special Interest:

Destruction of marshes, mangroves, or tidal flats

Extraordinarily successful salvage operations

Massive habitat loss

Massive wildlife impact

Oil/ice interactions and adverse weather conditions

Unusual, experimental, or innovative cleanup techniques

Shoreline Types Impacted: See B

Keywords: See C

Incident Summary:

- Date and time of incident
- Location of incident
- Weather at time of incident
- Summary of events
- Actions of responsible party and response organizations
- Level of federal involvement
- Duration of response

Behavior of Spilled Material:

- Formation of slicks, sheen, or mousse
- Movement on the water of spilled material
- Movement in the air of spilled material
- Areas impacted
- Amount spilled; amount recovered
(land, sea, contaminated debris)
- Amount not recovered
(sinking, evaporation, weathering, dissolution)

Countermeasures and Mitigation:

- Control at incident site
- Offloading and lightering operations; movement of vessel
- Precautionary protection of sensitive areas
- Open water recovery
- Shoreline cleanup
- Removal and disposal of spilled material or
contaminated debris

Other Special Interest Issues: See D

NOAA Activities:

- Involvement in response (on-scene, by phone and fax)
- Support provided
- Participation in committees and special projects
- Unusual responsibilities
- Meetings attended/recommendations made
- Duration of NOAA support

References:

Spill Report Keys

A

Resources at Risk

Habitats

(See *shoreline types* key below), eelgrass beds, submerged aquatic vegetation (SAV), kelp, coral reefs, worm beds

Marine Mammals

Whales, dolphins, sea lions, seals, sea otters, manatees, walruses, polar bears, population concentration areas, haulouts, migration routes, seasonal use areas

Terrestrial Mammals

Mustelids, rodents, deer, bears, population concentration areas, intertidal feeding areas

Birds

Diving coastal birds, waterfowl, alcids, petrels, fulmars, shorebirds, wading birds, gulls, terns, raptors, rookeries, foraging areas, wintering areas, migration stopover areas, wintering concentration areas, nesting beaches, migratory routes, critical forage areas

Fish

Anadromous fish, beach spawners, kelp spawners, nursery areas, reef fish (includes fish using hard-bottom habitats), spawning streams, spawning beaches, estuarine fish, demersal fish

Mollusks

Oysters, mussels, clams, scallops, abalone, conchs, whelk, squid, octopuses, seed beds, leased beds, abundant beds, harvest areas, high concentration sites

Crustaceans

Shrimp, crab, lobster, nursery areas, high concentration sites

Reptiles

Sea turtles, alligators, nesting beaches, concentration areas

Recreation

Beaches, marinas, boat ramps, diving areas, high-use recreational boating areas, high-use recreational fishing areas, State Parks

Management Areas

Marine Sanctuaries, National Parks, Refuges, Wildlife Preserves, Reserves

Resource Extraction

Subsistence, officially designated harvest sites, commercial fisheries, power plant water intakes, drinking water intakes, industrial water intakes, intertidal and subtidal mining leases, fish/shrimp/bivalve/plant aquaculture sites, log storage areas

Cultural

Archaeological sites, Native American Lands

B Shoreline Types Impacted

- brackish marshes
- coarse gravel beaches
- coarse sand beaches
- coastal structures
- consolidated seawalls
- consolidated shores
- cypress swamps
- developed upland
- eroding bluffs
- exposed bedrock bluffs
- exposed bluffs
- exposed fine sand beaches
- exposed riprap
- exposed rocky platforms
- exposed rocky shores
- exposed scarps
- exposed seawalls
- exposed tidal flats
- exposed tidal flats (low biomass)
- exposed tidal flats (moderate biomass)
- exposed unconsolidated sediment bluffs
- extensive intertidal marshes
- extensive salt marshes
- extensive wetlands
- fine sand beaches
- flats
- freshwater flat
- freshwater marshes
- freshwater swamps
- fringing salt marshes
- fringing wetlands
- hardwood swamps
- levees
- low banks
- mangroves
- marshes
- mixed sand and shell beaches

mixed sediment beaches
 piers
 riprap
 salt marsh
 saltwater marshes
 sand/gravel beaches
 shell beaches
 sheltered bedrock bluffs
 sheltered fine-grained sand beaches
 sheltered impermeable banks
 sheltered mangroves
 sheltered marshes
 sheltered rocky shores
 sheltered seawalls
 sheltered tidal flats
 shelving bedrock shores
 spoil bank
 supratidal marshes
 swamp
 tidal mudflat
 unforested upland
 unvegetated steep banks and cliffs
 vegetated bluffs
 vegetated low banks
 vegetated riverbank
 vertical rocky shores
 wavecut platforms

C Key words

Abandoned Barge Act
 air-activated pumps
 ARTES
 bioremediation
 Centers for Disease Control
 Clean Bay Inc.
 containment boom
 Corexit 9527
 DBRC
 dispersant
 endangered species
 evaporation
 exposed rocky shores
 filter fences
 Food and Drug Administration
 groundtruth
 high-pressure, warm-water washing
 hydro-blasting

	<p>in-situ burning</p> <p>International Bird Rescue and Research Center</p> <p>International Tanker Owners Pollution Federation (ITOPF)</p> <p>low-pressure washing</p> <p>NAVSUPSALV</p> <p>NOAA National Marine Fisheries Service Laboratory</p> <p>Pacific flyway</p> <p>potential spill</p> <p>propane cannons</p> <p>remote sensing</p> <p>recoiling</p> <p>RIDS (Response Information Data Sheets)</p> <p>salvage</p> <p>seafood harvesting ban</p> <p>shallow water recovery</p> <p>siphon dams</p> <p>skimmers</p> <p>SLAR (side-looking airborne radar)</p> <p>smothering</p> <p>sorbent boom</p> <p>sorbent pompoms</p> <p>starshell-type device</p> <p>tourism losses</p> <p>vacuum trucks</p> <p>volunteers</p> <p>weed cutters</p> <p>weir/pump skimmer</p>
D	<p>Other Special Interest Issues</p> <p>Effects to tourism, recreation areas, or personal property</p> <p>Closure of commercial or recreational fishing areas and public lands</p> <p>Closure of shipping lanes and vehicle traffic routes</p> <p>Wildlife impacts and rehabilitation</p> <p>Ecological destruction and habitat loss due to spilled material impacts</p> <p>Ecological destruction and habitat loss due to cleanup operations</p> <p>Effects to human health and safety</p> <p>Bioremediation, dispersant, in-situ burning operations</p> <p>Unusual, experimental, or innovative cleanup techniques</p> <p>Complex successful salvage operations</p> <p>Logistical or operational problems (including adverse weather conditions)</p> <p>Interaction with foreign or Native authorities</p> <p>Media interest</p> <p>Volunteer response and organization</p> <p>Studies conducted; ongoing research</p>

1998 Drills and Scenarios
October 1, 1998—September 30, 1999

Date Description	Area	Type	Date Requested	Date Sent
Drill	Strait of Juan de Fuca, WA	TAT	10/13/98	10/13/98
Planning	Upper Cook Inlet, AK	TAT	10/16/98	10/16/98
Drill	New Haven CT	TAT	10/22/98	10/22/98
Drill	Ohio River	Drill	10/30/98	10/20/99
Drill	N. San Juan Islands, WA	TAT	11/10/98	11/10/98
Planning	Anchorage, AK	TAT	12/16/98	12/16/98
Drill	LA/Long Beach, CA	EAT	1/26/99	1/26/99
Navy Drill	Admiralty Inlet, WA	TAT	1/25/99	1/25/99
Industry Prep	Burns Harbor, Baffin	TAT	1/27/99	1/27/99
Planning	Beaufort, AK			
Coast/Ed Drill	East River, NY	TAT	1/28/99	1/26/99
ISO Portland	Willamette River, OR	TAT		
Industry Prep	Fort Lauderdale, FL	TAT	3/11/99	3/12/99
Workshop 5000	Boston Harbor, MA	TAT	3/15/99	3/16/99
Workshop 5000	Buzzards Bay, MA	TAT	3/19/99	3/19/99
Consult plan	Lynn Canal	TAT	4/1/99	4/1/99
Workshop 5000	St. Thomas	TAT	4/5/99	4/5/99
CANUSLANT	Essex, ME	TAT	3/29/99	3/29/99
JSCG Workshop	Gulfstream Bay, FL	OBSM	4-4/47/99	4-6/47/99
JSCG Workshop	San Francisco Bay, CA	OBSM	4/19/4-20	4/19/99-20
TOCS Scenario	Delaware Bay, DE	TAT	4/20/99	4/20/99
CAT Workshop	St. Lawrence River	TAT	5/3/99	5/3/99
CA Disp Workshop	Gulfstream Bay, FL	Disp Table	5/5/99	5/5/99
CA Disp Workshop	San Francisco Bay, CA	Disp Table	5/20/99	5/20/99
CA Disp Workshop	San Francisco Bay, CA	Disp Table	5/25/99	5/25/99
Self Strike Team	20 miles off Timor	Unarm Drill	5/26/99	5/26/99
REP Drill	Pease's Bay, MA	TAT	6/29/99	6/29/99
JSCG Drill	Sanford, FL	TAT	8/6/99	8/6/99
TSPRI	Upper Cook Inlet, AK	TAT	8/11/99	8/11/99
Siddle East Drill	Gaza Bay	TAT	8/23/99	8/23/99
ISO San Francisco	Moss Landing	TAT	8/19/99	8/19/99
ISO San Francisco	Cowart City	TAT	8/19/99	8/19/99
CANUSDR	Dryden Entrance	TAT	9/3/99	9/3/99
ISO Honolulu	Honolulu Harbor	Verbal	9/23/99	9/23/99

FY 99 Spills
October 1, 1998—September 30, 1999

Date of Incident	No.	Report Name/ Hotline Number	Commodity Involved	USCG District	NOAA Involvement
01 Oct 98	1	BP Pipeline Spill/335 Gulf of Mexico	light crude	8	3 on-scene
07 Oct 98	2	Mystery Spill/336 Monterey Bay, CA	unknown	11	1 on-scene
16 Oct 98	3	F/V <i>Paradise Queen III</i> /337 Kure Atoll	diesel	14	phone/fax
30 Oct 98	4	T/V <i>Champion Trader</i> /338 Southwest Pass, LA	IFO 380	8	2 on-scene
05 Nov 98	5	F/V <i>Miss Conch</i> /339 Matagorda	diesel	8	phone/fax
06 Nov 98	6	train derailment/340 Huntington, WV	chemicals	5	phone
10 Nov 98	7	F/V <i>Joyce</i> /341* Freeport, TX	diesel	8	phone/fax
13 Nov 98	8	C/V <i>Atoll Atlantic</i> /342 New Haven, CT	Acrolein	1	phone/fax
19 Nov 98	9	<i>Lykes Liberator</i> /343* Houston, TX	chemicals	8	phone/fax
19 Nov 98	10	Sea Barge <i>Trader</i> /344* Florida to Puerto Rico	hazardous materials	7	phone/fax
24 Nov 98	11	T/V <i>Somerset</i> /345 Gulf of Mexico	Arabian crude	8	phone/fax
11 Dec 98	12	M/V <i>Haida Monarch</i> /346 Gulf of Alaska	logs	17	phone/fax
15 Dec 98	13	T/B <i>CTCO 2601</i> /347 Tampa Bay, FL	lube oil	7	phone/fax
16 Dec 98	14	<i>Monarch Seas RCL</i> /348 St. Martin	diesel	7	phone/fax
23 Dec 98	15	F/V <i>Captain Justin</i> /349 Tampa Bay, FL	diesel	7	phone/fax

FY99 Spill Report

Date of Incident	No.	Report Name/ Hotline Number	Commodity Involved	USCG District	NOAA Involvement
28 Dec 98	16	M/V <i>Violetta</i> /350 Galveston, TX	bunker, diesel, lube oil	8	phone/fax
29 Dec 98	17	Train Derailment/351 Wittenburg, MO	titanium dioxide	9	1 on-scene
11 Jan 99	18	tug <i>Miss Jessica</i> /352 Galveston, TX	diesel	8	phone/fax
13 Jan 99	19	T/B <i>M&M 100</i> /353 Port Forchon, LA	diesel	8	phone/fax
21 Jan 99	20	T/B 2125/354* Chocolate Bayou, TX	xylene	8	phone/fax
22 Jan 99	21	Mystery Spill/355 NC/SC coasts	unknown oil	5	phone/fax
28 Jan 99	22	Mystery Tarballs/356 San Juan, PR	tarballs	7	phone/fax
02 Feb 99	23	E Cameron Block* Gulf of Mexico	crude oil	8	phone
04 Feb 99	24	M/V <i>New Carissa</i> /357 Coos Bay, OR	#2 fuel oil	13	9 on-scene
05 Feb 99	25	Enighed Pond/358 San Juan, PR	diesel	7	phone/fax
09 Feb 99	26	Rig High Island Platform 139A/359 off shore LA	crude oil	8	phone/fax
09 Feb 99	27	East Cameron Block 272/360 off shore LA	unknown	8	phone/fax
10 Feb 99	28	Tennessee River/361 Knoxville, TN	diesel	9	3 on-scene
12 Feb 99	29	Dredge <i>Louisiana</i> /362 Corpus Christie Bay, TX	diesel	8	phone/fax
15 Feb 99	30	<i>Seaspan Rigger</i> /363 Cape Spencer, AK	logs	17	phone
17 Feb 99	31	Abandoned Facility/364 Morgan City, LA	crude oil	8	phone

Date of Incident	No.	Report Name/ Hotline Number	Commodity Involved	USCG District	NOAA Involvement
18 Feb 99	32	F/V Sea Quayle* Whale Passage, AK	diesel	17	phone
19 Feb 99	33	M/V <i>Hekifu</i> * Dutch Harbor, AK	misc. oils	17	phone/fax
22 Feb 99	34	<i>Ocean Winner/365</i> * Galveston, TX	red diesel	8	phone
27 Feb 99	35	T/V <i>Hyde Park/366</i> New Orleans, LA	purolysis gas Bunker C	8	4 on-scene
04 Mar 99	36	M/V <i>Hollandic Confidenc/367</i> Cape Mendicino, CA	sulfur IFO marine-grade fuel oil	11	phone/fax
17 Mar 99	37	Thermal Release Item/368 St. Lawrence River, NY	Therminol 55	1	phone/fax
23 Mar 99	38	Kuehne Chemical/369* Kearny, NJ (potential)	sodium hydroxide sodium hydrochlorite	1	phone/fax
1 Apr	39	fishing boat aground/370 Pillar Point, CA	diesel	11	1 on-scene
5 Apr	40	M/V <i>Algontario/371</i> St Mary's River, MI	IFO, #2, cement	9	1 on-scene
9 Apr	41	Oil Rig East Cameron 60/372* Cameron, LA	natural gas condensate	8	phone/fax
15 Apr 99	42	F/V <i>Poseiden/373</i> Panama, FL	death of crew investigation	8	1 on-scene
19 Apr 99	43	T/V <i>Sea World/374</i> Galveston, TX	Basrah crude oil	8	phone/fax
08 May 99	44	F/V <i>Controller Bay*</i> Cave Point, AK	misc. oils	17	phone/fax
10 May 99	45	F/V <i>Ying Fa*</i> Adak, AK	anhydrous ammonia	17	phone
10 May 99	46	M/V <i>Redfin*</i> Cold Bay, AK	diesel, lube	17	phone/fax

FY99 Spill Report

Date of Incident	No.	Report Name/ Hotline Number	Commodity Involved	USCG District	NOAA Involvement
13 May 99	47	Rosarito Beach pipeline/375 Rosarito Beach, Mexico	#6 fuel oil	11	2 on-scene
06 Jun 99	48	Oil slick/376* central California coast	unknown	11	phone/fax
09 Jun 99	49	Tug <i>Harvey Challenger</i> /377 Galveston Bay, TX	propane	8	2 on-scene
12 Jun 99	50	M/V <i>Wilderness Adventure</i> /378 Glacier Bay, AK	diesel	17	phone/fax
14 Jun 99	51	Northeast Florida Tarballs/379 NE FL	tarballs	7	phone/fax
25 Jun 99	52	Rig Falcon 17/380 Amelia, LA	natural gas diesel, drilling mud	8	2 on-scene
27 Jun 99	53	T/V <i>Arco Texas</i> /381 Ferndale, WA	North Slope Crude	13	phone/fax
01 Jul 99	54	F/V <i>Su-CeK</i> * Sitka Sound, AK	diesel	17	phone/fax
02 Jul 99	55	O'Neal Tank Battery/382* Golden Meadows, LA	crude oil	8	1 on-scene
10 Jul 99	56	Chemical Spill/383 Red River Shreveport, LA	2-ethylhexanol	8	2 on-scene
16 Jul 99	57	F/V <i>Sea Farer</i> * New Bedford, MA	diesel	1	phone/fax
20 Jul 99	58	Mystery Spill/384 Florence, OR	tarballs	11	1 on-scene
21 Jul 99	59	M/V <i>Navios Pioneer</i> /385 Port Royal, SC	crushed granite	5	phone/fax
23 Jul 99	60	Shell Oil Pipeline/386 Gulf of Mexico 30 miles SSE of Atchafalaya, LA	light condensate	8	1 on-scene
27 Jul 99	61	M/V <i>Spirit of 98</i> /387 Tracy Arm Southeast Alaska	diesel fuel	17	phone/fax

Date of Incident	No.	Report Name/ Hotline Number	Commodity Involved	USCG District	NOAA Involvement
30 Jul 99	62	pipeline break/388 Ramah, LA	crude oil	8	1 on-scene
9 Aug 99	63	Barge collision/389 Mt. Vernon, IN	gasoline	9	1 on-scene
12 Aug 99	64	M/V <i>Gardenia Ace</i> /390 Pt. Piedras Blancas, CA	marine diesel	11	phone/fax
17 Aug 99	65	T/B <i>Florida</i> * Cape Cod Canal	#6 fuel oil	1	phone
27 Aug 99	66	freighter <i>Blue Master</i> /391 Galveston, TX	IFO 180	8	phone/fax
29 Aug 99	67	Mystery Spill/392* Delaware	unknown oil	1	phone/fax
08 Sep 99	68	Dredge <i>Stuyvesant</i> /393 Humbolt Bay, CA	IFO-180	11	3 on-scene
14 Sep 99	69	F/V <i>Gussie Flynn</i> /394 Mississippi Sound, MS	diesel ammonia Propane	8	phone/fax
22 Sep 99	70	Mississippi River/395 water intake/395 New Orleans, LA	ethylene dichloride (EDC))	8	1 on-scene

FY99 Spill Report

FY99 Spill Report

Date of Incident	No.	Report Name/ Report Number	Commodity Involved	Volume, Cases	Wetland Designation
20 Jul 99	60	Superior 22-06/388 Larab, LA	crude oil	8	unclassified
7 Aug 99	61	Superior 22-06/389 W. Vermont, IN	gasoline	60	unclassified
17 Aug 99	62	Superior 22-06/390 P. Pacheco Bluffs, CA	marine diesel	1	phosphatic
17 Aug 99	63	T & B Ponds Cape Cod Canal	off fuel oil	1	phosphatic
27 Aug 99	64	Superior 22-06/391 California, TX	IFO 180	4	phosphatic
28 Aug 99	65	Superior 22-06/392 Delaware	unknown oil	1	phosphatic
28 Sep 99	66	Superior 22-06/393 Marshall Bay, CA	IFO 180	23	unclassified
14 Sep 99	67	Superior 22-06/394 Mississippi Sound, MS	diesel mineral Paraffin	8	phosphatic
22 Sep 99	70	Superior 22-06/395 New Orleans, LA	ethylene dichloride (EDC)	5	unclassified

FY99 Drills and Scenarios
October 1, 1998—September 30, 1999

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Drill	Strait of Juan Fuca, WA	TAT	10/13/98	10/13/98
Planning	Upper Cook Inlet, AK	TAT	10/16/98	10/16/98
Drill	New Haven CT	TAT	10/22/98	10/22/98
Drill	Ohio River	Drill	10/20/98	10/20/98
Drill	N. San Juan Islands, WA	TAT	11/10/98	11/10/98
Planning	Anchorage, AK	TAT	12/16/98	12/16/98
Drill	LA/Long Beach, CA	TAT	1/26/99	1/26/99
Navy Drill	Admiralty Inlet, WA	TAT	1/25/99	1/26/99
Industry Prep	Burns Harbor, Indiana	TAT	1/27/99	1/27/99
Planning	Beaufort, AK			
Con/Ed Drill	East River, NY	TAT	1/26/99	1/26/99
MSO Portland	Willamette River, OR	TAT		
Industry Prep	Fort Lauderdale, FL	TAT	3/11/99	3/12/99
Workshop Scen	Boston Harbor, MA	TAT	3/15/99	3/16/99
Workshop Scen	Buzzards Bay, MA	TAT	3/18/99	3/18/99
Consult plan	Lynn Canal	TAT	4/1/99	4/1/99
Workshop Scen	St. Thomas	TAT	4/5/99	4/5/99
CANUSLANT	Eastport, ME	TAT	3/29/99	3/29/99
USCG Workshop	Galveston Bay, TX	OSSM	4-6/47/99	4-6/4-7/99
USCG Workshop	San Francisco Bay, CA	OSSM	4/19/4-20	4/19/4-20
STOCS Scenario	Delaware Bay, DE	TAT	4/20/99	4/20/99
SCAT Workshop	St. Lawrence River	TAT	5/3/99	5/3/99
TX Disp Workshop.	Galveston Bay, TX	Disp. Tables	5/5/99	5/5/99
CA Disp Workshop	San Francisco Bight, CA	Disp Table	5/20/99	5/20/99
CA Disp Workshop	San Francisco Bay, CA	Disp Table	5/25/99	5/25/99
Gulf Strike Team	20 miles off Timb	Unann Drill	5/26/99	5/26/99
PREP Drill	Buzzard's Bay, MA	TAT	6/29/99	6/29/99
USCG Drill	Beaufort, SC	TAT	8/6/99	8/6/99
CISPRI	Upper Cook Inlet, AK	TAT	8/11/99	8/11/99
Middle East Drill	Gaza Strip	TAT	8/23/99	8/23/99
MSO San Francisco	Moss Landing	TAT	8/19/99	8/19/99
MSO San Francisco	Crescent City	TAT	8/19/99	8/19/99
CANUSDIX	Dixon Entrance	TAT	9/3/99	9/3/99
MSO Honolulu	Honolulu Harbor	Verbal	9/23/99	9/23/99

Acronyms

ACT	Activities (USCG)
ACTNY	Activities New York (USCG)
ADIOS™	Automated Data Inquiry for Oil Spills
ALOHA™	Areal Locations of Hazardous Atmospheres
ASSC	Assistant Scientific Support Coordinator
A/S	air station (USCG)
AST	Atlantic Strike Team
ATSDR	Agency for Toxic Substances and Disease Registry
BMS	Bristol-Myers Squibb
BP	British Petroleum
CGIS	Coast Guard Investigative Service (USCG)
Cm	centimeters
COIL	Central Oil Identification Laboratory (USCG)
COTP	Captain of the Port (USCG)
C/V	container vessel
DDO	Detached Duty Officer (USCG)
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation
FOSC	Federal On-Scene Coordinator
F/V	fishing vessel
F/B	freight barge
GC-MS	gas chromatography-mass spectrometry
GOA	Gulf of Alaska
gpm	grams per minute
GST	Gulf Strike Team
HAZMAT	hazardous material
ICS	Incident Command System
ICWW	Intracoastal Waterway
IDLH	immediately dangerous to life and health
IFO	intermediate fuel oil
IR	infrared
LEL	lower explosion level
LIS	Long Island Sound
LMR	Lower Mississippi River

LSU	Louisiana State University
m	meter
mg	milligram
MM	mile marker
MMS	Minerals Management Service
mph	miles per hour
MSD	Marine Safety Detachment (USCG)
MSDS	Material Safety Data Sheets
MSO	Marine Safety Office (USCG)
MSU	Marine Safety Unit (USCG)
M/V	motor vessel
NCSC	Naval Coastal System Center
nm	nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NST	National Strike Team
NTSB	National Transit and Safety Board
NWR	National Wildlife Refuge
NWS	National Weather Service
OR&R	Office of Response and Restoration
.OSC	On-Scene Coordinator
OSRO	Oil Spill Response Organizations
PKO	palm-kernel oil
Ppb	parts per billion
PPE	personal protection equipment
ppm	parts per million
PST	Pacific Strike Team
RM	river mile
RO	Response Organizations (Canada)
ROV	remotely operated vehicle
RP	responsible party
RRT	Regional Response Team
Sam	Samaritan
SAV	submerged aquatic vegetation
SCAT	Shoreline Cleanup Advisory Team
SSC	Scientific Support Coordinator (NOAA)
SMART	Special Monitoring of Advanced Response Technologies
SROMP	Special Response Operational Monitoring Plan
SST	Scientific Support Team
STEL	short-term exposure limit

TAPS	Trans Alaska Pipeline System
T/B	tank barge
TDEQ	Tennessee Department of Environmental Quality
TOC	total organic content
T/V	tank vessel
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
UTB	utility boat
UTV	uninspected towing vehicle

U.S. Coast Guard District 1

Name of Spiller	NOAA SSC	
USCG District	Atlantic Atoll	1
Date of Spill	TV Nord/Jahre Traveler	3
Spilled Material	Mystery Sheen	5
Amount	Kuehne Chemical Company	7
Location of Spill	FN Sea Farer	9
In-situ Burnings		
Other Special Interest		
Shoreline Types Impacted		
Keywords		

Incident Summary

On November 11, 1990, the petroleum vessel K/V J. J. ... (text is very faint) ...

Representatives from the State of Connecticut's Department of Health and Department of Environmental Protection and the New Haven Fire Department were on board. Also on board was a portable laboratory which was chartered through the University of Connecticut. The vessel was secured for the night with hatches open to help ventilate the hold. The United Brotherhood of Carpenters (UNCB) was negotiating for an owner's representative who was present with authority before proceeding.

November 12 the responsible party's (RP) representatives arrived with documents from State of Connecticut. Additional entries into the hold were made that morning and levels were very low. The results from the day before were in question as to possible stoppage of venting.

Behavior of Spilled Materials

Fire risk applied with accumulation of hydrocarbon atmosphere from the present vapors and may now be in or explosion limit (LEL) of 2.5 percent. Accumulation possible in areas and voids along the deck and back to the low level. A sudden impact could cause fire to start and well flow.

Countermeasures and Mitigation

A plan was devised to remove the two protein marine portable containers from below deck, inspect them, make any needed repairs, and store them back on the ship above deck.

Name of Spill:	C/V <i>Atlantic Atoll</i>
NOAA SSC:	Ed Levine
USCG District:	1
Date of Spill:	11/13/98
Location of Spill:	New Haven, Connecticut
Latitude:	41°18.2' N
Longitude:	72°54.2' W
Spilled Material:	acrolein
Spilled Material Type:	5
Amount:	undetermined
Source of Spill:	container vessel
Resources at Risk:	human health and safety
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	none

Incident Summary:

On November 13, 1998, the container vessel (C/V) *Atlantic Atoll* was docked at the terminal in New Haven Harbor when two longshoremen unloading the vessel began showing symptoms of acrolein exposure (one of the cargoes on the vessel) and were hospitalized. A 'Level A' inspection into the hold was conducted and readings ranged from 0.01 to 0.05 parts per million (ppm) near the five acrolein marine portable containers (from 4000 to 4500 gallons each) and 0.5 ppm under the containers. The immediately dangerous to life and health (IDLH) level was 2 ppm. Other cargoes onboard were zinc ingots and uranium.

Personnel from the State of Connecticut's Department of Health and Department of Environmental Protection and the New Haven Fire Department were on-scene. Also on-scene was a mobile laboratory with a gas chromatography-mass spectrometry (GC-MS). The vessel was secured for the night with hatches open to help ventilate the hold. The United States Coast Guard (USCG) was waiting for an owner's representative who was familiar with acrolein before proceeding.

November 12, the responsible party's (RP) representative arrived with contractors from Boots & Coots. Additional entries into the hold were made that morning and levels were very low. The testing results from the day before were in question as to possible sample contamination.

Behavior of Spilled Material:

Hazards associated with acrolein are hazardous atmospheres from the gaseous vapors and very low lower explosion limit (LEL) of 2.8 percent. Acrolein gas is heavier than air and will flow along the deck and sink to the lowest level. Acrolein liquid is less dense than water and will float.

Countermeasures and Mitigation:

A plan was devised to remove the five acrolein marine portable containers from below decks, inspect them, make any needed repairs, and store them back on the ship above deck.

NOAA Activities:

The USCG Marine Safety Office (MSO) New Haven notified NOAA of this incident on November 11, 1998. The SSC researched the chemical and its properties and made suggestions concerning flammability and the use of CO² to reduce the chance of combustion as well as ventilating the hold. Also, Areal Locations of Hazardous Atmospheres (ALOHA™) plume models were run with worst case and various other scenarios. NOAA was involved in this incident for several hours via telephone.

References:

NOAA. 1992c. *The ALOHA™ 5.1 Manual for the Apple Macintosh and IBM Compatibles*. Washington, D.C.: National Safety Council. 350 pp.

NOAA. 1993. *The CAMEO™ 4.0 Manual*. Washington, D.C.: National Safety Council. 440 pp.

Name of Spill:	T/V <i>Nord-Jahre Traveler</i>
NOAA SSC:	Ed Levine
USCG District:	1
Date of Spill:	12/19/98
Location of Spill:	Long Island, New York
Latitude:	071°59' W
Longitude:	40°19.7' N
Spilled Material:	crude oil
Spilled Material Type:	3
Amount:	1 gallon
Source of Spill:	tanker
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	none

Incident Summary:

At approximately 1300 on December 19, 1998, the USCG Marine Safety Detachment (MSD) Coram, New York received notification of a one-liter spill from the T/V *Nord-Jahre Traveler*. The spill occurred from a fitting during an off-shore lightering operation. The USCG MSO Long Island Sound (LIS) requested an overflight, but was unable to obtain an aircraft.

NOAA Activities:

NOAA was notified at 2000, December 19, 1998, by MSO LIS. An overflight was scheduled for the morning of December 20 and MSO requested a trajectory to identify positions for the aircraft to search in case the spill was larger than initially reported. The SSC reported the position to search would be a 6-mile radius around the point 40°24' N / 72°05' W.

The overflight found no oil.

Reference:

Torgrimson, Gary M. 1984. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 PP.

Name of Spill: Mystery Sheen
NOAA SSC: Ed Levine
USCG District: 1
Date of Spill: 2/11/99
Location of Spill: Long Island, New York
Latitude: 72°45' W
Longitude: 40°33' N
Spilled Material: unknown
Spilled Material Type: unknown
Amount: unknown
Source of Spill: unknown
Resources at Risk: none
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: none
Keywords: none

Incident Summary:

At about 1630, February 11, 1999, a private airplane pilot reported to USCG MSO LIS. A sheen in the Moriches Inlet. The sheen was approximately 1000 feet long about 20 miles south of Long Island, New York.

Weather at the time was winds from the south at 10 to 20 knots, 5-foot seas. The sheen was expected to move about 2.5 miles north of its reported position. The MSO had planned a helicopter search of the area with an infrared (IR) camera; however, there were no helicopters available.

NOAA Activities:

NOAA was notified of this incident on February 11, 1999, by MSO LIS who requested trajectory information.

NOAA reported that the oil would most likely dissipate by daybreak. However, if it were a heavier oil it may make landfall between Shinnecock and Moriches. The MSO sent a beach survey team to check, but no tarballs were spotted.

References:

Torgimson, Gary M. 1984. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp

Name of Spill: Kuehne Chemical Company
NOAA SSC: Ed Levine
USCG District: 1
Date of Spill: 03/25/99
Location of Spill: Kearny, New Jersey
Latitude: 40°44.0' N
Longitude: 074°06.1' W
Spilled Material: sodium hydroxide, sodium hypochlorite
Spilled Material Type: 5
Amount: 30,000 gallons
Source of Spill: storage tank
Resources at Risk: **Fish:** estuarine fish
Resource Extraction: power plant water intakes, industrial water intakes
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: riprap, spoil bank, mixed sediment beaches
Keywords: none

Incident Summary:

On the morning of March 23, 1999, the USCG Activities New York (ACTNY) was notified of a chemical tank collapse at the Kuehne Chemical facility in Kearny, New Jersey. The tank contained approximately 30,000 gallons of sodium hydroxide (50% solution). In the process of collapsing, the tank had broken an adjoining pipe containing sodium hypochlorite (50% solution) spilling a small amount. The sodium hydroxide was mostly contained within the dike around the tank, but 1000 gallons escaped and entered the Hackensack River.

The New Jersey Department of Environmental Protection and USCG personnel were on-scene monitoring the situation. They planned to neutralize the sodium hydroxide, then collect and remove it.

This response lasted for several days.

NOAA Activities:

NOAA was notified of this incident March 25, 1999, by USCG ACTNY who requested information about the chemicals involved. After consulting a chemist from Louisiana State University (LSU) and the Chemical Reactivity Worksheet, the SSC reported that the chemicals would not react with each other. The main concern was skin contact with the sodium hydroxide because it is a strong base that can dissolve skin. The pH of the sodium hydroxide was 14. It was calculated that to lower the pH to background (about 7.5 to 8) from the 1000 gallons spilled into the river would require about one billion gallons of water (about 2 river miles). The slug would travel with the tides (initially flooding at 0.8 knots). A localized fish kill was anticipated.

NOAA supported this incident by phone and fax for 2 hours

References:

NOAA Hotline 369, 2 Reports

Ed Levine	Name of Spill:
1	NOAA SSC
03/25/99	USCG District:
Kearny, New Jersey	Date of Spill:
40°44'0" N	Location of Spill:
074°06'1" W	Latitude:
sodium hydroxide, sodium hypochlorite	Longitude:
7	Spilled Material:
30,000 gallons	Spilled Material Type:
storage tank	Amount:
fish, estuarine fish	Source of Spill:
Resource Extraction: power plant water intake	Resources at Risk:
industrial water intakes	
N	Dispersants:
N	Bioremediation:
N	In-situ Burning:
none	Other Special Interest:
rip rap, spoil bank, mixed sediment banks	Shoreline Types Impacted:
none	Keywords:

Incident Summary:

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The New Jersey Department of Environmental Protection and USCG personnel were monitoring the situation. They planned to neutralize the sodium hydroxide, but plans were to remove it.

This response lasted for several days.

NOAA Activities:

NOAA was notified of this incident March 25, 1999, by USCG ACTNY who requested information about the chemical involved. After consulting a chemist from Louisiana State University (LSU) and the Chemical Reactivity Worksheet, the SSC reported that the chemicals would not react with each other. The main concern was skin contact with the sodium hydroxide because it is a strong base that can dissolve skin. The pH of the sodium hydroxide was 14. It was calculated that to lower the pH to background (about 7.5 to 8) from the 1000 gallons spilled into the river would require about one billion gallons of water (about 2 river miles). The slug would travel with the river (initially flooding at 0.8 hours). A localized fish kill was expected.

NOAA supported this incident by phone and fax for 2 hours.

Name of Spill: F/V *Sea Farer*
Date of Spill: 7/16/99
SSC: Stephen Lehmann
Location of Spill: New Bedford Harbor, Massachusetts
Latitude: 41°38.23 N
Longitude: 070°55.2 W
Spilled Material: diesel
Spilled Material Type: 2
Amount: 5000 gallons
Source of Spill: fishing vessel
Resources at Risk: salt marsh, tidal flats
Dispersants: N
Bioremediation: N
In-Situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: sand beach
Keywords: boom, sorbent

Incident Summary:

The fishing vessel (F/V) *Sea Farer* sank at Eathan Fishing Dock, New Bedford, Massachusetts in the early hours of July 16, 1999.. She carried an estimated 6000 gallons of diesel fuel. The owners contracted with divers to plug the vents and secure the source. The immediate area was boomed.

On-scene USCG personnel estimated 500 gallons of fuel in the water around the pier. By mid morning, it was suspected that the vent plugs had come free and that more oil was coming from the vessel.

NOAA Activities:

NOAA was notified of this incident on July 16, 1999, by the USCG who requested resources at risk information, trajectory estimates, and oil fate. The SSC provided what was requested.

Minor impacts were seen on Fairhaven Beach. Contractors were dispatched to recover and clean oil on the beach. Vents were recapped.

On July 23 the vessel was refloated and 5000 gallons were recovered. The vessel was towed to a local shipyard for repair.

References:

NOAA. 1993. *ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1994. *Shio. Tide computer program (prototype)*. Seattle: Hazardous Materials Response and Assessment Division, NOAA.

Research Planning Institute. 1980. *Sensitivity of coastal environments and wildlife to spilled oil: Massachusetts. An atlas of coastal resources*. Seattle: Ocean Assessments Division, NOAA. 49 maps.

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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79	72. Appendix BO: Model User's Guide
80	73. Appendix BP: Model Results
81	74. Appendix BQ: Model Code
82	75. Appendix BR: Model User's Guide
83	76. Appendix BS: Model Results
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85	78. Appendix BU: Model User's Guide
86	79. Appendix BV: Model Results
87	80. Appendix BV: Model Code

The purpose of this report is to provide a user's guide to the On-Scene Spill Model (OSM). The OSM is a computer program that simulates the behavior of a spill in a body of water. It is designed to be used by anyone who is interested in the effects of a spill on the environment. The OSM is a simple and easy-to-use program that can be run on a personal computer. It is available in both English and French. The OSM is a valuable tool for anyone who is interested in the effects of a spill on the environment.

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NOAA is pleased to have funded the development of the OSM. The OSM is a valuable tool for anyone who is interested in the effects of a spill on the environment. The OSM is a simple and easy-to-use program that can be run on a personal computer. It is available in both English and French. The OSM is a valuable tool for anyone who is interested in the effects of a spill on the environment.

When impacts were seen on the receiving beach, contractors were dispatched to remove and clean up the beach. Your cooperation is appreciated.

The spill was contained and 3000 gallons were recovered. The vessel was towed to a safe location and the spill was cleaned up.

NOAA, 1984. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 1992. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-20. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 1994. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-22. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 2001. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-29. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 2003. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-31. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 2006. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-34. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2007. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-35. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

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NOAA, 2009. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-37. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2010. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-38. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2011. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-39. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2012. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-40. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2013. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-41. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2014. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-42. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2015. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-43. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2016. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-44. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2017. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-45. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2018. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-46. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2019. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-47. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2020. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-48. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2021. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-49. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA, 2022. *The On-Scene Spill Model: A User's Guide*. NOAA Technical Memorandum NOAA OMA-50. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill	Date of Spill	U.S. Coast Guard Districts	U.S. Department	Page
Train Derailment			Stephen Lehmann Huntington, West Virginia	11
M/V Star Euuvia			concentrated hydrochloric acid, sodium dichloride phosphate, methoxyethyl alcohol, and amine hydrazide	13
C/V Independent Spirit			N/A	15
M/V Navios Pioneer			derailed train public safety	17
Mercury Contaminated Wastewater				19
C/V Humacao			none	21
T/B Bay Trader			total	23

Incident Summary

A train traveling along the Ohio River in Huntington, West Virginia had six cars derailed five were not loaded but had residue of various chemicals, including sodium dichloride (Barnable-Round), concentrated HCl (acid), and amine hydrazide (pyridine). The only car carrying cargo was the HCl car.

Investigators on scene determined that the HCl car was leaking and the USCG closed the river for a distance of 2 miles. Residents within 2 miles were notified and warned to stay indoors (shutters in place) by the Huntington Fire Department. SAC/MAJ teams from CSA (the railroad) and Dupont Chemicals were called on-scene. CSA and Dupont made level B studies.

NOAA Activities

NOAA was notified of this incident on November 5, 1989, by the USCG who requested off-scene support. NOAA provided information as to the potential reactions of the mixture of chemicals and assistance with the ALOHA air dispersion model. The mixture of the amine and the acid was considered the greatest concern other than fire and direct exposure from pure chemicals. For planning purposes it was assumed that each of the "empty" tank cars held 500 gallons of product.

The HCl was thought to be of a concentration no greater than 10%. Given that the chemical was leaking into and that it has a high vapor pressure, it was recommended that the HCl be allowed to leak and wash slowly into the soil, reducing the threat.

References

DOTX Train Car Manual

NOAA Hotline 2051 Report

NOAA, 1990. The CAMDOP 4.0 Manual. Washington, DC: National Safety Council. 440 pp.

Name of Spill: Train Derailment
Date of Spill: 11/05/98
USCG District: 5
SSC: Stephen Lehmann
Location of Spill: Huntington, West Virginia
Spilled Material: concentrated hydrochloric acid, carbon disulphide, propylene oxide, isopropinal, ethynal, and ammonia hydroxide
Spilled Material Type: 5
Amount: N/A
Source of Spill: derailed train
Resources at Risk: public safety
Dispersants: N
Bioremediation: N
In-Situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: none
Keywords:

Incident Summary:

A train traveling along the Ohio River in Huntington, West Virginia had six cars derail; five were not loaded but had residue of various chemicals, including carbon disulphide (a flammable liquid), concentrated HCl (an acid), and ammonia hydroxide (a poison). The only car carrying cargo was the HCl car.

Responders on-scene determined that the HCl car was leaking and the USCG closed the river for a distance of 2 miles. Residents, within 2 miles, were notified and warned to stay indoors (shelter in place) by the Huntington Fire Department. HAZMAT teams from CSX (the railroad) and Dupont Chemical were called on-scene. CSX and Dupont made level B entries

NOAA Activities:

NOAA was notified of this incident on November 5, 1998, by the USCG who requested off-scene support. NOAA provided information as to the potential reactions of the mixture of chemicals and assistance with the ALOHA air dispersion model. The mixture of the ammonia and the acid was considered the greatest concern, other than fire and direct exposure from pure chemicals. For planning purposes it was assumed that each of the "empty" tank cars held 600 gallons of product.

The HCl was thought to be at a concentration no greater than 38%. Given that the chemical was leaking into soil that is heavy with limestone, it was recommended that the HCl be allowed to leak and react slowly with the soil, reducing the threat.

References:

GATX Train Car Manual

NOAA Hotline 340, 1 Report

NOAA. 1993. *The CAMEO™ 4.0 Manual*. Washington, D.C.: National Safety Council. 440 pp.

NOAA. 1992. *The ALOHA™ 5.1 Manual for the Apple Macintosh and IBM Compatibles*. Washington, D.C.: National Safety Council. 350 pp.

Name of Spill	Date of Spill	USCG District	Location of Spill	Spilled Material	Spilled Material Type	Amount	Source of Spill	Resources at Risk	Dispersants	Bioremediation	In-Situ Burnings	Other Special Actions	Shoreline Type Impacted	Keywords

Incident Summary

A train traveling along the Ohio River in Huntington, West Virginia had an oil spill that was not loaded but had resulted in a large chemical spill. The spill was contained by a dike and the spill was cleaned up. The only car carrying cargo was the HCl car.

Responders on-site determined that the HCl car was leaking and the HCl should be first for a distance of 3 miles. Responders within 3 miles were notified and worked to stop the leak. The spill was contained by a dike and the spill was cleaned up. The only car carrying cargo was the HCl car.

NOAA Activities

NOAA was notified of the spill on November 2, 1987 by the USCG who requested on-scene support. NOAA provided assistance in the control activities of the spill and chemical and resource within ALOHA in the response model. The nature of the spill and the spill was contained by a dike and the spill was cleaned up. The only car carrying cargo was the HCl car.

The HCl was stored in a tank car at a chemical plant near the river. The spill was contained by a dike and the spill was cleaned up. The only car carrying cargo was the HCl car.

References

NOAA. 1992. *The ALOHA™ 5.1 Manual for the Apple Macintosh and IBM Compatibles*. Washington, D.C.: National Safety Council. 350 pp.

NOAA Hotline: 800-854-6842

GATX Train Car Manual

Name of Spill: M/V *Star Evviva*
NOAA SSC: Gary Ott
USCG District: 5
Date of Spill: 01/14/99
Location of Spill: South Carolina Coast
Latitude: unknown
Longitude: unknown
Oil Product: 6 fuel oil
Oil Type: 4
Amount: 571 barrels
Source of Spill: vessel
Resources at Risk: Birds: loons, ganats, cormorants, sea gulls, ducks, and pelicans
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: sand beaches
Keywords: none

Incident Summary:

By January 16, 1999, USCG offices in Charleston, South Carolina and Wilmington, North Carolina began receiving reports of a number of oiled birds washing up along the beaches. By January 29 approximately 186 birds were retrieved along the Carolina coasts served by MSOs Charleston and Wilmington.. The birds were predominantly loons, but ganats, cormorants, sea gulls, ducks, and a pelican were also impacted.

Oil samples were taken from a number of vessels that had transited the area by a number of MSOs including New Orleans, Mobile, Wilmington, and Charleston. Samples taken from the bilges of the *M/V Star Evviva* by MSO Mobile matched samples taken from feathers of the oiled birds along the Carolina coasts. Additional information received during the investigation suggested that possibly 24,000 gallons of #6 fuel oil was discharged by the *M/V Star Evviva* into the Atlantic off the South Carolina coast on January 14, 1999.

Countermeasures and Mitigation:

An extensive wildlife rehabilitation project was initiated to care for the impacted wildlife.

NOAA Activities:

NOAA participated with MSOs Charleston and Wilmington in the investigation of possible sources of oil impacting the wildlife. NOAA provided the MSOs various trajectories for oil that might have impacted the wildlife. NOAA trajectory support was also provided to MSO Philadelphia who also reported a number of oiled birds recovered in New Jersey in this same time frame. The NOAA trajectory analysis illustrated that the oiled birds reported by MSO Philadelphia and those reported in the Carolinas were not related to the same oil source based on a Gulf Stream flow and wind analysis.

References:

Research Planning Institute. 1996. *Sensitivity of coastal environments and wildlife to spilled oil: North Carolina. A Coastal Atlas*. Seattle: Hazardous Materials Response and Assessment Division, Coastal Services Center, Strategic Environmental Assessments Division, NOAA. 131 maps.

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	<i>C/V Independent Spirit</i>
NOAA SSC:	Gary Ott
USCG District	5
Date of Spill (mmddyy):	05/27/99
Location of Potential Spill:	Hopewell, Virginia
Latitude:	37°19.8' N
Longitude:	076°16.8' W
Spilled Material:	bunker fuel
Spilled Material Type:	4
Amount:	5205 barrels
Source of Spill:	container vessel
Resources at Risk:	habitat
Dispersants:	No
Bioremediation:	No
In-situ Burning:	No
Other Special Interest:	none
Shoreline Types Impacted:	fringing salt marsh, tidal mudflat
Keywords:	potential, double bottom

Incident Summary:

On May 27, 1999, the *C/V Independent Spirit* notified MSO Hampton Roads that they had run aground on the mud bottom of the James River at a bend approximately 1.5 miles north of Hopewell, Virginia. The vessel was aground the full length of the port side. No pollution was observed and no sign of damage was detected after sounding all fuel tanks.

On May 28, 1999, the vessel was refloated without incident with the assistance of three tugs and deballisting operations. The vessel proceeded to the Port of Hampton Roads where no damage to the vessel's bottom plates was reported.

Countermeasures and Mitigation:

Pollution response capability was staged near the vessel to immediately respond in case of a breach of a fuel tank. Primary health and safety risks during the incident were related to a potential oil leak from the vessel and tug operations around the vessel. The salvor was required to submit a written plan for approval before conducting the salvage efforts.

NOAA Activities:

NOAA was notified of this incident on May 27, 1999, by MSO Hampton Roads. The SSC participated with the MSO and the staff of the Department of Environmental Quality of the Commonwealth of Virginia to identify environmental sensitive areas and potential trajectories if oil was released.

References:

Virginia Institute of Marine Science. 1980. *Sensitivity of coastal environments and wildlife to spilled oil, State of Virginia, Part I*. Boulder, Colorado: Hazardous Materials Response Project, National Oceanic and Atmospheric Administration. 104 maps.

Research Planning Institute. *Sensitivity of coastal environments and wildlife to spilled oil: State of Virginia Part II. An atlas of coastal resources*. Seattle: Ocean Assessments Division, NOAA. 54 maps.

Name of Spill: CVV Independent Spirit
 NOAA SSC: GUY OH
 UIC District: 05132222
 Date of Spill: 05/27/1999
 Location of Potential Spill: Potomac River, Virginia
 Latitude: 37°19' N
 Longitude: 076°16' W
 Spilled Material: Fuel Oil
 Spilled Material Type: Fuel Oil
 Amount: 275 barrels
 Source of Spill: Container vessel
 Resources at Risk: Habitat
 Ecosystems: No
 Bio-meditation: No
 In-situ Burning: No
 Other Special Interest: None
 Shortline Types Impacted: Fishing gear, fish, tidal mudflat
 Keywords: potential, double bottom

Incident Summary:

On May 27, 1999, the CVV Independent Spirit notified MSO Hampton Roads that they had run aground on the mud bottom of the James River at a point approximately 1.7 miles north of Hopewell, Virginia. The vessel was aground the full length of the port side. Two pollution was observed and no sign of damage was detected when sounding all fuel tanks.

On May 28, 1999, the vessel was refloated without incident with the assistance of three tug and derricking operators. The vessel proceeded to the Port of Hampton Roads where no damage to the vessel's bottom plates was reported.

Countermeasures and Mitigation:

Pollution response capability was staged near the vessel to immediately respond in case of a breach of a fuel tank. Primary health and safety risks during the incident were related to a potential oil leak from the vessel and tug operators around the vessel. The salvor was required to submit a written plan for approval before conducting the salvage efforts.

NOAA Activities:

NOAA was notified of this incident on May 27, 1999, by MSO Hampton Roads. The incident was coordinated with the MSO and the staff of the Department of Environmental Quality of the Commonwealth of Virginia to identify environmental sensitive areas and potential trajectories if oil was released.

References:

Virginia Institute of Marine Science, 1989. Sensitivity of coastal environments and habitats to spilled oil, State of Virginia, Part I, Boulder, Colorado: Hazardous Marine Response Center, National Oceanic and Atmospheric Administration, 104 maps.
 Research Planning Institute. Sensitivity of coastal environments and habitats to spilled oil, State of Virginia Part II. An atlas of coastal resources. Section: Ocean Assessment Division, NOAA, 26 maps.

Name of Spill: M/V *Navios Pioneer*
NOAA SSC: Ken Barton
USCG District: 5
Date of Spill: 07/21/99
Location of Spill: Port Royal Sound, South Carolina
Latitude: 32°05.8' N
Longitude: 080°35.05' W
Spilled Material: crushed granite
Spilled Material Type: N/A
Barrels: N/A
Source of Spill: potential
Resources at Risk: habitat
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: fringing salt marsh, tidal mudflat, fine-sand beach
Keywords: none

Incident Summary:

At approximately 0400 hours July 21, 1999, the motor vessel (M/V) *Navios Pioneer* ran aground on a mud bank near the entrance to Port Royal Sound, South Carolina. The vessel was inbound and ran hard aground between buoys 4 and 5. The 590-foot long vessel was carrying a cargo of crushed granite. The M/V *Navios Pioneer* was drawing 27 feet and soundings indicated 27 feet of water at the site. The vessel contained 60 metric tons of #2 fuel oil, 532 metric tons of IFO 180, and 25 metric tons of gas oil.

At 1427 hours July 21 the M/V *Navios Pioneer* floated off the bank under her own power. She was inspected at her anchorage and no damage to her bottom plating was noted.

The NOAA trajectory analysis suggested that the winds were 10 to 15 knots from the west-southwest and would become more westerly as the afternoon progressed. The forecast was for more westerly wind 5 to 10 knots through Thursday, July 22. Based on these winds and that the ship was 7 miles offshore, NOAA did not anticipate the tidal currents to be strong enough to pull any spilled oil into Port Royal Sound. NOAA also suggested that any oil spill over the initial 24 hours of the grounding would move offshore and to the east of east southeast. If significant amounts of the IFO 180 that was on board the vessel would have been lost, NOAA suggested that it could persist for a week or two and result in tarball impacts to the beaches many miles away from the grounding site depending on the wind conditions at the time.

NOAA Activities:

NOAA was notified of this incident on July 21, 1999, by MSO Savannah who requested resources at risk information, Automatic Data Inquiry for Oil Spills (ADIOS), trajectories, tides and currents, and weather forecasts.

The NOAA resources at risk analysis noted that the outer shorelines of the area were predominantly fine-grained sand beaches. There were some exposed tidal flats at the mouths of the tidal creeks on St. Philips and Pritchards islands. All the rivers are lined by marshes and the smaller tidal creeks are encompassed by extensive marshes. On the outer beaches the heavier oils were not expected to penetrate more than 5 centimeters (cm) into the

sediments; the #2 fuel oil could penetrate a little deeper. Light accumulations of oil could collect in bands at the high tide line; heavier accumulations could cover the entire beach surface.

NOAA also provided detailed weather forecasts, tidal heights, and a projection of weathering and evaporation of the various oil products onboard the *Navios Pioneer* if they were released.

References:

NOAA Hotline Report # 385, 7 Reports

Research Planning Institute. 1996. *Sensitivity of coastal environments and wildlife to spilled oil: South Carolina. A Coastal Atlas.* Seattle: Hazardous Materials Response and Assessment Division, Coastal Services Center, Strategic Environmental Assessments Division, NOAA. 131 maps.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide.* NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	Mercury contaminated wastewater
NOAA SSC:	Gary Ott
USCG District	5
Date of Spill (mmddyy):	09/21/99
Location of Spill:	Rieglewood, North Carolina
Latitude:	N/A
Longitude:	N/A
Spilled Material:	N/A
Spilled Material Type:	5
Amount:	143,000 barrels
Source of Spill:	facility
Resources at Risk:	habitat
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	river bank
Keywords:	potential

Incident Summary:

MSO Wilmington received a report of a potential instantaneous release into the Cape Fear River of up to 6 million gallons of wastewater containing 0.2 ppm of inorganic mercury from a facility located in Rieglewood, North Carolina. The two ponds (3 million gallons each) are located within 30 feet of the Cape Fear River.

Countermeasures and Mitigation:

The USCG Atlantic Strike Team (AST) and Gulf Strike Team (GST) brought high volume pumps to remove the wastewater from the threatened lagoons. Their pumping efforts were successful and levels in the lagoon were brought to what was felt to be manageable levels by September 22, 1999.

NOAA Activities:

NOAA was notified of this incident on September 21, 1999, by MSO Wilmington who requested assistance determining how severe the downstream impact would be if the mercury-contaminated water were released into the Cape Fear River. The US Environmental Protection Agency (EPA) water quality criteria (maximum concentration for short-term exposures) for fresh- and saltwater is 1.4 and 1.8 parts per billion (ppb). NOAA suggested that any release would have to be diluted by a factor of 100 to get the mercury contamination below this EPA criteria. NOAA obtained the current data on the Cape Fear River flow rates and estimated that a release occurring over a period of several hours would be diluted below the EPA water quality criteria. Using these EPA drinking water standards, human health and aquatic life would not be expected to be dramatically affected by a sudden release of wastewater from the ponds. However, NOAA noted that a greater concern would be the potential for a release of the potentially highly contaminated sludge that might be on the bottoms of those ponds. For this reason, it was considered important that the integrity of the ponds be maintained so that the sludge would not be released during a catastrophic failure of the containment structures.

References:

Research Planning Institute. 1996. *Sensitivity of coastal environments and wildlife to spilled oil: North Carolina. A Coastal Atlas*. Seattle: Hazardous Materials Response and Assessment Division, Coastal Services Center, Strategic Environmental Assessments Division, NOAA. 131 maps.

Name of Spill:	C/V <i>Humacao</i>
NOAA SSC:	Gary Ott
USCG District	5
Date of Spill:	10/14/99
Location of Spill:	Avon, North Carolina
Latitude:	N/A
Longitude:	N/A
Spilled Material:	N/A
Spilled Material Type:	5
Amount:	N/A
Source of Spill:	container vessel
Resources at Risk:	habitat
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	sand beaches
Keywords:	none

Incident Summary:

On the nights of October 12 and 13, 1999, several hundred medication bottles came ashore along the north side of Cape Hatteras, North Carolina. The bottles were reportedly between the towns of Salvo and Avon, North Carolina, a 10 to 15 mile stretch of open ocean beach on the Atlantic coast. The bottles were still closed with safety seals and with partially readable labels.

On October 25, 1999, representatives of Bristol-Myers Squibb (BMS) identified several medications such as anti-depressant and anti-anxiety drugs as manufactured by BMS and shipped on the United States flagged container ship *Humacao*. The C/V *Humacao* lost 78 containers over the side or were damaged during a transit from Jacksonville, Florida to San Juan, Puerto Rico. The Marine Accident Injury or Death report provided to MSO San Juan noted that 51 containers went overboard between September 14 and 16 as the vessel traveled off the coast of Jacksonville in hurricane force winds from hurricane Floyd. Three containers shipped by BMS aboard the M/V *Humacao* went overboard and medications from two of the containers were believed to have been washed ashore in North Carolina.

NOAA Activities:

NOAA was notified of this incident on October 14, 1999, by MSO Hampton Roads and was asked to provide a possible trajectory of medical waste washed up on the beaches of Cape Hatteras on the nights of October 12 and 13. NOAA provided an analysis of winds, and noted that with the strong winds from the northeast during the day and into the evening on October 12, and with typical currents flowing north to south along the coast, the probability was that the medical waste came from the north or the northeast of where the bottles came ashore. NOAA was not able to determine where the bottles came from because it was not known when they were released or how they were released.

References:

Research Planning Institute. 1996. *Sensitivity of coastal environments and wildlife to spilled oil: North Carolina. A Coastal Atlas*. Seattle: Hazardous Materials Response and Assessment Division, Coastal Services Center, Strategic Environmental Assessments Division, NOAA. 131 maps.

Case Number	Name of Spill
1000	NOAA 5301
1001	USCG
1002	Date of Spill
1003	Location
1004	Latitude
1005	Longitude
1006	Spilled Material
1007	Spilled Material Type
1008	Amount
1009	Source of Spill
1010	Resources at Risk
1011	Dispersants
1012	Bioremediation
1013	In-situ Burning
1014	Other Special Interest
1015	Shoreline Types Impacted
1016	Keywords

Incident Summary

On the night of October 12 and 13, 1999, several hundred medical waste containers were spilled along the north side of Cape Hatteras, North Carolina. The bottles were apparently between the towns of Hatteras and Avon. North Carolina is 10 to 12 miles north of Cape Hatteras on the Atlantic coast. The bottles were all closed with safety caps and with partially legible labels.

On October 25, 1999, representatives of British Medical Spills (BMS) identified several medical waste containers that were spilled during an anti-aircraft drill in Hatteras on October 12 and 13. The containers were damaged during a launch from Hatteras. Labels on the containers were the size of a match. Accident injury or death reports provided to BMS for the launch noted that 21 containers went overboard between September 14 and 16 on the vessel. Three of the containers in Hatteras were found to have spilled from Hatteras. Three containers shipped by BMS aboard the M/V Hanson went overboard and medications from two of the containers were believed to have been washed ashore in North Carolina.

NOAA Activities

NOAA was notified of the incident on October 14, 1999 by M/V Hatteras Board and was asked to provide a possible repository of medical waste washed up on the beaches of Cape Hatteras on the night of October 12 and 13. NOAA provided an aerial photograph and noted that with the strong winds from the northeast during the day that the containers on October 12, and with typical currents flowing north to south along the coast, the possibility was that the medical waste came from the north on the morning of when the spill occurred. NOAA was not able to determine where the containers were launched because it was not known where they were released or how they were released.

Name of Spill:	T/B <i>Bay Trader</i>
NOAA SSC:	Gary Ott
USCG District	5
Date of Spill:	10/14/99
Location of Potential:	Chesapeake Bay, Maryland
Latitude:	37°17'N
Longitude:	076°14'W
Spilled Material:	JP-8
Spilled Material Type:	1
Amount:	10,000 barrels
Source of Spill:	barge
Resources at Risk:	habitat
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	fringing salt marsh, tidal mudflat
Keywords:	potential

Incident Summary:

On October 14, 1999, the tank barge (T/B), *Bay Trader*, containing 10,000 barrels of JP-8 grounded off the northeast end of Pooles Island in Upper Chesapeake Bay. There was no apparent damage to the barge and it was aground on a soft bottom. Plans were to attempt to refloat the barge at the next high tide.

The barge was refloated at the high tide of October 15 without incident or damage to the barge.

NOAA Activities:

NOAA was notified of this incident on October 14, 1999, by MSO Baltimore who requested ADIOS, trajectories, resources at risk, tides and currents, and weather information,

The NOAA resources at risk analysis noted that the majority of the shorelines north of the Patapsco River were coarse-grained sand beaches, or freshwater marshes. Most of the marshes were in the creeks and rivers, with some marshes on Gun Powder Neck. South of the Patapsco River, on the east side of the bay, is predominately brackish and salt marshes. The lower portions of Seneca, Fairlee, Worton, and Churn creeks have hard-packed sediment shorelines. There were some exposed tidal flats north of Patapsco River, around Shallow Creek. NOAA predicted that a spill of JP-8 would likely only leave a stain on the hard-packed sediment shorelines. On the coarse-grained sand beaches the oil could penetrate 10 to 20 cm or more. Unless there was high wave energy, penetration of the beach sediments could result in the oil remaining a long time. NOAA predicted that many of the marshes, both brackish and fresh, might have been going dormant for the winter. Coating of the marsh vegetation would have little impact this season. However, if the product soaked into the substrate, it could result in long-term contamination of the soil, inhibiting the growth of the vegetation and possibly even causing plant mortality.

NOAA also provided detailed weather forecasts, tidal heights, and a projection of weathering and evaporation of the JP-8 if it was released.

NOAA reported that tidal currents in the area of the grounding could be expected to carry any spilled fuel 3 to 4 miles from the spill site over one flood or ebb cycle during the next few days. A flood tide would take the fuel to the north and an ebb tide would take the fuel to the south. NOAA suggested that if the JP-8 spilled under the influence of northwest winds of 10 to 20 knots would be expected to move to the southeast during an ebb and threaten the area between Fairies Creek and Swan Point along the eastern shore. If, however, the spill occurred with northwest winds and on a flood tide, the oil would move to the northeast and threaten the shoreline between Worton Creek and Howell Point along the eastern shore.

NOAA predicted that if the product was spilled under the influence of the south to southeast winds that were predicted for the next day, the oil would be expected to threaten Pooles Island on the ebb. Under these conditions possible impacts would be to the western shoreline between Black Marsh and White Oak Point over the next 12 to 24 hours. If the product spilled on a flood cycle and south-southeast winds, the area between Bush River and Stony Pointy would be threatened within the first 6 hours.

References:

NOAA. 1994. *Shoreline Countermeasures Manual for Federal Regional Response Team III*. Seattle: Hazardous Materials Response and Assessment Division. 100 pp.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Virginia Institute of Marine Science. 1980. *Sensitivity of Coastal Environments and Wildlife to Spilled Oil, State of Virginia*. Boulder Colorado: Hazardous Materials Response Project, NOAA. 104 maps.

Virginia Institute of Marine Science. 1980. *Sensitivity of Coastal Environments and Wildlife to Spilled Oil, State of Maryland*. Boulder Colorado: Hazardous Materials Response Project, NOAA. 118 maps.

Name of Spill: Sea Barge *Trader*
NOAA SSC: LCDR Bradford Benggio
USCG District: 7
Date of Spill: 11/11/98
Location of Spill: from Jacksonville, Florida to San Juan, Puerto Rico
Latitude: N/A
Longitude: N/A
Spilled Material: various containers
Spilled Material Type: multiple
Amount: potential
Source of Spill: barge
Resources at Risk: Reptiles: sea turtles
Marine Mammals: manatees
Fish: pelagic fish
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: human health and safety concerns were studied before the vessel was allowed into port
Shoreline Types Impacted: none
Keywords: potential spill

Incident Summary:

On November 11, 1998, the sea barge *Trader*, loaded with containers and being towed by the tug *El Oso Grande* was en route from Jacksonville, Florida to San Juan, Puerto Rico when she ran into rough seas. At 0430 November 11, the vessel reported to the USCG that some cargo had been lost over the side about 150 miles north of the Dominican Republic. Additional cargo was reported lost over the side at about 2000 November 12 as the barge transited north of Mona Passage. A total of 12 containers were reported lost over the side; two contained hazardous materials. The containers still on the barge were damaged and scattered about the deck.

NOAA Activities:

NOAA was notified of this incident by MSO San Juan the evening of November 11, 1998. The SSC was asked to study the vessel's manifest to evaluate the hazardous cargo and note any reactivity or response concerns. The following report was made to the MSO:

Ethylene oxide is a very dangerous, flammable gas that has been involved in several explosions. Heat can cause polymerization/pressurization. Vapor is dangerous especially in confined spaces. The first priority is to find the two tanks of ethylene oxide, check for damage, and isolate.

Unidentified flammable gases are most likely hydrocarbon gases (e.g., butane). Workers need to be careful about confined spaces and explosive atmospheres. Explosimeters should be used to check confined spaces like containers or inside ship holds before and during work on damaged containers.

Zinc chloride is corrosive to skin; it acts as an acid. It is soluble in water and the resultant water would be corrosive to skin. Protect the skin, avoid dust, and wear chemical protective clothing.

No incompatibility issues were noted.

A response team met the barge in port and began monitoring for LEL, toxicity, and 02. All levels were within the normal ranges. The ethylene oxide was intact and not a concern. The zinc chloride, while in a damaged container, did not appear to have spilled and seemed intact. The response team continued to monitor throughout the offloading of the barge. No other assistance from NOAA was requested.

References:

NOAA. 1993. *The CAMEO™ 4.0 Manual*. Washington, D.C.: National Safety Council. 440 pp

NOAA Hotline #344, 2 Reports

Name of Spill: T/B CTCO 2601
NOAA SSC: LCDR Bradford Baggio
USCG District: 7
Date of Spill: 12/15/98
Location of Spill: Tampa Bay, Florida
Latitude: 27°41.54' N
Longitude: 082°34.34' W
Spilled Material: lube oil
Spilled Material Type: 3
Amount: 23,000 barrels
Source of Spill: barge
Resources at Risk: Birds: diving birds, gulls, shorebirds, wading birds, waterfowl, raptors, terns
Fish: various estuarine fish
Reptiles: sea turtles
Mollusks: scallops
Habitat: submerged aquatic vegetation (SAV)
Crustaceans: crab, lobster
Marine Mammals: manatees
Management Areas: national wildlife refuge, state parks, aquatic preserves
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: aquatic preserves, sensitive resources, shallow water
Shoreline Types Impacted: fine-sand beaches, mangroves, piers, riprap, tidal mudflat
Keywords: potential spill

Incident Summary:

On December 14, 1998, the T/B CTCO 2601, loaded with 23,000 barrels of light lube oil, ran aground in Tampa Bay while being towed by the tug *Camie Cenac*. She was hard aground on a sand bottom 3 miles west of Palmetto and west of Port Manatee. She appeared to be grounded along the entire length of the hull except at the starboard forward rake.

The vessel is 236 feet by 52 feet by 15.5 feet. She has five port tanks and five starboard tanks. When she grounded, each tank was loaded with 2300 barrels of lube oil and the bow and stern rakes were empty. No product leaked, but damage to the vessel has not been fully assessed.

The shorelines in the area are highly sensitive and water depths are very shallow, especially to the east in Cockroach Bay where there is a preserve containing seagrass beds and mangroves.

Behavior of Spilled Material:

A spill of lube oil could foul shoreline resources, intertidal habitats, and wildlife resources occurring at or on the water surface. Some water column or benthic impacts might also occur, especially in shallow water habitats where abundant fish and invertebrate resources could be.

NOAA Activities:

NOAA was notified of this incident on December 15, 1998, and was requested to provide weather forecasts, trajectory and resources at risk information, oil fate models, tides, and currents. No on-scene support was requested.

At 1250, December 15, the vessel was refloated without incident and moved to the Port of Tampa for a hull inspection. No oil was spilled during the incident.

References:

Coastal Area Contingency Plan

NOAA. 1993. *ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1994. *Shio. Tide computer program (prototype)*. Seattle: Hazardous Materials Response and Assessment Division, NOAA.

NOAA Hotline 347, 6 Reports

NOAA Nautical Charts

Research Planning Institute. 1981. *Sensitivity of coastal environments and wildlife to spilled oil: South Florida. An atlas of coastal resources*. Tallahassee: Florida Department of Veteran and Community Affairs, Division of Local Resource Management. 43 maps.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

USCG POLREPS

Name of Spill: *Monarch of the Seas*
NOAA SSC: LCDR Bradford Benggio
USCG District: 7
Date of Spill: 12/16/98
Location of Spill: St Marteen, Virgin Islands
Latitude: 18°01.01' N
Longitude: 63°02.49' W
Spilled Material: diesel
Spilled Material Type: 4, 2
Amount: 256,000 gallons
Source of Spill: grounded cruise ship
Resources at Risk: Reptiles: sea turtles
Habitats: coral reefs, SAV
Marine Mammals: manatees
Fish: reef fish
Dispersants: N
Chemical Countermeasures: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: cruise ship grounding in popular tourist region, high visibility.
Shoreline Types Impacted: fine-sand beaches, mangroves, vertical rocky shores,
Keywords: potential spill, salvage

Incident Summary:

The 880-foot Royal Caribbean Line cruise ship, *Monarch of the Seas* grounded on a coral reef off St. Marteen on December 15, 1998. All passengers were evacuated from the vessel. The grounding caused significant damage to the vessel, creating a 40- by 2-m gash along the starboard hull. During the grounding three tanks were breached, two diesel tanks and one overflow tank. The vessel carried 256,000 gallons of heavy fuel oil and a small amount of diesel. Initially, an estimated 100 gallons of diesel leaked from the vessel.

NOAA Activities:

NOAA was notified of this incident on December 15, 1998, by MSO San Juan who asked the SSC to evaluate the threat to U.S. waters including the U.S. Virgin Islands and Puerto Rico if a large amount of the vessel's heavy fuel oil was discharged. NOAA was also asked to provide information about the tidal range at the grounding site and provide on-scene weather forecasts.

NOAA estimated that a major release of the heavy fuel oil could impact shorelines of the U.S. Virgin Islands in 4 to 7 days. No additional fuel leak was reported during the incident. Salvors worked to stabilize the ship and lighten the fuel tanks. The ship was successfully refloated on December 17 and went, under tow, to Norfolk, Virginia for repairs.

References:

NOAA. 1993. *ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA Hotline 348, 7 Reports

Name of Spill: F/V *Captain Justin*
NOAA SSC: LCDR Bradford Benggio
USCG District: 7
Date of Spill: 12/23/98
Location of Spill: Tampa Bay, Florida
Latitude: 27°34.47' N
Longitude: 082°45.23' W
Spilled Material: diesel
Spilled Material Type: 2
Amount: 6000 gallons
Source of Spill: sunken fishing vessel
Resources at Risk: Birds: brown pelican, diving birds, shore birds, least tern, piping plover, snowy plover, wading birds, seaducks
Reptiles: sea turtles
Marine Mammals: manatees
Management Areas: wildlife preserves, aquatic preserves
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: fine-sand beaches, mangroves
Keywords: salvage

Incident Summary:

The F/V *Captain Justin* sank 1000 yards east of Egmont Key in Tampa Bay on the morning of December 23, 1998. Onboard were 6000 gallons of diesel fuel. Shortly after the vessel sank, a 3-mile sheen extending from the vessel's location seaward was reported

On December 24 the vessel was submerged in 20 feet of water near Egmont Key. A preliminary salvage plan was submitted to the Unified Command. According to this plan, the *Captain Justin* was to be refloated on December 25. The Unified Command worked with the vessel's owner and salvor to complete formal salvage plans before salvage operations began. MSO investigators continued to investigate the cause of the incident.

NOAA Activities:

NOAA was notified of this incident on December 23, 1998, by MSO Tampa who requested resources at risk information and oil fate predictions for the incident. NOAA supported this incident by phone and fax.

The vessel was salvaged and no shoreline impacts were reported.

Name of Spill: Enighed Pond
NOAA SSC: LCDR Bradford Benggio
USCG District: 7
Date of Spill: 02/04/99
Location of Spill: St Johns, U.S. Virgin Islands
Latitude: N/A
Longitude: N/A
Spilled Material: diesel
Spilled Material Type: 2
Amount: 1000 gallons
Source of Spill: overturned tank truck
Resources at Risk: coral reefs, SAV
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: N
Shoreline Types Impacted: mangroves
Keywords: boom

Incident Summary:

On February 4, 1999, Virgin Island police discovered and reported an overturned oil tank trailer adjacent to Enighed Pond. MSO San Juan responded and estimated that the overturned tank, with a capacity of 8000 gallons, spilled approximately 1000 gallons of diesel into the pond. Most of the oil has pocketed on the north and west sides of the pond where response personnel contained the fuel with boom and pumped out the pocketed oil.

Countermeasures and Mitigation:

Enighed Pond is a heavily impacted salt pond currently slated for port development. It has a few fringing mangroves along the eastern, western, and southern banks. The pond receives discharge from the St. John wastewater treatment plant and is open to the sea by a narrow (3-meters [m] channel) that discharges into Turner Bay. This area has nice shallow reefs and some grass beds. The USCG boomed the channel

NOAA Activities:

NOAA was notified of this incident on February 5, 1999, by MSO San Juan who requested on-scene weather forecasts. HAZMAT was consulted after the pumping was completed to help evaluate options for treating impacted mangroves and contaminated soil.

Cleanup operations were concluded on February 11 and EPA was to review the RP's plan for removing the contaminated soil around the spill site

References:

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) *User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA Hotline 358, 3 Reports

English Pond	Name of Spill:
LCDR Richard Parsons	NOAA SSC:
USCG District 7	USCG District:
02/04/99	Date of Spill:
St Johns, U.S. Virgin Islands	Location of Spill:
N/A	Latitude:
N/A	Longitude:
diesel	Spilled Material:
2	Spilled Material Type:
1000 gallons	Amount:
overturned tank truck	Source of Spill:
coral reef, PAV	Resources at Risk:
N	Operations:
N	Bioremediation:
N	In-situ Burning:
N	Other Special Interest:
manroves	Special Types Impacted:
boom	Keywords:

Incident Summary:

On February 4, 1999, Virgin Island porton discovery and reported an overturned oil tank boom adjacent to English Pond. MISO San Juan responded and estimated that the overturned tank with a capacity of 8000 gallons, spilled approximately 1000 gallons of diesel into the pond. Most of the oil has pocketed on the north and west sides of the pond where response personnel contacted the fuel with boom and pumped out the pocketed oil.

Containment, Cause and Mitigation:

English Pond is a heavily impacted salt pond currently slated for port development. It has a few mangrove manroves along the eastern western and southern banks. The pond receives discharge from the St. John wastewater treatment plant and flows to the sea by a narrow 10-meter (m) channel, that discharges into Turner Bay. This area has very shallow reefs and some grass beds. The USCG boomed the channel.

NOAA Activities:

NOAA was notified of this incident on February 5, 1999. USCG San Juan was requested and scene weather forecasts. HAZMAT was consulted and the pumping was completed in being evaluate options for treating impacted mangroves and to understand and Cleanup operations were conducted on February 11 and 12. USCG District 7 is currently removing the contaminated soil around the spill site.

References:

NOAA 1993 ADIOS™ (Automated Data Input) for Oil Spills, Final Report
 Hazardous Materials Response and Assessment Program, NOAA 50 pp.

NOAA Hotline 358.3 Reports

Name of Spill:	Northeast Florida Tarballs
NOAA SSC:	LCDR Bradford Benggio
USCG District:	7
Date of Spill:	06/14/99
Location of Spill:	along northeast Florida beaches
Latitude:	29°54.0' N
Longitude:	081°17.05' W
Spilled Material:	unknown
Spilled Material Type:	unknown
Amount:	unknown
Source of Spill:	unknown
Resources at Risk:	state parks, public beaches
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	concern for public and recreational interest on Florida beaches
Shoreline Types Impacted:	fine-sand beaches
Keywords:	tarballs

Incident Summary:

The USCG was informed of several areas of tarballs along the beaches near Jacksonville, Florida. Assessment teams were sent out to investigate and found concentrations of small to large tarballs and mats in Anastasia State Park, St Augustine; Crescent Beach; and South Ponte Verde Beach. Samples were sent to the Central Oil Identification Laboratory (COIL) for analysis.

NOAA Activities:

NOAA was notified of this incident on June 14, 1999, by MSO Jacksonville who requested general information about tarballs to help answer questions being raised by the public and the media.

NOAA provided the MSO with weather forecasts and historical wind information for June 11 to 15. On-shore winds had been from the northeast, east, and southeast during this time. Without knowing how long the oil had been in the water or the movement of any potential source, it was not possible to estimate where the oil may have come from.

The USCG oversaw cleanup of the impacted areas. The source was never found.

References:

NOAA Hotline 379, 4 Reports

U.S. Coast Guard District 8

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Name of Spill: BP/Chevron Pipeline
NOAA SSC: Charlie Henry
USCG District: 8
Date of Spill: 09/30/98
Location of Spill: Mississippi Canyon
Latitude: 28°51.5'N
Longitude: 88°55.5'W
Spilled Material: crude oil
Spilled Material Type: 2
Amount: 3700 barrels
Source of Spill: pipeline failure
Resources at Risk: Fish: bay anchovy, sheepshead minnow, gulf killifish, and silversides
Shellfish: oysters, blue crab, shrimp (white and brown)
Birds: waterfowl, diving birds (pelicans, cormorants) wading birds, gulls, terns, raptors, shorebirds, eagles
Marine Mammals: river otter, muskrat, mink, nutria, raccoon
Human-Use Resources at Risk: Loutre State Waterfowl Management Area, commercial and recreational fishing
Habitats: seagrass beds, coastal marshes
Dispersants: Y
Bioremediation: N
In-situ Burning: N
Other Special Interest: SROMP deployed
Shoreline Types Impacted: coastal marshes and fine-grained sand beaches
Keywords: none

Incident Summary:

During a routine pipeline transfer operation from British Petroleum (BP) Mississippi Canyon 109A, a spill of unknown volume occurred during the night of September 30, 1998. The spill volume was estimated at 3700 barrels with a potential of 7500 barrels. On October 1, a large patch of oil south of Southwest Pass was identified by an overflight and treated with dispersants. On October 2: three relatively large patches of oil were identified:

- 1) Light to moderate sheens in East Bay.
- 2) A 5- by 0.25-mile slick south of East Bay, extending west.
- 3) Several streamers of black and emulsified oil extending 10 miles.

Only the latter two areas were treated with dispersants. Surface oil offshore was aggressively treated using dispersants on Days One and Two of the response to minimize environmental injury. All dispersant applications were within the preapproved zone and with approval of the Regional Response Team (RRT). Both DC-3 and DC-4 platforms were used to apply more than 2700 gallons of dispersant. The Special Response Operational Monitoring Plan (SROMP) monitoring was an integral part of dispersant activities. Although six skimmers were active, offshore mechanical recovery was poor. At the end of the day, October 3, many of the cleanup resources were demobilized due to the lack of

recoverable oil. No dispersants were applied on Day 3. A total of four sorties were flown and 4900 gallons of dispersants applied.

Remotely operated vehicle (ROV) systems did not identify a leak in the BP pipeline used at Mississippi Canyon 109A. The pipeline system in the region is relatively complex and several producers share a portion of the line. Since BP did not discover a leak in their line, adjacent lines were suspect. A small test transfer was planned to check the BP and adjacent Chevron line. Minerals Management Service (MMS) and the USCG approved the transfer plan and appropriate spill response equipment was standing by. In addition, the USCG and RP suspected a portion of the surface oil observed might have come from a second or possible multiple sources. Several small leaks were identified from overflights. The USCG and the RP collected samples to confirm the source.

Testing of the suspected pipeline system resulted in a small oil release from a Chevron pipeline adjacent to the BP-Mississippi Canyon 109 line. Although the initial pressure in the Chevron line appeared good, a short time later oil was seen within the surveillance-test zone and a skimming vessel responded immediately. The estimated release volume was between 50 and 100 barrels. An estimated 48 barrels were skimmed near the release point. Two patches of oil were seen moving toward East Bay. At approximately 1800 the leading edge of the smaller slick had reached Mississippi waters, a second larger slick was located just outside state waters. Both were moving north-northwest. With winds strengthening to 20 to 25 knots from the south, shoreline impact could happen during the night on the western side of East Bay. Protection booming was implemented. An IR camera was used to help identify skimmable oil during night operations.

The actual spill was the result of a damaged Chevron pipeline used in the transfer operation, but this was not determined until several days into the response. BP and Chevron share a portion of the same pipeline. While the dispersant application was successful, assessing overall effectiveness was very difficult. Offshore mechanical recovery was poor. Shoreline impacts were minimal, but the threat to shoreline resources was very real.

The fall migration of birds was in progress and although few were offshore, many thousands were nearshore and in coastal marshes. Many birds were threatened. Had the oil come inshore, many may have died from contact with surface-oil pollution and oiled marshes. The habitat itself, coastal marshes, was a major resource threatened by the spill. Shoreline oiling could have resulted in costly and injurious shoreline cleanup activities generating large amounts of waste material. Since coastal wetlands are sensitive to physical intrusion, cleanup options were highly limited.

NOAA Activities:

NOAA was notified of this incident on October 1, 1998, by MSO Morgan City who requested on-scene support.

The Chevron line was shut in and divers began repairing the leak. The RP estimated the release volume at 85 barrels. An estimated 60 barrels of oil/water were recovered before dark October 5. Accounting for evaporative loss, natural dispersion, and mechanical recovery, an estimated 10 to 20 barrels were driven ashore by a strong southern wind. Impacts were light, mostly sheens. Essentially no recoverable oil was observed. Responsibility for the spill passed from BP to Chevron, and USCG oversight was passed from MSO Morgan City to MSO New Orleans. Both changes were the result of discovering the leak was from a Chevron line located within MSO New Orleans operational zone

Chevron is scheduled to submit a pipeline test/repair plan and spill contingency plan to MSO New Orleans. It is reported that the pipeline is under about 20 feet of mud. Repairs may take some time. NOAA will be debriefing the SROMP monitoring team and transporting water samples to LSU for analysis.

The NOAA Science Support Team (SST) remained on-scene through October 6 to support MSO response activities. NOAA personnel on-scene were also tasked with documenting the earlier dispersant activities and preparing a post-incident dispersant-use report for the Regional Response Team (RRT).

References:

NOAA Hotline 335, 15 Reports

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) *User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

On October 28, 1998, a crewman residing aboard the 37-foot T/V *Cherokee Trader* triggered an explosion in the #7 portside cargo tank. The explosion left a 40- by 30-foot hole in the side of the ship. The explosion killed one crew member, and injured four others, and caused the release of approximately 3000 gallons of IFO 380 and 2140 barrels of seawater, a mixture of palm kernel oil (PKO) and water, and

NOAA activities

NOAA was notified of this incident on October 30, 1998, by the USCG who requested on-scene support. The vessel was still aground on the right descending bank of the Mississippi River below Punt Tavern in Southwest Pass. NOAA provided on-scene spill assessment, behavior of edible oil in the environment, and cleanup recommendations.

There were two tanks completely lost; one contained IFO 380 and the second contained PKO sludge. The cleanup contractor reported that 400 gallons of fuel oil and 1600 gallons of PKO have been recovered. The western shoreline of Southwest Pass extending between lower Mississippi River (LMR) mile markers (MM) 19 to LMR MM 21 shows patchy, moderate to light shoreline impact. Most of the oil along the shoreline into and within Dejeu Bay was contained by diversion booms.

The SSC participated in a overflight on October 30 to assess shoreline oiling for cleanup recommendations. Track the spilled product, and identify favorable product locations. The river cut and stream side marshes northwest of Dejeu Bay were oiled. The nature of the spilled oil made observations difficult. When the PKO sludge was treated with IFO 380, the oil was clearly visible, often appearing as oil balls and chunks of product. Field USCG personnel reported heavier oiling along the many small canals visible from the helicopter. Except for several small patches of oil trapped by boom or wing jetties, the river was essentially oil free; at least free of visible oil. A large area of silver and rainbow sheen was observed approximately 20 miles west of the mouth of Southwest Pass. Jellyfish were clearly visible, but oil balls and chunks of palm butter were not. The sheens observed were unrecoverable.

Name of Spill:	T/V <i>Champion Trader</i>
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	10/29/98
Location of Spill:	Mississippi River
Latitude:	N/A
Longitude:	N/A
Spilled Material:	IFO180 and palm kernel oil
Spilled Material Type:	5
Amount:	3100 barrels
Source of Spill:	ship explosion and spill
Resources at Risk:	migratory birds
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	coastal marshes
Keywords:	diversion boom

Incident Summary:

On October 29, 1998, a crewman welding aboard the 557-foot T/V *Champion Trader* triggered an explosion in the #7 port-side cargo tank. The explosion tore a 40- by 30-foot hole in the side of the ship. The explosion killed one crewmember, and injured four others, and caused the release of approximately 3000 gallons of IFO 380 and 3100 barrels of stearin, a mixture of palm kernel oil (PKO) and stearic acid.

NOAA Activities:

NOAA was notified of this incident on October 30, 1998, by the USCG who requested on-scene support. The vessel was soft aground on the right descending bank of the Mississippi River below Pilot Town in Southwest Pass. NOAA provided on-scene spill assessment, behavior of edible oil in the environment, and cleanup recommendations.

There were two tanks completely lost; one contained IFO 380 and the second contained PKO stearin. The cleanup contractor reported that 400 gallons of fuel oil and 1600 gallons of PKO have been recovered. The western shoreline of Southwest Pass extending between lower Mississippi River (LMR) mile marker (MM) 19 to LMR MM 21 shows patchy, moderate to light shoreline impact. Most of the oil along the spillway into and within Dixon Bay was contained by diversion boom.

The SSC participated in an overflight on October 30 to assess shoreline oiling for cleanup recommendations, track the spilled product, and identify recoverable product locations. The river cut and stream-side marshes northeast of Dixon Bay were oiled. The nature of the spilled oil made observations difficult. Where the PKO stearin was coated with IFO 380, the oil was clearly visible, often appearing as softball size chunks of product. Field USCG personnel reported heavier oiling along the many small canals visible from the helicopter. Except for several small patches of oil trapped by boom or wing jetties, the river was essentially oil free; at least free of visible oil. A large area of silver and rainbow sheen was observed approximately 20 miles west of the mouth of Southwest Pass. Jellyfish were clearly visible, but softball size chunks of palm butter were not. The sheens observed were unrecoverable oil.

PKO is very difficult to spot from a helicopter since it doesn't sheen once its temperature falls below its pour point. The best clue is surface roughness. Any over-washing of the small, baseball size PKO chunks would make aerial observation almost impossible. Physical removal of accessible oil in the marshes using dip nets was expected to take 2 or 3 days.. Only daylight operations were allowed to ensure the safety of workers.

Vegetable oils have similar smothering and coating effects as persistent petroleum oils, particularly to birds. Vegetable oils will disrupt the microstructure of the feathers, causing the birds to lose waterproofing and water buoyancy, and suffer from hypothermia. Even though vegetable oils do not have the toxicity associated with polycyclic aromatic hydrocarbons (PAHs), they do cause other effects from ingestion (during preening), diarrhea, liver toxicity, and lipid pneumonia. If the spilled oil spreads to areas where birds are concentrated (flocks of waterfowl, pelicans), there could be significant impacts. In previous spills, it was thought that some birds died from infections from bacteria associated with the vegetable oil.

Vegetable oils can also coat and smother vegetation and intertidal organisms, causing impacts from loss of air exchange. In previous spills, intertidal mussels were killed where the edible oil coated their gills (even where sheens were not visible). A thin band of oil on vegetation would probably not have serious impacts.

Bulk product was recovered where accessible in the river and marshes north of Dixon Bay. Small amounts of PKO stranded in inaccessible locations such as highly sensitive back-marshes and in rock riprap along the Mississippi River were left to recovery naturally.

NOAA supported this response for 12 days.

References:

NOAA Hotline 338, 11 Reports

Name of Spill:	F/V <i>Miss Conch</i>
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	11/04/98
Location of Spill:	Freeport, Texas
Latitude:	28°45.4' N
Longitude:	95°28.8' W
Spilled Material:	marine diesel
Spilled Material Type:	2
Amount:	2,000 gallons
Source of Spill:	fishing vessel
Resources at Risk:	migratory birds
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none reported
Keywords:	none

Incident Summary:

Group Galveston reported that F/V *Miss Conch* was taking on water about 11 nautical miles (nm) southwest of Freeport, Texas. The pumps onboard were unable to keep up with the flooding. A Station Freeport utility boat (UTB) and an Air Station Houston HH-65 were launched to assist. A pump was dropped to the UTB from the HH-65, and both pumps were transferred to the *Miss Conch*. One of the pumps failed, and the HH-65 delivered a second pump from Station Freeport, then departed due to fuel constriction. The flooding exceeded the capacity of the pumps and the *Miss Conch* began to sink. Her Master began to complain of severe chest pains. The flight surgeon was consulted, and concurred with a MEDEVAC via UTB. All of the people from the *Miss Conch* were safely transported to Station Freeport. A "Hazard to Navigation" broadcast reported the position of the mostly submerged fishing vessel.

NOAA Activities:

NOAA was notified of this incident on November 4, 1998, by MSO Galveston who requested a trajectory and brief assessment of the fate of the spilled diesel.

The *Miss Conch*, a shrimp boat, was reported overturned 5 to 6 miles off the Texas coast. This is about 8 miles south-southwest from the entrance to the San Bernadino River. Initially a tow boat on-scene reported a small sheen that was being dispersed by the seas. A later overflight reported no sheen. The overturned vessel is thought to have about 2,000 gallons of diesel onboard. No significant sheens were observed in subsequent overflights.

On November 5, 1998, the vessel was reported sunken about 3 miles offshore of Matagorda Peninsula. A sheen of 1 to 2 miles long by 40 yards wide was reported near where the ship sank. An updated trajectory was provided. An overflight on November 6 identified no surface pollution. The NOAA SSC remained in a standby position in anticipation of a situation change.

References:

NOAA Hotline 339, 5 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	T/V <i>Somerset</i>
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	11/23/98
Location of Spill:	Gulf of Mexico
Latitude:	28°43.5' N
Longitude:	93°36.5' W
Spilled Material:	crude oil
Spilled Material Type:	3
Amount:	50 barrels
Source of Spill:	tanker
Resources at Risk:	migratory birds
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none reported
Keywords:	none

Incident Summary:

On November 23, 1998, a tanker reported losing about 50 barrels of Light Arabian Crude about 60 miles offshore of Sabine Pass and within a mile of the dividing line between two USCG response zones. The vessel's location is in MSD Lake Charles's response zone, but the oil quickly moved into Marine Safety Unit (MSU) Galveston's response zone.

NOAA Activities:

NOAA was notified of this incident on November 23, 1998, by MSU Galveston who requested an oil trajectory. The NOAA trajectory did not anticipate any landfall within the next 3 days (the duration of the trajectory forecast). Given the type of oil, quantity spilled, current offshore weather, and ocean currents the potential for observable beach oiling was very low. Nearly half the oil was expected to evaporate and the rest was expected to form small tarballs. Tarballs are very persistent and may travel many hundreds of miles, but will probably be so highly spatially dispersed that they will be virtually undetected. They will be lost among the background tarball population of the Gulf of Mexico. Tarballs in the Gulf of Mexico are derived from both natural seeps and anthropogenic spills. No additional support was requested.

NOAA supported this incident for 2 days.

References:

NOAA Hotline345, 5 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	M/V <i>Violetta</i>
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	12/28/98
Location of Spill:	Galveston, Texas
Latitude:	29°20.5' N
Longitude:	94°45.2' W
Spilled Material:	diesel/bunker fuel
Spilled Material Type:	2/4
Amount:	N/A
Source of Spill:	pipeline
Resources at Risk:	migratory birds
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	potential

Incident Summary:

During the early morning of December 28, 1998, MSU Galveston received a report from the M/V *Violetta*, that she had a main space fire that was burning out of control. The vessel was an empty break-bulk freighter anchored in the Bolivar Anchorage (near the Galveston Jetties). Two crewmen were missing. The initial report included a potential of 10 metric tones of bunker fuel, 80 metric tones of diesel, and 33 small (15-gallon) containers of lube oil. An air-eye equipped HU-25 from Air Station Corpus Christi surveyed the area for possible pollution.

NOAA Activities:

NOAA was notified of this incident by MSU Galveston who requested a tactical trajectory should a release occur. That evening, the fire continued to burn. MSU Galveston updated the spill potential to 160 metric tones of diesel. No significant oil pollution was reported on December 30 and the fire was reported out. Both missing crewmembers were located deceased in the burning engine room. No marine pollution occurred.

References:

NOAA Hotline 350, 7 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Behavior of Spilled Material:

The M/V *Violetta* was moving approximately 7 to 10 knots at the time. When the fire containing the titanium dioxide ruptured, its contents were immediately carried down-drift in a large white mass that quickly diffused into the water column. Although the substance is not toxic and is used for paint pigment or suntan lotion, the particulates in the material had the potential to irritate pelagic animals or smother bottom life forms. However, it was apparent that the current would make it difficult for accumulation to occur to the point it would be a threat.

NOAA 200	NOAA 200
USCG District	USCG District
Date of spill	Date of spill
Location of spill	Location of spill
Latitude	Latitude
Longitude	Longitude
Spilled Material Type	Spilled Material Type
Amount	Amount
Source of Spill	Source of Spill
Response of Recd	Response of Recd
Comments	Comments
Investigation	Investigation
Other Spill Interest	Other Spill Interest
Spill Type Incident	Spill Type Incident
Keywords	Keywords

Incident Summary

During the early morning of December 28, 1991, the vessel received a report from the M/V ... that the fuel ... was ... out of control. The vessel was ... in the ... area ...

NOAA A-11111

NOAA ... of the ... by ...

NOAA

NOAA

NOAA ...

Name of Spill:	Train Derailment
NOAA SSC:	LCDR Jason H. Maddox
USCG District:	8
Date of Spill	12/29/98
Location of Spill:	Wittenberg, Missouri
Latitude:	N/A
Longitude:	N/A
Spilled Material:	titanium dioxide
Spilled Material Type:	5
Amount:	10,000 gallons
Source of Spill:	railroad tank car
Resources at Risk:	pallid sturgeon (endangered), Alabama shad
Dispersants	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	vegetated riverbank, riprap
Keywords:	potential spill, salvage

Incident Summary:

On December 29, 1998, a southbound Burlington Northern-Santa Fe train derailed at milepost 113 on the Mississippi River. Several train cars entered the water but only one breached its contents of titanium dioxide into the environment. Three other cars containing hazardous materials with a high degree of release potential were precariously mingled in wreckage. Of these three cars, two contained sulfuric acid and the other one contained a mixture of pentane and isoprene. Each car's capacity was 10,000 gallons.

At the time of the derailment, it was not clear what was in the water and several water intakes were closed until further investigation was conducted. Weather at the scene was calling for northwest winds of 15 to 20 knots, temperatures in the low 20s and a chance of snow. The following morning there was an inventory taken and assessment made to verify that there was only titanium dioxide in the water. The intakes were reopened and monitored throughout the operation. The higher concerns were to stabilize the cars of sulfuric acid, pentane, and isoprene and to remove them from the area.

The railroad company quickly brought in heavy machinery to clear the wreckage. A full crew worked around the clock in laying approximately 1 mile of new track. Entry to the site was through private property where the RP negotiated a fair economic settlement with the owner for access and staging equipment. By day two, a salvage plan was submitted for those railroad cars in the water. Two crane barges were sent up from St. Louis to unravel the wreckage and place the cars in isolated locations for transportation to a railroad port in St. Louis.

Behavior of Spilled Material:

The Mississippi River runs approximately 7 to 10 knots at this location. When the car containing the titanium dioxide ruptured, its contents were immediately carried downstream in a large white mass that quickly diffused into the water column. Although this substance is not toxic and is used for paint pigment or suntan lotion, the particulates in the material had the potential to suffocate pelagic animals or smother bottom feeders. However, it was apparent that the current would make it difficult for accumulation to occur to the point it would be a threat.

Some shoreline impact did take place. The riverbank consisting of unconsolidated material, boulders, and manmade riprap had a continuous cover of the titanium dioxide slurry approximately 10 yards long and 10 to 20 feet wide. The USCG, NOAA, and RP determined that the titanium dioxide did not pose an environmental threat. It was determined removal could make the bank unstable and cause more damage than allowing for natural recovery.

Countermeasures and Mitigation:

A "no-wake" zone was immediately enforced by the USCG and monitored throughout the operation. Recovery of the spilled titanium dioxide was not possible due to high river currents. A salvage plan was submitted by the RP and monitored by USCG during implementation.

NOAA Activities:

NOAA was notified of this incident on December 29, 1998. The SSC went on-scene and supported the USCG for the duration of the emergency response phase. NOAA was requested to provide trajectory analysis, resources at risk, weather and hydrology information, and health and safety considerations. Federal response lasted for 3 days but the RP continued removing wreckage for another week.

Reference:

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	Tug <i>Miss Jessica</i>
NOAA SSC:	Todd A. Bridgeman
USCG District:	8
Date of Spill:	01/11/99
Location of Spill:	offshore Texas
Latitude:	28°50' N
Longitude:	094°21' W
Spilled Material:	diesel
Spilled Material Type:	2
Amount:	40,000 gallons
Source of Spill:	tug
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	potential spill

Incident Summary:

At 1200, January 11, 1999, USCG MSU Galveston reported the tug *Miss Jessica* on fire and adrift off the coast about 34 miles south of Galveston, Texas. The vessel was carrying 40,000 gallons of diesel fuel and 800 gallons of lube oil. The fire was reported contained within the engine room.

By 1530, January 11, 1999, there was a 200-foot offshore supply vessel on-scene conducting fire-fighting operations. By later that evening, the fire was completely extinguished without causing any pollution. The vessel was then taken under tow to Galveston.

NOAA Activities:

NOAA provided resources at risk information, weather reports, and trajectory analysis to this response.

References:

NOAA. 1993. ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA Hotline 352, 5 Reports

Research Planning Institute. 1979. *Sensitivity of coastal environments and wildlife to spilled oil: Galveston Bay Region, Texas*. Boulder, Colorado: Office of Marine Pollution Assessment, NOAA. 19 maps.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	Rig Falcon 17
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	06/25/99
Location of Spill:	Amelia, Louisiana
Latitude:	N/A
Longitude:	N/A
Spilled Material:	natural gas and condensate
Spilled Material Type:	1
Amount:	unknown
Source of Spill:	well blowout
Resources at Risk:	migratory birds
Dispersants:	N
Bioremediation:	N
In-situ Burning:	Y (accidentally)
Other Special Interest:	road closures, river closures, health hazard
Shoreline Types Impacted:	freshwater swamp/marsh
Keywords:	none

Incident Summary:

At approximately 0830 on June 25, 1999, the NOAA SSC received a report from MSO Morgan City that the crew of the Rig Falcon 17 had evacuated the rig because extremely high-pressure readings showed a potential for a blowout. The well had the possibility of releasing natural gas condensate, crude oil, and drilling mud. The location of the incident is just south of Amelia, Louisiana in Bayou Chene.

NOAA Activities:

At 0920 MSO Morgan City notified the SSC that the rig has blown and requested a plume trajectory. The released gas was venting through the pump house in several directions and was nearly horizontal to the water surface. In addition to gas, an aerosol of formation water and condensate oil was released that tended to hang low near the ground creating an off-site inhalation hazard. The aerosol slowly filtered through the cypress swamp north of the facility. Two major highways north of the incident were closed because of exposure concerns and 25 families were evacuated. Captain of the Port (COTP) Morgan City closed the Intracoastal Waterway (ICWW) from MM 78 to MM 87. A monitoring program using State, EPA contractor, and RP resources was established with the NOAA SSC as point of contact. Ignition sources were secured. That evening, the gas plume was ignited apparently from a lightning strike. Two nearby storage tanks, containing 15,000 barrels of crude oil were destroyed by the explosion and fire.

After the ignition, the monitoring teams reported no readings of concern. Apparently, most of the released gas and aerosol was being burned at the well site. As a result, the highways were reopened, but the waterway remained closed and residential evacuations remained in force.

On July 14, the SSCs visited the blowout site with personnel from MSO Morgan City. Little evidence of the more than 120,000 gallons of oil contained in the tanks prior to the explosion was observed. The old blowout preventor, the remains of the drilling derrick and barge were removed. The entire facility requires removal and rebuilding.

Eventually (after several weeks), the well bridged-over on the amount of gas escaping became a minor concern. Concerns related to the stability of the well's subsurface casing prevented a full shut in of the well. The venting gas and water was shunted into a separator and the gas flared off. A relief well will be drilled as the final solution. The potential for additional environmental injury was low. The response has transformed into a salvage operation. The USCG remained on- scene as federal oversight.

During the response, NOAA provided weather, resources at risk, plume trajectory data, and general technical assistance to the unified command. NOAA supported this spill nearly 3 weeks.

References:

NOAA Hotline 380, 18 Reports

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	Rig High Island
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	02/09/99
Location of Spill:	Gulf of Mexico
Latitude:	29°16.8' N
Longitude:	94°18.9' W
Spilled Material:	crude oil
Spilled Material Type:	2
Amount:	unknown
Source of Spill:	production failure
Resources at Risk:	migratory birds
Dispersants:	Y
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	dispersants considered, false oil identification
Shoreline Types Impacted:	none
Keywords:	boom, Corexit 9500

Incident Summary:

On February 9, 1999, the rig High Island Platform 139A suffered a production failure causing an unknown quantity of crude oil to spill into the Gulf of Mexico 18 to 20 miles offshore. The spilled oil was a condensate crude with an API of 38.

The stretch of shoreline from Galveston to Freeport is historically an area with high concentrations of birds. In particular, the area around San Luis Pass is an important feeding and loafing area for shorebirds, gulls, terns, loons, pelicans, and wading birds. At the time of the spill, because of the very early spring weather, many birds were staging along the beaches, particularly shorebirds who are feeding to bulk up for the migration to nesting areas. Though shorebirds have a lower tendency to get oiled (compared to diving birds who spend much of their time on the water surface or diving for prey) they spend a lot of time feeding at the water/land interface where any tarballs that come ashore are likely to concentrate. With onshore winds, the ultimate fate of any persistent oil was shoreline stranding. Normally, tarballs on shore are not an issue because they are easy to clean up. However, because of the high concentrations of birds present in the area of the predicted impact, there was a risk of birds getting oiled.

NOAA Activities:

NOAA was notified of this incident on February 9, 1999, by the USCG who requested a trajectory for the spilled material. A detailed trajectory and transport/fate analysis were developed.

The preliminary trajectory suggested that oil could reach the shoreline in 2 to 3 days, but given the nature of light condensate crudes, most of the oil was expected to evaporate and disperse naturally. Tarball formation of any emulsified oil was possible.

Given the concern for injury to shoreline resources, application of dispersants by vessel was considered. A verbal request was made to the RRT since application by vessel is not covered by the RRT VI Preapproval Plan, and consent was granted. Dispersants were used only to augment mechanical recovery efforts. There were doubts whether Corexit 9500 would have any effect. The spilled oil is a very high API gravity condensate crude and has

been in the water less than 12 hours (this normally favors dispersion), but a water-in-oil emulsion was clearly observed. The emulsion may be only "meso-stable" and can be broken by a combination of dispersant and the fire monitor application.

Updated trajectories suggested that the Bolivar Peninsula and Galveston Island were at risk. Booming strategies for sensitive areas in the threatened zones were evaluated. An overflight the next morning reported very little oil. Many jellyfish (man-of-war) were observed offshore and patches of orangish seaweed (sarghassum). It is possible that the previous overflights mistook the seaweed for emulsified oil. Only light sheens were observed that were truly petroleum. With no additional sightings of bulk oil, offshore mechanical cleanup was suspended. Beach monitoring continued for the next several days. No shoreline oiling was reported.

References:

NOAA Hotline 359, 7 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill: Tennessee River
NOAA SSC: LCDR Jason H. Maddox
USCG District: 8
Date of Spill : 2/10/99
Location of Spill: Knoxville, Tennessee
Latitude: N/A
Longitude: N/A
Spilled Material: diesel
Spilled Material Type: 2
Amount: 45,000 gallons
Source of Spill: pipeline
Resources at Risk: Fish: duskytail darter, longhead darter, yellowfin madtom.
Shellfish: dromedary pearly mussel, orange-foot pimpleback, fine-rayed pigtoe, and Anthony's river snail.
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: low banks, freshwater flats, sheltered bedrock bluffs, vegetated riverbank
Keywords: boom, skimmers, low-pressure washing, vacuum trucks

Incident Summary:

This spill occurred sometime after midnight on February 10, 1999, when a 10-inch pipeline burst open on top of a hill overlooking Fort Loudoun Lake on the Tennessee River. Phone calls soon began to filter into the local fire station describing a strong diesel smell within a cluster of homes at Scottish Pike in South Knoxville, Tennessee. When a fire truck arrived on-scene, a fountain of diesel fuel was spewing heavily onto an adjacent house and an immediate evacuation of six homes took place. At the same time notification to shut down its pipeline was given to Colonial Pipeline (RP). They were also told to boom off Goose Creek, at the junction of the creek and the Lake.

The diesel had flowed down an embankment to Goose Creek then into the lake and river creating a slick 60 feet wide and several miles long. The USCG was notified and dispatched a team from MSD Nashville and three members of the USCG GST. EPA arrived on-scene the morning of February 13 and assumed the Federal On-Scene Coordinator (FOSC) position since the spill originated from shore. The cause of the spill will be investigated by the National Transit Safety Board (NTSB).

The spill occurred at river mile (RM) 647.5, which is below the City of Knoxville's water intakes. Additionally the river is controlled by a dam (Fort Loudoun Lake Dam) that shut down operations soon after notification of the spill. By midmorning the RP and contracted response organizations had boomed off three locations down river.

Behavior of Spilled Material:

Because it was dyed red the diesel produced a very noticeable slick. The current in the area was flowing at 1 knot and a little faster in the river bend just a couple of miles downstream from Goose Creek in the area called Sequoyah Hills. From there the river opens up wider

and the current drops off significantly. As the diesel spread out, rainbow sheens developed. This was prevalent between Sequoyah Hills and a mile down river to Looney Island. As the spilled diesel weathered, silver sheens became more prevalent after day two and even more on day three. Additionally silver streaks could be seen from the air leeching off a point at RM 645. South of Looney Island to Sequoyah Park the diesel was observed to be in streaks and patches.

On shore the diesel penetrated deep into the riprap shorelines and maybe an inch into the fine-grain sand shores from Goose Creek to Sequoyah Hills. Oil film and a brown frothy mousse could be seen downstream of Sequoyah Hills. Additional shoreline impacts were at the booming site at Sequoyah Park where unweathered diesel pooled at the junction of the boom and shoreline. Some oiled debris was located at RM 639 near Maxey's Boat Dock.

Fortunately half the area is guarded by bedrock bluffs resulting in less shoreline impact and probably accounted for a high percentage of recovery noted by the RP. Officially, 45,000 gallons of diesel was released and 90% was recovered by skimmers and vacuum trucks. The initial report of the spill indicated that there had been 80,000 gallons of diesel released. In which case the mass balance breaks down to 50% recovered, 30% evaporated, 15% Goose Creek soils, and 5% other shoreline impacts.

Countermeasures and Mitigation:

Vessel traffic was halted when Fort Loudoun Lake Dam closed. Fortunately there was no traffic due until February 13. The Tennessee Valley Water Authority maintained the closure of any river traffic in the area. There were eight boom locations determined by accessibility for staging and removal equipment. One of these locations included protection of Looney Island, a known nesting area for blue herons.

Shoreline cleanup was conducted following a full Shoreline Cleanup Advisory Team (SCAT) orientation. All recommendations were for low-pressure ambient wash for oiled sand shorelines and riprap. Oiled debris was to be picked up and transported to a dumpsite for burning. Permits for this were pursued by the Tennessee Department of Environmental Quality (TDEQ) and EPA. Recovered diesel was taken to a storage tank for decanting.

NOAA Activities:

NOAA was notified of this incident on February 10, 1999, by MSO Paducah, who requested resources at risk, weather information, and trajectory analysis. NOAA dispatched the SSC to the scene to gain experience in response.

Boom, sorbents, skimmers, and other equipment arrived throughout the next evening. At daybreak of the second day, eight booming locations had been established and recovery operations were in full swing at each sight. Overflights taken by the FOOSC, NOAA, TDEQ, and RP showed that the oil had been contained and no further slicks or sheens were observed past the last oil boom 10 miles down river from the spill sight.

NOAA provided trajectory analysis, weather, river temperatures, and resources at risk. SSC conducted SCAT training for Colonial Pipeline workers.

Federal involvement was moderate. Total duration of response was 5 days. Remedial action in Scottish Pike, South Knoxville, and Goose Creek continued for 2 months.

References

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1994. *Options for Minimizing Environmental Impacts of Freshwater Spill Response*, Seattle: Hazardous Materials Response and Assessment Division, NOAA. 131 pp..

NOAA. 1998. *Shoreline Assessment Manual*, Report No. HAZMAT 98-3. Second Edition. August 1998. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 88 pp

NOAA Hotline 361, 20 Reports

Torgrimsen, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Incident Summary

On February 12, 1999, the 150-foot dredge Louisiana was reportedly on fire in Corpus Christi Bay. The vessel, carrying 30,000 gallons of diesel fuel, was said to be totally engulfed in flames.

The vessel was at the intersection of the Intracoastal Waterway (ICWW) and the Corpus Christi Ship Channel.

By midnight it was reported that the flames were under control and a fire team was preparing to board the vessel and continue fighting the fire. There were no reports of pollution.

NOAA Activities

NOAA was notified of this incident on February 12, 1999. By 1200, February 13, 1999, the fire was out and the vessel's hull remained intact. There was no pollution as a result of this incident. Response personnel began mopping up and no additional support was required.

NOAA provided meteorology, weather, ADIOS™, resources at risk and sensitive areas information, and protection strategies to this incident.

References

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1994. *Shoreline Assessment Manual* (pre-release). Seattle: Hazardous Materials Response and Assessment Division, NOAA.

NOAA Hotline 361, 6 Reports

NOAA's Office for Planning, Assessment, and Assessment Division (NOAA-PAAD) is the lead agency for the development and implementation of the National Oceanic and Atmospheric Administration's (NOAA) Strategic Plan for the 21st Century. The Strategic Plan is a long-term, high-level document that provides a framework for NOAA's operations and activities. It is a living document that is updated as needed to reflect changes in the agency's mission and priorities.

The Strategic Plan is organized into four main sections: Vision, Mission, Objectives, and Strategies. The Vision section describes the agency's long-term goals and aspirations. The Mission section outlines the agency's primary responsibilities and areas of focus. The Objectives section identifies specific, measurable goals that the agency aims to achieve. The Strategies section details the actions and programs that will be implemented to achieve these objectives.

The Strategic Plan is a key document for NOAA's internal and external communication. It provides a clear and concise statement of the agency's purpose and direction. It also serves as a guide for the agency's budgeting and resource allocation processes. The Strategic Plan is reviewed and updated on a regular basis to ensure that it remains relevant and effective.

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NOAA's Mission

NOAA's mission is to understand and predict the changes in the Earth's environment, from the depths of the ocean to the upper reaches of the atmosphere, and to disseminate the resulting information to the public in a timely and useful manner.

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Name of Spill: Dredge *Louisiana*
NOAA SSC: Todd A. Bridgeman
USCG District: 8
Date of Spill: 02/12/99
Location of Spill: Corpus Christi Bay, Texas
Latitude: 27°49.3' N
Longitude: 097°11.6' W
Spilled Material: diesel
Spilled Material Type: 2
Amount: 714 barrels (30,000 gallons)
Source of Spill: vessel
Resources at Risk: Birds: brown pelican, great blue heron
Marine Mammals: dolphins
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: none
Keywords: potential spill

Incident Summary:

On February 12, 1999, the 150-foot dredge *Louisiana* was reportedly on fire in Corpus Christi Bay. The vessel, carrying 30,000 gallons of diesel fuel, was said to be totally engulfed in flames.

The vessel was at the intersection of the Intracoastal Waterway (ICWW) and the Corpus Christi Ship Channel.

By midnight it was reported that the flames were under control and a fire team was preparing to board the vessel and continue fighting the fire. There were no reports of pollution.

NOAA Activities:

NOAA was notified of this incident on February 12, 1999. By 1200, February 13, 1999, the fire was out and the vessel's hull remained intact. There was no pollution as a result of this incident. Response personnel began mopping up and no additional support was required.

NOAA provided trajectories, weather, ADIOS runs, resources at risk and sensitive areas identification, and protection strategies to this incident.

References:

NOAA. 1993. ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1994. Shio. Tide computer program (prototype). Seattle: Hazardous Materials Response and Assessment Division, NOAA.

NOAA Hotline 362, 6 Reports

Research Planning Institute. 1979. *Sensitivity of coastal environments and wildlife to spilled oil: Galveston Bay Region, Texas.* Boulder, Colorado: Office of Marine Pollution Assessment, NOAA. 19 maps.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide.* NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill: Abandoned Oil Well Facility
NOAA SSC: Todd A. Bridgeman
USCG District: 8
Date of Spill: 02/17/99
Location of Spill: Bayou Bernard, Louisiana
Latitude: N/A
Longitude: N/A
Spilled Material: crude oil
Spilled Material Type: 3
Amount: 600 barrels
Source of Spill: facility
Resources at Risk: Birds: brown pelican, great blue heron
Marine Mammals: dolphins
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: none
Keywords: berm, boom, skimmers

Incident Summary:

The USCG initiated aggressive cleanup activities of a crude oil spill found on Bayou Bernard approximately 4 miles west of Catahoula, Louisiana. A fisherman on the bayou reported the spill.

Pollution investigators from MSO Morgan City went to the site and found that holding tanks belonging to a production well had leaked into an adjacent ditch leading to the bayou. The USCG immediately began cleanup operations with a spill management contractor. The oil in the bayou and ditch was quickly contained by oil boom and mechanical recovery was accomplished through the use of several oil skimmers. There were no indications or reports of impacted wildlife. The USCG continued the cleanup until all recoverable oil was removed from the bayou and adjoining ditch. They consulted with the State of Louisiana, EPA, and NOAA about long-term remedial cleanup of the oil surrounding the holding tanks and the secondary containment (earthen berm).

Records from the State of Louisiana indicate that the well and tanks have been abandoned since April 1998. The USCG worked with the State of Louisiana to identify an RP.

NOAA Activities:

NOAA was notified of this incident on February 17, 1999, by MSO Morgan City who requested help with the assessment of the spill.

The area was extremely low energy (almost zero) so the oil was easily recovered by the skimmers. By the evening of February 19, 1999, approximately 500 barrels of the estimated 600 barrels spilled had been recovered. Due to the season and low energy of the environment, impacts from this release were low.

By 1330 February 22, 1999, 720 barrels were recovered exceeding the initial estimate of 600 barrels. Mechanical recovery of the oil continued. Although the well was abandoned, it continued to produce oil filling both holding tanks. A pipe burst causing the tanks and the

well to drain into an adjacent ditch that led to the bayou. The EPA was investigating options to fully dismantle and cap the well.

References:

NOAA. 1993. ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA Hotline #364, 2 Reports

NOAA. 1994. Shio. Tide computer program (prototype). Seattle: Hazardous Materials Response and Assessment Division, NOAA.

Name of Spill:	Rig Ocean Winner
NOAA SSC:	Todd A. Bridgeman
USCG District:	8
Date of Spill:	02/21/99
Location of Spill:	Galveston, Texas
Latitude:	28°18.14' N
Longitude:	094°47.27' W
Spilled Material:	diesel
Spilled Material Type:	2
Amount:	50 barrels
Source of Spill:	rig
Resources at Risk:	brown pelican
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	skimmers

Incident Summary:

On Sunday evening, February 21, 1999, the rig Ocean Winner had spilled an unknown amount of red diesel into the Galveston Ship Channel near pier 16. The spill was later estimated at approximately 50 barrels. On-scene weather was winds out of the north-northeast at 15 knots.

By that evening the product was boomed and recovery had begun. The local United States Fish and Wildlife Service (USFWS) technical expert responded; one oiled pelican was discovered. There were no other wildlife impacts reported.

By the morning of February 22, 1999, 50 barrels of oily waste had been recovered and skimmers were continuing to recover the remaining boomed product.

NOAA Activities:

NOAA was notified of this incident on February 21, 1999. NOAA provided spill assessment and resources at risk information to the spill responders.

References:

NOAA. 1993. ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA Hotline #365, 1 Report

NOAA. 1994. Shio. Tide computer program (prototype). Seattle: Hazardous Materials Response and Assessment Division, NOAA.

Research Planning Institute. 1979. *Sensitivity of coastal environments and wildlife to spilled oil: Galveston Bay Region, Texas*. Boulder, Colorado: Office of Marine Pollution Assessment, NOAA. 19 maps.

Name of Spill: T/V *Hyde Park*
 NOAA SSC: Stephen Thumm
 USCG District: 8
 Date of Spill: 02/27/99
 Location of Spill: New Orleans, Louisiana
 Latitude: 29°11' N
 Longitude: 90°02' W
 Spilled Material: #6 fuel oil
 Spilled Material Type: 4
 Amount: 50 barrels
 Source of Spill: tank vessel
 Resources at Risk: **Fish:** juvenile gulf menhaden, bay anchovy, and Atlantic croaker. Adult seatrout, blue gill, catfish, drum, southern flounder, spot, kingfish, sheepshead, shad, and bass.
Shellfish: crayfish
Birds: herons, egrets, ibis, bald eagles, osprey
Human-Use Resources: water intakes, recreational fishing
 Dispersants: N
 Bioremediation: N
 In-situ Burning: N
 Other Special Interest: Mississippi River closed
 Shoreline Types Impacted: freshwater swamp, vegetated riverbank, riprap, levee
 Keywords: boom, pompoms, sorbent pads, sweeps

Incident Summary:

On February 27, 1999, the T/V *Hyde Park*, en route to Dow Chemical in Baton Rouge, lost power at MM 92 approximately 5 miles south of New Orleans. The vessel careened down river colliding with numerous vessels and river structures, sinking a crew boat and a barge containing caustic soda. During one such collision the aft starboard fuel tank was holed and released a reported 50 barrels of No. 6 fuel oil into the Mississippi River. Product onboard the T/V *Hyde Park* was 25,000 metric tons of pyrolysis gasoline and an undetermined amount of Bunker C fuel oil. No pyrolysis gasoline was spilled.

At the time of the incident winds were from the south at 10 to 15 knots, visibility was good, and the temperature was in the high 50s.

The vessel regained power and was anchored at mile MM 79. Containment boom was placed around the vessel in the event of further leakage. MSO New Orleans manned the Crisis Action Center and assumed the FOSC role.

Behavior of Spilled Material:

Personnel on the initial overflight at 0700 showed the leading edge of the slick at MM 62 consisting of streaks of black oil. The river current was estimated to be 4.2 miles per hour. A total of 22 miles of shoreline were impacted; 18 miles were classified as light and 4 miles as heavy. The majority of the oil pushed up onto the east bank between Electrical Coal Facility (MM 55) and Point a la Hache (MM 49). Light oiling was observed on the west bank from Point a la Hache ferry landing down to Port Sulphur.

The final amount of spilled oil was difficult to determine because of the differences between the amount reported by the RP and the amount recovered. The RP reported a spill of approximately 50 barrels; however, the amount of oil recovered by mechanical means (90 barrels), evaporation (18 barrels), scavenging (13.5 barrels), and remaining along the shoreline (30 barrels—not collected for emulsification) suggest that a larger quantity was spilled.

Countermeasures and Mitigation:

Containment boom was placed on the outside of the batture (area between the river and the levee consisting of seasonally flooded vegetated land) to prevent the oil from remobilizing and impacting additional shoreline. During the early morning, due to the cool temperatures, sorbent pads, sweeps, and pompoms were used for manual cleanup. As the temperature increased, making the oil more manageable, mechanical recovery was employed.

Other Special Interest Issues:

Media interest was low; the local news stations obtained video footage of the vessel alliding with a barge facility that was shown throughout the day. Access to the Mississippi River via the batture was closed to the public between MMs 49 and 55 while cleanup operations were conducted. The morning of the incident, the river was closed to vessel traffic between MMs 79 and 92, but reopened that afternoon. A no-wake zone was established by the USCG between MMs 49 and 55 for the protection of the cleanup workers.

NOAA Activities:

NOAA was notified of this incident on February 27, 1999, by MSO New Orleans who requested on-scene support and trajectory, weather, and fate and effects information. NOAA also provided information about resources at risk, product characterization, and health and safety concerns.

At the request of the MSO, the SSC brought in an information specialist and a SCAT specialist to document the residual oil remaining after the cleanup stopped and to prepare an information management report.

NOAA participated in discussions on cleanup techniques and "how clean is clean".

NOAA supported this response on-scene until March 3, 1999, and from March 19 to 22, 1999 by phone and fax.

References:

NOAA Hotline #366, 27 Reports.

NOAA. 1993. *ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1993. *The CAMEO™ 4.0 Manual*. Washington, D.C.: National Safety Council. 440 pp.

RPI International, Inc.; 1989: *Sensitivity of coastal environments and wildlife to spilled oil, Louisiana: an atlas of coastal resources*; B. Savitsky, and T. J. Reilly; RPI/ESI/89/3; Columbia, S.C.; 98 maps.

Name of Spill: East Cameron 60
NOAA SSC: Charlie Henry
USCG District: 8
Date of Spill: 04/09/99
Location of Spill: Gulf of Mexico, Louisiana
Latitude: N/A
Longitude: N/A
Spilled Material: natural gas, condensate crude oil
Spilled Material Type: 2
Amount: 15 barrels
Source of Spill: well blowout and fire
Resources at Risk: coastal birds
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: worker safety
Shoreline Types Impacted: none
Keywords: none

Incident Summary:

On April 9, 1999, USCG Houston received news that there had been a well blowout at the East Cameron 60 rig located in the Gulf of Mexico off the Louisiana coast. The rig was evacuated and on fire. A USCG HH-65 from Houston was en route for search and rescue and a preliminary assessment. At least one burn injury was reported. A nearby supply vessel recovered nine people from the life rafts and took them to another oil rig.

Behavior of Spilled Material:

The platform produces primarily natural gas and condensate. Condensate is oil co-produced in a natural gas well and can vary greatly in composition. The pipeline was shut in and no additional pollution was expected. The sheen observed was characterized as light. The sheen probably contained less than 10 barrels of natural gas condensate. Such oils rarely persist. Often 50% to 70% are lost to evaporation and the remaining oil dissipates as a result of natural dispersion and weathering. The sheen was not expected to cause any shoreline impact.

By the afternoon, the fire burned itself out, releasing approximately 15 gallons of condensate into the water. The MMS will investigate the accident, but preliminary reports indicate that a crewmember was welding in a sump room when the fire ignited.

NOAA Activities:

NOAA was notified of this incident on April 9, 1999, by MSO Port Arthur. In response, NOAA developed initial trajectory information should a significant or prolonged release of oil occur. The SSC continued to gather information related to the type of oil produced. The preliminary tactical trajectory indicated that any significant release would be transported northwest toward Cameron, Louisiana, approximately 35 miles away. Landfall was anticipated in 2 days.

At approximately 1630, the SSC was updated by MSO Port Arthur that the fire was out and a 1-mile by 100-yard sheen observed at the rig.

There was no true well blowout. The crewmember suffered burns and was flown ashore. What began as a potential major incident evolved into a minor pollution event.

References:

NOAA Hotline 372, 1 Report

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	F/V <i>Poseidon</i>
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	04/12/99
Location of Spill:	Panama City, Florida
Latitude:	N/A
Longitude:	N/A
Spilled Material:	sodium meta-bisulfite
Spilled Material Type:	5
Amount:	unknown
Source of Spill:	misuse of preservative
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	three fishermen killed
Shoreline Types Impacted:	none
Keywords:	preservative, fatalities

Incident Summary:

The 62-foot F/V *Poseidon* was reported overdue and a search was launched. On April 12, 1999, during the second search by the Air Training Center Mobile, the vessel was located in a position 21 nms southwest of Cape San Blas, Florida. After repeated attempts to hail the vessel failed, a Good Samaritan (Sam) vessel volunteered to assist. The Good Sam vessel arrived on-scene and reported that the *Poseidon's* nets were in the water, the running lights were energized, the generator was running, but there were no crew members visible on deck. The Good Sam vessel was thanked for her help and released because the unknown situation could be dangerous. A USCG Station Panama City UTB was launched and directed to investigate the situation.

The UTB arrived on-scene, dispatched a boarding team to the vessel, and discovered three crewmembers lying in the hold apparently deceased. The boarding team did not go into the hold for safety reasons. USCG District Eight asked District Seven to transport two gas-free engineers from the Bay County Sheriff's Department to the vessel in their HH-60 from the Air Station (A/S) Clearwater. The gas-free engineers were lowered to the vessel but were unable to access the hold due to their bulky equipment. The fishing nets were cut loose and the vessel was towed to Panama City, Florida by the station UTB. The US Federal Bureau of Investigation (FBI), MSD Panama City, Coast Guard Investigative Service (CGIS), and the local coroner were notified of the incident and met the vessel at the dock. Once at the dock, the space was certified gas-free and the coroner pronounced the crewmembers deceased. An autopsy was performed. Once the coroner was finished, the federal agencies began their investigation. The actual cause of death was not initially known. A preservative sodium meta-bisulfite was found in the hold.

NOAA Activities:

NOAA was notified of this incident on April 12, 1999, by MSD Panama City who asked for support during their investigation. All possible chemistry hazards related to the F/V *Poseidon* and the death of its three crew were investigated. The primary cause of death was linked to the misuse of the chemical preservative, sodium meta-bisulfite, combined with generally poor air quality in the hold.

After the crime investigators had completed evidence collection, the hold was cleaned by a local contractor. The FBI released the vessel to the Detached Duty Office (DDO) Panama, Florida. A preliminary, but unofficial conclusion of the criminal investigation is that foul play was not involved. Two of the crewmen were dressed in warm clothes and appeared to be engaged in shoveling ice prior to collapsing. The third was dressed in shorts and had a large cut above one eye; he is believed to have fallen from the ladder while either entering or attempting to escape the hold.

Several possible scenarios were investigated by the USCG and NOAA. These included asphyxiation by engine exhaust, misuse of chemical preservative, and formation of H₂S in the hold. DDO Panama worked with Navy Coastal System Center Chemist (NCSC) and the SSC to evaluate the potential for engine exhaust getting into the hold at hazardous levels. Air sampling began on April 15 and continued through April 16.

For an April 16 test, the owner of the vessel was requested to restart the main engine. The following chemical agents were monitored for in the hold with the main engine running: CO, CO₂, NO, NO₂, SO₂, and H₂S. CGIS believes that because the cooling system for the engine was from keel coolers and the vessel's shrimp nets were fouled in the ocean floor, the vessel was unable to move and the engine shut down from overheating. This would suggest that the engine was running after death of the crew had occurred. It also suggests that restarting the engine to evaluate the possibility of engine exhaust escaping into the hold may not be possible.

NOAA prepared a hazard characterization of possible scenarios that could have contributed to this incident.

All possible chemistry hazards related to the *Poseidon* and the death of its three crewmen were investigated. An assessment of potential chemical hazards and scenarios that could have caused or contributed to the death of the crew are postulated in this report. Since air sampling and forensic results such as blood chemistry had not been finalized or reported at this stage in the investigation, none of the following possible scenarios were eliminated. The purpose of this report is merely to present possible scenarios that could have resulted from chemical reactions aboard the vessel.

Scenario 1: Asphyxiation by Engine Exhaust. A crack in the bulkhead was observed and exhaust gases entered the hold while the generator was running. The main diesel engine had been running, but had stopped some time after the death of the crew. An exhaust leak is suspected but not confirmed. Engine exhaust entering the hold may have caused asphyxiation of the crew members. Carbon monoxide (CO) and various other fuel exhaust fumes such as NO₂ and SO₂ can cause death (IDLH for CO, NO₂, and SO₂ are 1200, 20, and 100 ppm, respectively). Additional air sampling, with both engine and generator running, should provide additional information to evaluate the possibility of this scenario.

Scenario 2: Misuse of Chemical Preservative. A chemical preservative, sodium meta-bisulfite (Na₂S₂O₅), was being used on the vessel. While commonly used, it is a potential hazard. Material Safety Data Sheets (MSDS) for this chemical state that water and ice yield sulfur dioxide (SO₂), a highly toxic gas. The chemical should be used in a well ventilated space, otherwise, SO₂, a heavier than air gas, may accumulate in low spots, such as the bottom of a hold. A more rapid evolution of SO₂ can result when sodium meta-bisulfite is in contact with a strong oxidizing agent such as chlorine bleach (a chemical also found on the vessel). The

sodium meta-bisulfite was in the hold with the victims. Misuse of the preservative may have resulted in an unsafe working environment. SO^2 has an IDLH of 100 ppm.

Scenario 3: Formation of H^2S in the Hold. Decomposing shrimp and organic material can produce hydrogen sulfide, H^2S , a highly deadly poison. H^2S has an IDLH of 100 ppm. H^2S is easily detected at low concentrations (sub ppm levels), but at higher concentrations (toxic levels) it quickly fatigues the sense of smell and is undetected. For H^2S formation to occur, the following conditions must be present:

- 1) a temperature high enough for bacteria to grow,
- 2) the absence of oxygen (at least within the shrimp, fish, and slime), and
- 3) a source of sulfur (many protein amino acid groups contain sulfur).

Again, because of the asphyxiation threat in a confined or semi-confined space and the lack of sensory detection at toxic concentrations, H^2S is a dangerous threat and a potential contributor to this event.

Scenario 4: Oxygen Displacement. The hold is a semi-confined space, the exclusion of oxygen could reduce a crewmen's ability to escape and contribute to such an incident. Asphyxiation is defined as a process by which a gas that has little or no positive toxic effect, but which can bring about unconsciousness or death by replacing air and thus depriving the organism of oxygen. Oxygen deprivation begins when oxygen concentrations are reduced to lower than 19.5%. Significant reduction in human body function occurs at concentrations approaching 16%. Oxygen displacement is another form of asphyxiation and can be caused by any of the above scenarios as well as the use of dry ice as a refrigerant (no evidence of dry ice use is known). In this incident, oxygen displacement alone probably did not cause death, but oxygen displacement might have been a co-contributor.

Since most accidents generally involved the failure of more than one system, one possibility is that more than one of the hypothetical scenarios occurred and the combination resulted in the death of the three fishermen.

In an effort to assess whether exhaust fumes had contributed to the death of the crewmen, USCG DDO Panama with NCSC chemists and the NOAA SSC collected a series of air grab samples on April 16. With the generator running for more than 3 hours and the hold closed, air samples were collected at the bottom and mid-height of both the hold and engine room. The air samples were taken directly to the NCSC laboratory for analysis. The chemistry results suggest no harmful exposure from the generator alone. The engine would not start.

While commonly used, sodium meta-bisulfite is a potential hazard. MSDS for this chemical state that water and ice yield sulfur dioxide (SO^2), a highly toxic gas. The chemical should be used in a well-ventilated space, otherwise, SO^2 , a heavier than air gas, may accumulate in low spots, such as the bottom of a hold. A more rapid evolution of SO^2 can result when sodium meta-bisulfite is in contact with a strong oxidizing agent such as chlorine bleach (a chemical also found on the vessel). The sodium meta-bisulfite was in the hold with the victims. SO^2 has an IDLH of 100 ppm. Misuse of the preservative resulted in an unsafe working environment and the death of three fishermen.

The SSC left the scene on April 17, but continued coordinating with the primary USCG investigator

References:

NOAA Hotline 373, 4 Reports

Name of Spill: Tug *Harvey Challenger*
NOAA SSC: Charlie Henry
USCG District: 8
Date of Spill: 06/09/99
Location of Spill: Galveston, Texas
Latitude: N/A
Longitude: N/A
Spilled Material: marine diesel
Spilled Material Type: 2
Amount: 1200 gallons
Source of Spill: collision
Resources at Risk: brown pelican (federal endangered), shorebirds (such as dunlins, sandpipers), wading birds (egrets, avocets, stilts), terns, skimmers, gulls, cormorants, piping plover (state and federal threatened)
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: propane barge in-tow
Shoreline Types Impacted: coastal marshes and fine-grained sand beaches
Keywords: endangered species, potential spill

Incident Summary:

In the early morning hours of June 9, 1999, the tug *Harvey Challenger* with barge, *The City of New Orleans* in tow, allided with the rock jetty at the entrance to Galveston Bay, Texas. *The City of New Orleans*, a chemical carrier, was loaded with propane. The accident holed both the tug and the barge, but neither seriously. None of the propane tanks on the barge were compromised, but the barge took on water and began to list. After first light, what initially was thought to be a small fuel oil release, appeared much greater. The tug released an estimated 1200 gallons of fuel oil (the potential spill was estimated at 5000 gallons).

The area threatened by the spill included many very sensitive wildlife resource areas. Birds were at the greatest risk of impact from this spill because they were present in very large numbers and many of the species present do not avoid oiled areas. Species present at this time were: brown pelicans (federal, endangered species), a wide range of shorebirds (such as dunlins, sandpipers), wading birds (egrets, avocets, stilts), many species of terns, skimmers, gulls, and cormorants. The piping plover (state and federal threatened) was also present. There are two areas of very high bird concentrations: the Bolivar Flats area just north of the North Jetty, and Pelican Island. Pelican Island is an important nesting area, with up to 11,000 royal terns, 5600 royal terns, and 21,000 laughing gulls nesting there. Large numbers of brown pelicans were also nesting on Pelican Island.

NOAA Activities:

NOAA was notified of this incident by MSU Galveston during the initial phase of the response when the potential for a hazardous material issue from the damaged chemical carrier was unknown. NOAA reported that the threat was low. The NOAA SST was asked to provide probable oil fate and trajectory information as well as potential resources at risk. The NOAA SSC responded on-scene. By 1200 a USCG overflight could find no recoverable oil. The overall threat from the oil spill was significantly reduced by several factors:

- 1) relative low volume released given the size of the area,

- 4) product spilled is a light oil and under the environmental conditions present, more than 50% of it evaporated in the first 6 to 8 hours, and
- 5) locally heavy thunder storms and rain probably reduced the threat and increased the rate of natural dispersion.

The MSU Galveston Commanding Officer reported, after a noon overflight, that no recoverable oil was seen. The bulk of the spilled oil had dissipated. After a final briefing, the NOAA SSC left the scene and returned to New Orleans.

References:

NOAA Hotline 377, 5 Reports

Name of Spill:	Chemical Spill
NOAA SSC:	Charlie Henry
USCG District:	8
Date of Spill:	07/10/99
Location of Spill:	Shreveport, Louisiana
Latitude:	N/A
Longitude:	N/A
Spilled Material:	2-ethyl hexanol
Spilled Material Type:	5
Amount:	19,000 gallons
Source of Spill:	train derailment
Resources at Risk:	fish
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	river closure, human health and safety
Shoreline Types Impacted:	riverine habitat
Keywords:	boom

Incident Summary:

Shortly after 0600 on July 10, 1999, there was a train incident resulting in a chemical spill into the Red River just north of the I20 Bridge at Shreveport, Louisiana. The chemical released was 2-ethyl hexanol. An estimated 19,000 gallons entered the Red River. Near this location were a number of active riverboat casinos. The first responders (State Police, Sheriff's department, and USCG reservists who live in Shreveport) took the initiative to shelter-in-place and deploy a boom. A preliminary action level of 20 ppm was established by the State. The highest measured concentration was 7 ppm. Responders were required to be in Level C with full-face respirators.

Weather at the time of the incident was light winds south to southwest at 5 to 10 knots. There is a 60% chance of thunder showers July 10, but are expected to decrease to 40% on July 11 and 12. The Red River is currently at 17.3 feet and slowly falling.

Behavior of Spilled Material:

The spilled chemical, 2-ethyl-hexanol, is a combustible liquid and an irritant, but the overall toxicity is considered low. The chemical is relatively slow to evaporate. The vapors generated are heavier than air and will collect in low areas. The chemical is lighter than water and partially soluble in water.

The bulk of the chemical will initially float on water. Most of the spilled chemical was lost to evaporation over the first few days. Some chemical was lost to the water column by dissolution, but the chemical was expected to readily biodegrade. The primary aquatic threat was acute toxicity to fish, but the chemical will not bioaccumulate or persist in the environment.

The Red River was closed between MMs 229 and 200. By the first evening, the spilled chemical had moved an estimated 7 to 10 miles down river. Some product (21,000 gallons of product and water) was recovered in the river near the source.

NOAA Activities:

NOAA was notified of this incident on July 10, 1999, by MSD Baton Rouge. The SSC provided weather, resources at risk information, a hazard characterization, and established contact with key resource trustees. Another issue investigated as part of the support provided to the USCG, was validation of the action level established on-scene for inhalation exposure. It was reported that a concentration of 20 ppm (instantaneous measurement) was being used as an inhalation action level for public safety and non-protected worker exposure. The spilled chemical doesn't have any established exposure limits, i.e., threshold limit values for airborne concentrations of substances or short-term exposure limit (STEL). As follow-up, the NOAA SSC contacted the Agency for Toxic Substances and Disease Registry (ATSDR) and briefed him on the incident. After a very good discussion and review of what data was available, ATSDR was in general agreement that the 20 ppm value was a safe and conservative indicator for the initial response phase.

References:

NOAA Hotline 383,7 Reports

Name of Spill:	Shell Pipeline
NOAA SSC:	Stephen Thumm
USCG District:	8
Date of Spill :	7/23/99
Location of Spill:	Atchafalaya Bay, Louisiana
Latitude:	28°26' N
Longitude:	091°02' W
Spilled Material:	light condensate with an API of 35
Spilled Material Type:	1
Amount:	3700 barrels
Source of Spill:	pipeline
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	none

Incident Summary:

On Friday July 23, 1999, the Shell Oil pipeline control station showed a pressure drop. The cause of the pressure drop was traced to a jack-up drilling rig sitting on top of one of the company's pipelines approximately 30 miles south-southeast of Atchafalaya Bay, Louisiana in Ship Shoal Block 241. A slick 1/4 nm wide by 4 nm long consisting of silver and rainbow sheen was seen near the incident. Shell Oil set up a command post in their offices at One Shell Plaza, New Orleans and MSO Morgan City assumed the FOSC role.

On the day of the incident, three overflights were conducted one by the USCG and two by the RP. The USCG and RP flights confirmed a slick of approximately 1/4 nm wide by 4 nm of silver and rainbow sheen oriented to the southeast. The second RP flight also confirmed the size and characteristics of the slick and continued on to conduct a long-range search for any other slicks that may be associated with this incident. No other oil was found. The option to use dispersants was immediately investigated, but was later determined not appropriate.

At the time of the incident the winds were from the northwest at 10 knots, seas were 2 feet, and the temperature was in the low 80s.

Behavior of Spilled Material:

The oil formed a slick of approximately 1/4 nm wide by 4 nm long of silver and rainbow sheen oriented to the southeast. The reported spilled oil was a condensate with an API of 35. Given this type of oil and the winds at the time, evaporation rather than dispersion into the water column was the major natural mechanism for oil removal.

Countermeasures and Mitigation:

The jack-up drilling rig was left in place until the condition of the pipeline could be determined and repair equipment arrived on-scene.

NOAA Activities:

NOAA was notified of this incident on July 23, 1999, by MSO Morgan City and was asked to provide a trajectory analysis, weather, and to estimate the fate and effect of the product. At the request of MSO Morgan City, NOAA provided on-scene support at the Shell Oil command post.

NOAA supported this response on-scene at the Shell Oil command post in New Orleans for one day.

References

NOAA Hotline 386, 5 Reports.

NOAA. 1993. *ADIOS™ (Automated Data Inquiry for Oil Spills) User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill: Pipeline Break
NOAA SSC: Charlie Henry
USCG District: 8
Date of Spill: 07/30/99
Location of Spill: Ramah, Louisiana
Latitude: N/A
Longitude: N/A
Spilled Material: crude oil
Spilled Material Type: 2
Amount: unknown
Source of Spill: pipeline failure
Resources at Risk: waterfowl
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: riverine and fringing wetlands
Keywords: boom, drum skimmer, sorbent pads, vacuum truck

Incident Summary:

MSO New Orleans received a report of an oil spill in Ramah, Louisiana at a facility owned by Bridas Energy of Houston, Texas. The spill site was located approximately 5 miles south of Interstate 10 on the east side of the Atchafalaya Basin Floodway Levee. A 3-inch transfer line carrying crude oil and production water cracked and spilled an estimated 100 barrels of crude oil onto the facility. Once the leak was discovered, the line was shut in and a small dam was constructed to contain the oil in the drainage ditch. An undetermined amount of oil entered Bayou Henry through this ditch. Fortunately, there was little or no current in the bayou and the oil was contained between two sets of booms. Response personnel were dispatched from MSD Baton Rouge to act as FOSC. The owner of the facility hired Cenac Environmental to clean up the spilled oil. Herding the oil with water hoses into boom and drum skimmer resulted in effective oil recovery in the bayou. The cleanup crews used a combination of flushing and sorbent pads to clean the oiled shoreline.

Behavior of Spilled Material:

Most of the oil remained in the small drainage area but some overflowed into Bayou Henry. Between the leak point and Bayou Henry was a heavily oiled drainage area that measured approximately 100 yards long. At the time of the site visit, 105 barrels of oil were recovered on the first day. A like amount of oil, another 100 barrels remained to be collected when the SSC left. Oil in the ditch was still several inches thick. Worker safety included on-site monitoring for volatile hydrocarbons (in particular benzene) and an ambulance on standby at the cleanup site. Gross oil removal continued for several days. Wildlife impacts were limited since the oil was well contained in a small area.

NOAA Activities:

NOAA became involved in this response during the evening of July 30, 1999, when the USCG MSD Baton Rouge Supervisor contacted the SSC about an oil spill in the Atchafalaya Basin. After a short phone call with the MSD Supervisor, the SSC agreed to meet the next morning to view a videotape of the spill and discuss issues surrounding the response. Cleanup crews were already working, the source had been stopped, and containment was in place. A USCG overflight reported no downstream oiling. A limited downstream walking

survey showed no evidence of oil outside the initial containment area in the bayou. Approximately 100 yards of riverine shoreline was oiled.

NOAA, MSD, and the state discussed final cleanup criteria. The potential for wildlife impacts was limited because the oil was well contained in a small area. No oiled wildlife was observed. The SSC continued to work with the FOOSC and state resource managers in a technical advisor role as needed.

References:

NOAA Hotline 388, 3 Reports

Name of Spill: Ohio River Barge Collision
NOAA SSC: LCDR Jason H. Maddox
USCG District: 8
Date of Spill: 8/9/99
Location of Spill: Mount Vernon, Indiana
Latitude: N/A
Longitude: N/A
Spilled Material: gasoline
Spilled Material Type: 1
Amount: 69,000 gallons
Source of Spill: barge
Resources at Risk: **Fish:** catfish (channel, blue and flathead) bluegill, numerous juvenile fish in the sheltered and vegetated shorelines of the islands (especially Slim Island).
Shellfish: mussel beds, fat pocketbook mussel (federally endangered species)
Birds: sandpipers and kingfishers, bank swallow (State species of concern)
Mammals: beaver, mink, muskrat, river otter.
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: unvegetated to low vegetated riverbanks
Keywords: boom, evaporation

Incident Summary:

On August 9, 1999, a tug pushing a load of barges lost steerage at Mile 828 on the Ohio River a mile up from the town of Mount Vernon, Indiana. The starboard leading barge, containing gasoline, careened into a nested barge, containing cumene, on the Kentucky side of the river. The resultant collision caused gasoline to pour into the water through a breach in the starboard side of the barge. Both barges remained together after the collision. Weather called for light winds shifting from the southwest, dry, and temperature in the 80s.

The major concern of the responders was the Mount Vernon water intake located 1 mile downstream from the collision site. The city secured the water intake and boomed off the location immediately following the incident. The City of Mount Vernon Water Company was concerned that the closure of the water supply allowed only 6 to 8 hours more water usage and by 10 that night they would run dry. Ohio River Valley Water Sanitation Commission was contacted to conduct flourometer readings and sampling to establish if the City Water Co. could re-open the water intake long enough to fill their storage tanks. The result of the test was favorable and the intake was re-opened with an additional "boil water order" from the Mayor for residents of Mount Vernon.

The companies that owned the two barges, Marathon Ashland Petroleum and Waxler Towing, worked together with MSO Louisville to initialize a Unified Command.

Midnight phone calls came from a General Electric Plant complaining that some workers were getting sick from a noxious odor. An air monitoring team was dispatched to the plant with Drager Tubes to detect benzene and toluene. The team did not record any detectable amounts. The Unified Command requested the planning section draw up an air monitoring

plan and deploy air monitoring teams at key sensitive areas including the General Electric Plant..

Air and water monitoring continued throughout the night. At daybreak on August 11, an overflight was conducted by USCG, NOAA, and RPs. The spilled gasoline was still in the vicinity of the collision with virtually no movement downstream and only a slight movement upstream from the two barges. This lack of movement was attributed to the light southwest wind and the lack of current at this location on the river.

The third day focused on moving the barges apart and berthing them in a safe place to conduct lightering operations. A salvage plan from the RPs was reviewed and accepted. During the operation, foam was used to blanket the two barges and reduce the threat of explosion or fire. The event was successful and each barge was towed to a location for lightering.

The following day's overflight revealed that the gasoline had evaporated significantly. No visible sheens could be spotted from the air.

Behavior of Spilled Material:

The gasoline formed a rainbow slick encompassing both banks of the Ohio River. Movement either upstream or downstream did not occur. The gasoline sat in place until its monoaromatics dissolved and evaporation removed it from the surface. The river current at this location was less than a 0.1 knot. No gasoline was recovered. The Unified Command decided not to contain or recover the spilled product due to its high volatility,

Countermeasures and Mitigation:

Traffic was stopped for 3 days and large backups of vessels were laying to in both directions.

SCAT, made up of NOAA, USFWS, RP, and State representatives, surveys were conducted on both sides of the river. There were shoreline impacts adjacent to the collision site and the consensus for cleanup was to let the area recovery naturally.

NOAA Activities:

NOAA was notified of this incident on August 9, 1999, by MSO Louisville who requested an ADIOS Budget Table for the gasoline showing the predicted rate of evaporation. The MSO also asked for on-scene support from NOAA and the USCG Strike Team.

NOAA told MSO Louisville that gasoline has a high evaporation rate. ADIOS predicted a 70% decrease in volume within the first 24 hours and would be nearly gone in 48 hours.

When the SSC and USCG Strike team arrived on-scene, water monitoring operations to observe the extent of contamination began. The fluorometers the Strike Team had were not calibrated for freshwater environments and were limited to only collecting water samples for laboratory analysis.

The SSC provided ADIOS, resources at risk, weather, and response considerations for cumene. The response phase lasted 3 days. The SSC participated in the construction of air monitoring plans, water monitoring, soil sampling plans, and site safety plans.

References

NOAA Hotline 389, 12 Reports

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) User's Manual. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

Incident Name:	Incident: Blue Marine
Case No.:	Charles Hays
Spilled Material:	08/27/96
Spilled Material Type:	Oil
Amount:	120 barrels
Source of Spill:	collision
Location of Spill:	near
Dispersion:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	EPA concern
Shoreline Types Impacted:	Beach and sand beach
Keywords:	dispersant, Corros 950

Incident Summary:

On August 27, 1996, there was a collision between tugboat and shrimp boat 30 miles south southeast of Galveston, Texas. The tugboat Blue Marine suffered two grades 1 and 2 waters above the waterline and along a tank containing 120 barrels of fuel oil. Oil was in the water. Initial estimates of the volume released ranged between 30 and 315 barrels (120 barrels was the final estimate). Given the persistence of heavy fuel oil, the threat to coastal resources, and the potential for shoreline oiling, dispersants were considered. After an initial survey at night, more oil was discovered. Based on the real-time observations it was decided to use dispersants.

At approximately 1800, a DC-4 arrived and sprayed dispersant on the 3-in by 3-in oil slick. A total of 200 gallons of Corros 950 was applied to the slick. An overflight August 30 showed a 4-mile long slick, and 30 miles offshore. Observation conditions were good light and obscuring calm seas. No black oil was visible, only sheen. Visually it was difficult to determine efficacy (proof of action) because there was very little surface ruffling energy. The rate of dispersant was predictably slow. Turbidity was still a threat to the shoreline, but not for several days. Special Monitoring of Advanced Response Technologies (SMART) was not deployed since it was logistically impossible to get the team on-scene in time.

Behavior of Spilled Material:

In less than a week, strong south winds blew scattered turbidity onto Galveston beaches at the start of Labor Day weekend. County cleanup crews suspended with assistance from the USCG and the State of Texas. Heavy fuel oils are highly persistent. Only a tiny fraction of the oil spilled was collected up the beach. The lack of significant beach oiling was credited as a positive result of the dispersant being applied. Shoreline impact was negligible and the cleanup required just a few hours.

Other Special Interest:

The response to the Blue Marine incident drew much criticism from the EPA. The EPA was concerned over the use of dispersants on heavy oil despite the fact that Corros 950 was

The first day of the... monitoring... structures... including...

The second day... monitoring... structures... including...

The third day... monitoring... structures... including...

The fourth day... monitoring... structures... including...

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Monitoring... structures...

The sixth day... monitoring... structures... including...

The seventh day... monitoring... structures... including...

Monitoring... structures...

The eighth day... monitoring... structures... including...

The ninth day... monitoring... structures... including...

The tenth day... monitoring... structures... including...

The eleventh day... monitoring... structures... including...

Name of Spill: Freighter *Blue Master*
NOAA SSC: Charlie Henry
USCG District: 8
Date of Spill: 08/27/99
Location of Spill: Galveston, Texas
Latitude: N/A
Longitude: N/A
Spilled Material: IFO-180
Spilled Material Type: 4
Amount: 110 barrels
Source of Spill: collision
Resources at Risk: birds
Dispersants: Y
Bioremediation: N
In-situ Burning: N
Other Special Interest: EPA criticism
Shoreline Types Impacted: fine-grained sand beaches
Keywords: dispersant, Corexit 9500,

Incident Summary:

On August 27, 1999, there was a collision between a freighter and shrimp boat 30 miles south-southeast of Galveston, Texas. The freighter *Blue Master* suffered two gashes 1 and 2 meters above the waterline and along a tank containing IFO 180 (a bunker-type fuel oil). Oil was in the water. Initial estimates of the volume released ranged between 50 and 315 barrels (110 barrels was the final estimate). Given the persistence of heavy fuel oil, the threat to coastal resources, and the potential for shoreline oiling, dispersants were considered. After an afternoon overflight, more oil was discovered. Based on this and previous observations it was decided to use dispersants.

At approximately 1830, a DC-4 arrived and sprayed dispersant on the 3-nm by 5-m oil slick. A total of 700 gallons of Corexit 9500 was applied to the slick. An overflight August 30 showed a 4-mile long sheen, still 30 miles offshore. Observation conditions were good light and absolutely calm seas. No black oil was visible, only sheen. Visually it was difficult to determine efficacy (proof of action) because there was very little surface mixing energy, the rate of dispersion was predictably slow. Tarballs were still a threat to the shoreline, but not for several days. Special Monitoring of Advanced Response Technologies (SMART) was not deployed since it was logistically impossible to get the team on-scene in time.

Behavior of Spilled Material:

In less than a week, strong south winds blew scattered tarballs onto Galveston beaches at the start of Labor Day weekend. County cleanup crews responded with assistance from the USCG and the State of Texas. Heavy fuel oils are highly persistent. Only a tiny fraction of the oil spilled was collected on the beach. The lack of significant beach oiling was credited as a positive result of the dispersant being applied. Shoreline impact was negligible and the cleanup required just a few hours.

Other Special Interest:

The response to the *Blue Master* incident drew much criticism from the EPA. The EPA was concerned over the use of dispersants on heavy oil despite the fact that Corexit 9500 was

formulated to work on high viscosity oils. An overflight the next morning did not identify any surface oil, but without SMART monitoring data, efficacy could only be speculated.

NOAA Activities:

NOAA was notified of this incident on August 27, 1999, by MSU Galveston who requested weather forecasts, tactical trajectories, probable fate, and dispersability assessment of the spilled oil.

The initial overflight saw a 1- by 3-mile light sheen with some streamers of black oil, which is consistent with the estimate of the oil lost, but the Ship's master reported that he may have lost as much as 315 barrels.

The SSC advised that Corexit 9500 could be used but even with the newly formulated dispersant, effectiveness could not be guaranteed. From a coastal protection prospective, even if not completely effective, dispersants would help break the heavy oil streamers into small tarballs, enhancing physical dissemination and weathering. In effect, reducing the threat to the shoreline.

On September 4, 1999, tarballs were observed on Galveston Beach. They were weathered and ranged from several inches to several feet in size. The NOAA SSC was asked if these tarball could have been from the *Blue Master* incident. After a trajectory evaluation, NOAA concluded that it was possible they were from the *Blue Master* release. The only way to confirm if any of this oil is related to the *Blue Master* release is through analytical chemistry, i.e., source fingerprinting. Multiple tarball samples should be collected and placed in separate jars since different tarballs could have come from different spills. The SSC suggested that five to seven different samples be collected for analysis. Cleanup of the impacted beaches was done by manually picking up the tar using standard physical recovery techniques. The total amount of oil recovered on the beach was estimated at less than 5 gallons.

References:

NOAA Hotline 391, 8 Reports

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	F/V Gussie <i>Flynn</i>
NOAA SSC:	Stephen Thumm
USCG District:	8
Date of Spill:	9/14/99
Location of Spill:	Deer Island, Mississippi
Latitude:	30°19' N
Longitude:	088°51' W
Spilled Material:	ammonia
Spilled Material Type:	5
Amount:	250 gallons
Source of Spill:	fishing vessel
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	RIDS

Incident Summary:

At approximately 0900 on April 14, 1999 MSO Mobile was notified of an engine room fire aboard the F/V Gussie *Flynn* approximately 3 nm south of Deer Island, Mississippi. The F/V Gussie *Flynn* is a 167-foot poggy boat carrying 3500 gallons of diesel, 250 gallons of ammonia refrigerant, and 75 gallons of propane. At approximately 1200 the fire was extinguished by two USCG vessels on-scene and the engine room was covered with a thick layer of foam to prevent a re-flash. Ammonia was released from the tanks (located on the main deck) into the atmosphere during the fire, no diesel was spilled into the water.

At the time of the incident the winds were from the north-northeast at 20 knots, seas were choppy, visibility was unrestricted, and the temperature was in the low 80s.

Behavior of Spilled Material:

No oil was lost, but during the fire the ammonia was released and dispersed downwind.

NOAA Activities:

NOAA was notified of this incident on April 14, 1999, by MSO Mobile. NOAA **supplied** weather forecasts and trajectory, ADIOS, and CAMEO information.

References

NOAA Hotline #366, 27 Reports.

NOAA. 1993. ADIOS™ (*Automated Data Inquiry for Oil Spills*) *User's Manual*. Seattle: Hazardous Materials Response and Assessment Division, NOAA. 50 pp.

NOAA. 1993. *The CAMEO™ 4.0 Manual*. Washington, D.C.: National Safety Council. 440 pp.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA was notified of this incident on April 14, 1999, by MSO Mobile. NOAA supplied weather forecasts and trajectory, ADCS, and CAMEQ information.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA 1992. The CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA was notified of this incident on April 14, 1999, by MSO Mobile. NOAA supplied weather forecasts and trajectory, ADCS, and CAMEQ information.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

At the time of the incident the winds were from the north-northeast at 20 knots and visibility was unrestricted, and the temperature was in the low 30s.

Behavior of Spilled Material

The oil was lost but during the the slick was released and dispersed downward.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA was notified of this incident on April 14, 1999, by MSO Mobile. NOAA supplied weather forecasts and trajectory, ADCS, and CAMEQ information.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

NOAA was notified of this incident on April 14, 1999, by MSO Mobile. NOAA supplied weather forecasts and trajectory, ADCS, and CAMEQ information.

NOAA 1987. ADCS™ Automated Data Facility for Oil Spills (AOS™ Manual, Seattle). Hazardous Materials Response and Assessment Division NOAA. 20 pp.

NOAA 1993. THE CAMEQ™ 4.0 Manual. Washington, D.C.: National Safety Council. 260 pp.

Forjeman, Gary M. 1984. The on-scene spill model: a user's guide. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	M/V <i>Algotario</i>
NOAA SSC:	LCDR Jason H. Maddox
USCG District:	9
Date of Spill:	4/5/99
Location of Spill:	Middle Neebish Channel, Michigan
Latitude:	46°15' N
Longitude:	084°06' W
Spilled Material:	cement, #2 diesel,
Spilled Material Type:	2
Amount:	382.8 metric tons of IFO, 98.2 metric tons of diesel, and a full cargo of cement
Source of Spill:	bulk carrier
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted	none
Keywords:	potential

Incident Summary:

On April 5, 1999, the M/V *Algotario* ran aground in the St. Mary's River near Johnson's Point in Middle Neebish Channel. No release of cargo or fuel bunkers was seen during the initial USCG overflight.

The vessel grounded on the Canadian side of the river, and for the most part, Canadian interests conducted the response efforts. However, the grounding posed a high risk of contamination that would involve United States' efforts if a spill were to happen.

By day two, the vessel's Oil Spill Response Organization (OSRO) had boomed off the ship and lightering operations were underway. OSRO are many cleanup agencies or companies that can be contracted by a vessel that has a U.S. port on its itinerary. The names of OSRO's are supplied to the vessel by the USCG to be used voluntarily to secure an agency to perform cleanup operations during the ship's transit in US waters. The Canadians have a similar program but they are called simply ROs (Response Organizations). The National Strike Team (NST) Coordination Center reviews each company that wishes to be included on the OSRO list. They must meet certain criteria to be allowed as a response organization. Once approved any vessel determines which OSRO will be suitable for their area of transit and what they are carrying. Or they may contract an organization elsewhere to suit their's and the USCG's needs.

On day three the vessel was successfully pulled off and anchored for a hull inspection by divers. There was no major damage to the vessel's integrity so she was allowed to steam to a dry dock facility for repairs.

The USCG monitored the situation.

Countermeasures and Mitigation:

Vessel traffic was re-routed to the other side of Neebish Island.

NOAA Activities:

NOAA was notified of this incident on April 5, 1999, by the USCG who requested resources at risk, weather information, and a trajectory analysis. The SSC supported the USCG by phone and was on standby during the incident.

References:

NOAA Hotline 371, 5 Reports

Research Planning Institute. 1986. St. Mary's River (part 1 of 2). Supplement to the Joint Canada-United States Marine Pollution Contingency Plan for spills of oil and other noxious substances. Seattle: Office of Oceanography and Marine Assessment. NOAA. 15 maps.

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill:	U.S. Coast Guard District 11	
NOAA SSC:		
TV Command		93
M/V <i>Hollandic Confidence</i>		95
Fishing Boat Aground		97
Spilled Material Type:		
Rosarita Facility		99
Mystery Spill		101
Spill Of California Coast		105
M/V <i>Gardenia Ace</i>		107
Dredge <i>Stuysevant</i>		109
Bioremediation:		
In-situ Burning:		
Shoreline Types Impacted:		
Keywords:		

Incident Summary

On September 28, 1994, a USCG overflight identified an oil slick approximately 1100 yds offshore San Francisco Bay northwest of Point San Pedro. The mystery slick (later identified as the result of a faulty fuel transfer aboard the L/V *Command*) contained a mixture of black oil, motor oil, and diesel. On September 29 NOAA sent a team on-scene.

By October 2 very little recoverable oil or debris was seen during the overflight and the PCSC released the NOAA team. Tarballs had impacted Pillar Point, Thompson Beach, Air Force Beach, Fitzgerald Marine Reserve, and San Gregorio Beach and cleanup crews had been dispatched to continue the cleanup.

Impacts to Wildlife

Impacts to wildlife, especially birds were reported by the International Bird Science and Research Center. They reported that Common Murre (52 live/ 36 dead), Glaucous-winged Western Gull Hybrid (1/0), Greater White-headed Gull (1/0), Shearwater (2/2), Western Gull (4/2) and dead were Common Loon (1), Sooty Shearwater (2), Western Grebe (1), Brown Pelican (2), Brandt's Cormorant (2), Cormorant (2), Red-tailed Gull (1) had been recovered.

Behavior of Spilled Material:

The IFO seemed to readily form into tarballs that made visual observations very difficult. Worthy of note in this incident was the irregularity of the debris current given the weak variable winds. A northwest movement of this oil would have threatened the Gulf of the Farallones, a National Marine Sanctuary and an essential habitat for sea turtles and pinnacled.

Name of Spill: T/V *Command*
NOAA SSC: Jim Morris
USCG District: 11
Date of Spill: 09/28/98
Location of Spill: San Francisco, California
Latitude: 37°40' N
Longitude: 122°40' W
Spilled Material: IFO 180
Spilled Material Type: 2
Amount: 5000 gallons (rough approximation)
Source of Spill: tank vessel
Resources at Risk: Marine Mammals: sea lions, seals, population concentration areas, haulouts, seasonal use areas
Birds: diving coastal birds, shorebirds, gulls, foraging areas
Recreation: beaches, marinas, state parks
Management Areas: marine sanctuaries (Gulf of the Farallones, Monterey Bay)
Dispersants: N
Bioremediation: N
In-situ Burning: N
Shoreline Types Impacted: exposed fine-sand beaches, fine-sand beaches, sand/gravel beaches, wave-cut platforms
Keywords: endangered species, evaporation, International Bird Rescue and Research Center, skimming, volunteers

Incident Summary:

On September 28, 1998, a USCG overflight identified an oil slick approximately 10 nm offshore San Francisco Bay northwest of Point San Pedro. The mystery slick (later identified as the result of a faulty fuel transfer aboard the T/V *Command*) contained streamers of black oil, mousse, and sheens. On September 29 NOAA sent a team on-scene.

By October 2 very little recoverable oil or tarballs were seen during the overflight and the FOSC released the NOAA team. Tarballs had impacted Pillar Point, Pomponio Beach, Air Force Beach, Fitzgerald Marine Reserve, and San Gregorio Beach and cleanup crews had been dispatched to continue the cleanup.

Impacts to Wildlife:

Impacts to wildlife, especially birds were reported by the International Bird Rescue and Research Center. They reported that Common Murres (52 live/ 36 dead), Glaucous-winged Western Gull Hybrid (1/0), Greater White-fronted Goose (1/0), Shearwater (2/2), Western Gull (4/2) and dead were Common Loon (1), Sooty Shearwater (1), Western Grebe (1), Brown Pelican (2), Brandt's Cormorant (1), Cormorant (1), Eared Grebe (2), California Gull (1) had been recovered.

Behavior of Spilled Material:

The IFO seemed to readily form into tarballs that made aerial observations very difficult. Worthy of note in this incident was the irregularity of the coastal current given the weak variable winds. A northwest movement of this oil would have threatened the Gulf of the Farallones, a National Marine Sanctuary and an essential habitat for sea birds and pinnepeds.

Other Special Interest Issues:

Media interest was surprisingly high given the relatively small amount of oil spilled. Media from several nations were given briefings by the Unified Command and the Joint Information Center. The Command also gave interviews to CNN and NPR during the course of the week.

Volunteers from the Gulf of the Farallones National Marine Sanctuary's Beach Watch Program were mobilized at the outset of the response to investigate impacts to the shoreline and to report any impacts to wildlife. As the response progressed these volunteers were utilized and incorporated in SCAT surveys.

NOAA Activities:

NOAA was notified of this incident on September 28, 1999, by MSO San Francisco and requested on-scene support. The SSC and a trajectory analyst went on-scene. Trajectory model runs, weather reports, and situational and overflight maps were provided by the Home Team in Seattle. The SST attended daily command briefs and Incident Action Plan meetings. Additionally, the SSC provided input for a brief to Coast Guard PACAREA, VADM Collins and represented the Unified Command on an incident brief to the Advisory Council for the Monterey Bay National Marine Sanctuary.

NOAA conducted a morning overflight on September 30 and reported that the slick had been reduced to widely scattered tarballs and silver sheen. Based on this observation, the Unified Command determined that two recovery vessels would be deployed to conduct skimming operations. Tarballs appeared to be concentrating in convergence zones, bringing about concerns for impacts to rafting birds.

NOAA trajectories forecast that tarballs would tend towards the southeast and that impacts were to most likely be from San Gregorio to Point Ano Nuevo. On October 1 a morning overflight, coupled with information from a USCG Data Buoy Marker, indicated that the weak and variable wind conditions had caused a reversal in the coastal current. This caused the tarball fields to move slightly to the northwest, but for the most part they were stationary. Farther to the south, tarballs impacted Pebble and San Gregorio beaches and cleanup crews were dispatched.

NOAA provided the on-scene support from September 28 through October 2.

Reference:

NOAA Hotline 334, 27 Reports

Torgrimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill: M/V *Hollandic Confidence*
NOAA SSC: Heather Parker Hall
USCG District: 11
Date of Spill: 03/04/99
Location of Spill: Cape Mendicino, California
Latitude: 40° 01.9' N
Longitude: 124° 42' W
Spilled Material: bulk sulfur, IFO, MFO
Spilled Material Type: 5, 3, 4
Amount: 17,135 metric tons sulfur, 169,000 gallons IFO, 23,000 gallons MFO
Source of Spill: non-tank vessel
Resources at Risk: Marine Mammals: sperm whales, beaked whales, dolphins, and porpoises, fur seals.
Birds: common murre, cassin's auklets, rhinoceros auklet, and resident tubenoses such as storm petrels.
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: exposed rocky cliffs, wave-cut platforms, sand beaches, mixed sand and gravel beaches, gravel beaches.
Keywords: potential spill

Incident Summary:

On March 4, 1999, a bulk freighter, the M/V *Hollandic Confidence*, was in danger of sinking 30 miles west of Cape Mendicino, California. The ship started taking on water in her forward No. 1 cargo hold when the hatch cover was ripped open in a severe storm on Wednesday, March 3. The ship was transporting 17,135 metric tons of sulfur in four holds. In her fuel tanks were approximately 169,000 gallons of IFO and 23,000 gallons of marine grade fuel oil. The vessel steamed to San Francisco Bay with two USCG vessel escorts without losing any product. The USCG sent a helicopter and two vessels on-scene and the response lasted approximately 1 week.

Other Special Interest Issues:

Adverse weather conditions caused a hatch cover of a cargo hold to rip off, allowing water into the ship. The ship's captain and crew did an admirable job at keeping the ship afloat for the remainder of its journey into San Francisco Bay, despite continued adverse conditions.

NOAA Activities:

NOAA was notified of this incident on March 4, 1999, by MSO San Francisco. The California SSC was responding to the M/V *New Carissa* spill in Oregon, at the time, so the HAZMAT Home Team handled the initial request for trajectory information, weather, ecological resources at risk, and information on health and safety concerns of bulk sulfur should there be a spill. The Home Team continued to monitor the situation and stayed in contact with the MSO throughout the vessel's transit to San Francisco Bay.

Reference:

NOAA Hotline 367, 4 Reports

Other Special Interest Areas: M/V Hollandia (1988) ...
 NOAA 8803
 NOAA 8804
 NOAA 8805
 NOAA 8806
 NOAA 8807
 NOAA 8808
 NOAA 8809
 NOAA 8810
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 NOAA 8889
 NOAA 8890

Name of Spill: Fishing Boat Aground
NOAA SSC: Heather Parker Hall
USCG District: 11
Date of Spill: 03/30/99
Location of Spill: Pillar Point, California
Latitude: 37°30' N
Longitude: 122°30' W
Spilled Material: diesel
Spilled Material Type: 2
Amount: 500 gallons
Source of Spill: fishing vessel
Resources at Risk: Marine Mammals: harbor seals (pupping), gray whales
Birds: snowy plovers (a threatened species), alcids, diving birds, wading birds, shore birds (most birds are in a nesting stage)
Fish: anadromous fish chinook and coho salmon, steelhead trout, rockfish species, California halibut, night smelt are spawning
Shellfish: dungeness crab, red sea urchin
Human Use Resources: Monterey Bay National Marine Sanctuary, James Fitzgerald Marine Reserve, boat ramp and hoist inside Pillar Point Harbor
Recreation: boating, beaches
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted:: riprap, wave-cut platforms, mixed sand and gravel beach, fine- to medium-grained sand beach, sheltered manmade structures, salt marsh inside Pillar Point Harbor.
Keywords: evaporation, sorbent boom, threatened species

Incident Summary:

A 40-foot fishing vessel ran aground at Pillar Point, California at about 2130 hours on March 3, 1999. The vessel, estimated to have 500 gallons of diesel fuel onboard, started leaking at about 1700 hours on March 31. Weather at the time of the incident was northwest winds 20 to 25 knots. The RP hired a cleanup contractor to remove a small amount of sheen.

This area is inshore of the boundaries of the Monterey Bay National Marine Sanctuary. Also, the James Fitzgerald Marine Reserve is located in the vicinity, starting at Pillar Point and extending along the coastline north about 2 miles, and offshore about 0.5 nm. There is a boat ramp and a hoist inside Pillar Point Harbor and numerous access points. Recreational boating is common in this area, and there are several recreational beaches to the south of Pillar Point Harbor. Half Moon Bay Airport is located within a mile of the harbor.

Behavior of Spilled Material:

A ribbon of rainbow sheen, about 0.5 nm long was observed near the vessel. The spilled diesel had spread out into thin sheen. Areas impacted were some riprap near the vessel. The amount of product spilled is unknown, but estimated to be < 50 gallons.

Countermeasures and Mitigation:

The source of the spill was controlled at the incident site and the vessel was removed by her owner.. Precautionary protection of sensitive areas was in place. Open-water recovery consisted of the RP's cleanup contractor using sorbent boom and other sorbent material to absorb diesel sheens near the vessel and near the stained riprap.

NOAA Activities:

NOAA was notified on this incident on March 31, 1999, by MSO San Francisco who requested the SSC participate in an overflight to search for oil at first light the next day. NOAA also provided weather, tides, and an overflight map. Since there was so little floating product and this product evaporates rapidly, no specific trajectory was prepared. A generic rajectory analysis was provided to the MSO, and the SSC monitored the situation throughout the cleanup. NOAA's support lasted 2 days.

Reference:

NOAA Hotline 370, 5 Reports

Name of Spill:: Rosarito Facility
NOAA SSC:: Heather Parker Hall
USCG District: 11
Date of Spill: 05/13/99
Location of Spill: Rosarito Beach, Mexico
Latitude: 32°21' N
Longitude: 117°04' W
Spilled Material: IFO 380
Spilled Material Type: 4
Amount: 1000 barrels
Source of Spill: submerged pipeline
Resources at Risk: (United States territory only)
Habitats: kelp, sea grass beds.
Marine Mammals: California sea lion
Birds: brown pelican (endangered species, nesting and laying), California least tern (endangered species, nesting and laying), diving birds, gulls, raptors, shorebirds, western snowy plover (threatened species, nesting and laying) diving birds, shorebirds, and wading birds (nesting and laying).
Fish: California halibut, grunion (spawning).
Shellfish: California jackknife clam, gaper clam (larval stages), Pacific razor clam, pismo clam.
Reptiles: green sea turtles (endangered species).
Plants: giant kelp, eelgrass, and salt marsh bird's-beak (endangered species).
Human Use Resources: Tijuana Ecological Estuary Reserve, Tijuana River National Estuarine Research Reserve System, Emory Cove Wildlife Preserve (inside San Diego Bay), Chula Vista Wildlife Reserve (inside San Diego Bay), Silver Strand State Beach on shoreline, Chula Vista Marina, water intake for San Diego Gas and Electric
Recreation: high recreational beach use, commercial and recreational fishing
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none:
Shoreline Types Impacted: fine- to medium-grained sand beaches, exposed tidal flats, marshes, riprap, sheltered tidal flats (within San Diego Bay),
Keywords: endangered species, evaporation

Incident Summary:

At approximately 1500, May 13, 1999, a tank vessel approximately 1700 meters (m) offshore Rosarito Beach, Mexico noted an oil leak from the shore-based pipeline they were pumping to. Weather at the time of the incident was winds at 10 knots from the south. An estimated 1000 barrels of a heavy fuel oil were released offshore. The RP hired contractors to clean shorelines in Mexico. The USCG arranged for an overflight in Mexican airspace using a USCG helicopter.

Behavior of Spilled Material:

The spilled product formed slicks, sheen, and mousse while floating. Observations from cleanup contractors in Mexican territory indicated heavy oiling within the first 3 kilometers north of the facility, and lighter oiling within 5 miles of the US-Mexican border. The amount of product spilled was an estimated 1000 barrels. The amount recovered is unknown.

Countermeasures and Mitigation:

The spill was controlled at the incident site, the PEMEX facility stopped pumping as soon as the leak was identified. Some precautionary protection of sensitive areas was implemented at the mouth of the Tijuana River National Estuarine Research and Reserve. Shoreline cleanup efforts were concentrated along Mexican beaches as were removal and disposal of the spilled material.

Other Special Interest Issues:

Some issues of concern (should oil have reached U.S. territory) were the effects to tourism, recreation areas, or personal property. There could have been a closure of commercial or recreational fishing areas and public lands. Impacts to wildlife and rehabilitation. Ecological destruction, and habitat loss due to spilled material impacts; and due to cleanup operations. Interaction with Mexican authorities was pivotal in allowing a USCG helicopter to conduct overflights in Mexican airspace, over Mexican waters. Initially media interest was high.

NOAA Activities:

NOAA was notified of this incident on May 13, 1999, by the USCG who requested on-scene support and participated in an overflight.

NOAA provided trajectories and analysis, weather, SCAT input, and overflights into foreign territory. The SSC also acted as liaison between NOAA's Tijuana River National Estuarine Research and Reserve and Mexican authorities. NOAA's supported this incident for 3 days.

Reference:

NOAA Hotline 375, 10 Reports

Name of Spill: Mystery Spill
NOAA SSC: Heather Parker Hall
USCG District: 11
Date of Spill: 07/18/99
Location of Spill: Florence, Oregon
Latitude: 44°0.0' N
Longitude: 124°15.0' W
Spilled Material: weathered tarballs
Spilled Material Type: unknown
Amount: N/A
Source of Spill: unknown
Resources at Risk: **Marine Mammal:** harbor seals, northern sea lions and California sea lions.
Birds: western snowy plover (threatened species), gulls, black oystercatchers, pigeon guillemots, cormorants, sandpipers, and pelicans.
Fish: anadromous fish (chinook and coho salmon, outmigrating, and steelhead); Pacific herring.
Shellfish: dungeness crab, razor clams, gaper clams, and mussels are present along the outer coast, while inside the bays are cockle, gaper, butter and soft-shell clams, dungeness crab, and oyster farms.
Recreational Areas: outer shoreline includes high- use public beaches.
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: sand beaches, rocky headlands, exposed wave-cut platforms, sheltered tidal flats, marshes, exposed tidal flats, riprap.
Keywords: endangered species

Incident Summary:

Beginning July 18, 1999, scattered tarballs were reported washing ashore on the coast of Oregon near Florence. Tarballs continued to wash ashore for several days following the initial discovery. Weather during this time was northwest winds, 15 to 20 knots. Impacted shoreline areas were habitat for snowy plovers, a threatened species. The USCG requested NOAA to assist with the "How Clean is Clean" process for beach signoff. No RP was determined, so the USCG hired cleanup crews to remove tarballs manually, and had PST and NOAA conduct SCAT surveys along about 75 miles of coastline. The USCG opened the fund to pay for a command post and cleanup efforts. The response lasted for several weeks.

Behavior of Spilled Material:

The spilled material was quite weathered when it washed ashore as scattered, very small tarballs.

The tarballs were sticky and could pose a threat to snowy plovers, an endangered species in this area.

Countermeasures and Mitigation:

The tarballs and associated oiled debris were collected by the cleanup contractors and disposed of in accordance with regulations.

Cleanup efforts concentrated in the snowy plover habitat area are considered sufficient by the USCG. The SSC and USCG will meet with state and federal trustees to establish criteria for "How Clean Is Clean" in these areas. The group will begin the process of arranging beach signoff teams to survey the cleaned impacted areas to determine if recent cleanup efforts have significantly reduced the threat of impact to the plovers (balanced with the thought that further cleanup might cause more harm).

Other Special Interest Issues:

Some issues of concern during this spill included effects to tourism, recreation areas, and personal property. Closure of public lands, wildlife impacts, and rehabilitation, as well as ecological destruction and habitat loss due to tarball impacts. Other concerns were ecological destruction and habitat loss due to cleanup operations and the effects of tarballs on human health and safety.

NOAA Activities:

NOAA was notified of this incident on July 18, 1999, by MSO Portland who requested the SSC to report on-scene. NOAA provided assistance with weather, SCAT surveys, and "How Clean Is Clean".

On July 22, cleanup efforts continued to remove sporadic patches of small tarballs from the upper tidal zone of several beaches along the Oregon coast between the Siuslaw River and Baker Beach, and just north of Coos Bay. The SSC met with the FOOSC representative and conducted a brief beach survey of the impacted area at Baker Beach. Only trace amounts of very small tarballs remained and these were too small to be removed manually. The physical characteristics of these tarballs suggests that they are by no means "fresh" they are the consistency of taffy, covered with sand, and do not sheen when wet. Samples have been sent to the COIL to determine the oil's origin. Results should be available sometime Friday, July 23.

The SSC surveyed the plover habitat sections of Baker Beach with several trustee agency reps (including Oregon Department of Fish and Wildlife (ODFW), USFWS, and US Forest Service) to determine if the beaches were ready for a visit from a beach signoff team. Of the shoreline surveyed one section, south of Holman Vista, that had been missed during the contractors first efforts was in need of some removal action.

On July 23, 1999, members from the PST arrived and set up three SCAT surveys, each including an ODFW biologist to conduct thorough assessments of shoreline oiling from Heceta Head down to Port Orford. Up to this point, beach oiling reports were concentrated near the seven plover habits along the coast and the degree of tarball impact in between these areas was not known. There were three areas identified for further cleanup.

The proximity of these impacted areas to plover nesting grounds has narrowed the criteria for acceptable concentrations of tarballs, and cleanup efforts are scheduled for July 24 to reduce the concentration further in these three areas.

Cleanup crews were sent to the areas identified in yesterday's SCAT survey. Cleanup was completed by midday of the 1/4 mile Baker Beach area. No cleanup was done at Siltcoos River,

however, as no plover biologists were available to accompany the cleanup team. Cleanup continued at the Bullards State Park area all day. The crew in this area also began removal at Bandon Park and at nearby Face Rock where more patches of trace tarballs were found this morning.

Results from tarball samples analyzed at COIL indicate that the oil at Sutton Beach matches that from Baker Beach, and that neither were a match with oil from the M/V *New Carissa*.

The FOSC relocated to Coos Bay to focus the remaining cleanup efforts in the Bandon area. The SSC and the PST members were released July 23.

NOAA remains on standby with support for any further issues that arise through the weekend. NOAA supported this effort on-scene for 5 days.

Reference:

NOAA Hotline 384, 7 Reports

Dispersant:

Bioremediation:

In-situ Burning:

Other Special Interest:

Shoreline Types Impacted:

Keywords:

Incident Summary:

At approximately 1100, 06/05/97 an oil slick 50 feet wide by about 1/2 mile long was sighted by a Coast Guard cutter off Eureka, California. Weather at the time of the incident was light and overcast with a light breeze.

No responsible party was identified.

Behavior of Spilled Material:

A very light slick of about 1/2 mile long and about 50 feet wide was formed. No coastal areas were impacted, nor was any material recovered.

NOAA Activities:

NOAA was notified of this incident on June 5, 1997 by ATSD San Francisco who asked the FBI for a trajectory. Essential involvement included a USCG request for NOAA support, and a USCG oversight on June 6, 1997. No oil found was factual. The response lasted about 2 days.

Reference:

NOAA Hotline 375, 2 Reports

Name of Spill: Spill off California Coast
NOAA SSC: Heather Parker Hall
USCG District: 11
Date of Spill: 06/05/99
Location of Spill: Davenport, California
Latitude: 36°47.8' N
Longitude: 122°0.51' W
Spilled Material: unknown
Spilled Material Type: unknown
Amount: unknown
Source of Spill: unknown
Resources at Risk: Marine Mammals Harbor seals (pupping), sea otters (threatened species).
Birds snowy plover (threatened species; nesting, laying and hatching), marbled murrelet (endangered/threatened species), gulls, shorebirds, raptors, alcids, diving birds.
Fish: anadromous fish, steelhead trout and coho salmon—outmigrating, tidewater goby.
Human Use Resources: aquaculture facility at Davenport Landing (Silvering Oceanic Farms) Scott Creek Beach, several access points.

Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: none
Shoreline Types Impacted: exposed rocky cliffs, wave-cut platforms, fine- to medium-grained sand beaches

Keywords: none

Incident Summary:

At approximately 1500, 06/05/99 an oil slick 80 feet wide by about 1/2 mile long was sighted by a vessel 30 nm off Davenport, California. Weather at the time of the incident was light and onshore winds.

No responsible party was identified.

Behavior of Spilled Material:

A very light sheen of about 1/2 nm long and about 80 feet wide was formed. No coastal areas were impacted, nor was any material recovered.

NOAA Activities:

NOAA was notified of this incident on June 5, 1999, by MSO San Francisco who asked the SSC for a trajectory. Federal involvement included a USCG request for NOAA support, and a USCG overflight on June 6, 1999. No oil found was found. The response lasted about 2 days.

Reference:

NOAA Hotline 376, 2 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

06/05/84	Date of Spill
Guaymas, California	Location of Spill
34° 12' N	Latitude
122° 51' W	Longitude
unknown	Spilled Material
unknown	Spilled Material Type
unknown	Amount
unknown	Source of Spill
Marine Resources Harbor seals (pupae), sea otters	Resources at Risk
flotation device	
large spray tower (flotation device) floating	
and floating, washed material contained, flotation	
species, gulls, seabirds, cormorants, diving birds	
large number of fish, scattered over 200 yds	
aimed—containing, unknown type	
Human Life Resources administrative facility at Guaymas	
floating buoyancy device (type) with 1000 lbs	
several access points	
N	Dispersive
N	Biomeditation
N	In situ burning
none	Other Special Interest
exposed rocks, other water-out features, fish, sea otters	Shoreline Types Impacted
ground used for	
none	Keywords
	Incident Summary
At approximately 1300, 06/05/84 an oil slick 80 feet wide by about 1/2 mile long was observed	
by a vessel 50 nm off Guaymas, California. Weather at the time of the incident was light and	
onshore winds.	
No responsible party was identified.	
Behavior of Spilled Material:	
A very light beam of about 1/2 mi long and about 80 feet wide was located. No current waves	
were impacted, nor was any material recovered.	
	NOAA Activities
NOAA was notified of the incident on June 5, 1984, by MRG's air manager who called the SBC	
for a response. Initial involvement included a USCG response for NOAA support and a USCG	
overflight on June 6, 1984. No oil found was found. The response lasted about 2 days.	
	References
	NOAA Technical Memorandum OMA-12

Name of Spill: M/V *Gardenia Ace*
 NOAA SSC: Heather Parker Hall
 USCG District: 11
 Date of Spill: 08/12/99
 Location of Spill: Point Piedras Blancas, California
 Latitude: 35°30.0' N
 Longitude: 123°00.0' W
 Spilled Material: marine diesel
 Amount: 750,000 gallons potential
 Source of Spill: non-tank vessel
 Resources at Risk: (at Point Piedras Blancas)
Marine Mammals: California sea lion (pupping), harbor seal, northern elephant seal, stellar sea lion (threatened species), blue whale (endangered species), Dall's porpoise, harbor porpoise, humpback whale (endangered species), northern right-whale, dolphin, Pacific white-sided dolphin, sea otter (threatened species).
Birds: alcids, diving birds, gulls, terns, raptors, shorebirds, wading birds, brown pelicans (endangered species) (hatching and fledging stages), peregrine falcons (endangered species)
Fish: steelhead trout, tidewater goby.
Shellfish: black and red abalone (spawning).
Plants: Giant kelp beds are present in this area.
Human Use Resources: Point Piedras Blancas is located inside of the California Sea Otter State Game Refuge. There is a USCG facility at the Point, and some beach access about 1 mile to the north.
Recreation: commercial and recreational fishing
 Dispersants: N
 Bioremediation: N
 In-situ Burning: N
 Other Special Interest: media
 Shoreline Types Impacted: exposed rocky cliffs, rocky platforms, mixed sand and gravel beaches, fine- to medium-grain sand beaches.
 Keywords: potential spill

Incident Summary:

At approximately 1300 on August 12, 1999, the M/V *Gardenia Ace* suffered an engine room fire and lost power. The 573-foot car carrier was adrift for several hours 80 nm offshore of Point Piedras Blancas, California with 750,000 gallons of marine diesel onboard. Weather on-scene was winds from the north-northwest at 22 knots. A US Navy vessel attended on-scene and a commercial tug was sent to tow the vessel into San Francisco Bay. The RP hired the tug and kept the USCG involved throughout the transit to the Bay. Federal involvement consisted of the US Navy vessel on-scene, USCG monitoring and granting permission to enter the Bay, and NOAA support.

NOAA Activities:

NOAA was notified of this incident on August 12, 1999, by MSO San Francisco who requested telephone support. The SSC provided localized marine weather reports and stood by in the event of further complications during the towing operation.

The response lasted for about 3 days.

Reference:

NOAA Hotline 390, 5 Reports

Name of Spill: Dredge Stuyvesant
NOAA SSC: Heather Parker Hall
USCG District: 11
Date of Spill: 09/06/99
Location of Spill: Humboldt Bay, California
Latitude: 40° 46' N
Longitude: 124° 14' W
Spilled Material: IFO 180
Spilled Material Type: 3
Amount: 2000 gallons
Source of Spill: non-tank vessel
Resources at Risk: Habitats: eelgrass beds, shallow subtidal or lower intertidal, salt marsh bird's-beak, Western lily, Menzies wallflower, beach (endangered species) around Humboldt Bay
Marine Mammals: harbor seals and California sea lions, stellar sea lions, elephant seals
Birds: numerous species of wading birds, shorebirds (including snowy plover), diving birds (cormorants and pelicans), raptors (including peregrine falcon, Canada goose, alcids (common murre, marbled murrelet), waterfowl
Fish: numerous estuarine fish, chinook salmon, steelhead, redbay, surfperch, green sturgeon, tidewater goby
Shellfish: clams (common Pacific littleneck, gaper, soft-shell, and Washington butter), native Pacific oyster, purple shore crabs, and dungeness crab

Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: destruction of marshes, mangroves, or tidal flats, media interest was high
Shoreline Types Impacted: sheltered tidal flats backed by marshes or riprap; fine-grained sand beaches, piers, sheltered manmade structures.
Keywords: containment boom, endangered species, evaporation, shallow-water recovery, skimmers, smothering, sorbent boom, sorbent pompoms, vacuum trucks, volunteers

Incident Summary:

On the evening of Monday, September 6, 1999, a dredge barge reported losing oil between the jetties into Humboldt Bay, California. Weather at the time was winds 10 knots from the north. A sounding of the leaking tank revealed a loss of about 1700 gallons of IFO 180. The RP hired cleanup contractors to remove oil from the shoreline.

Behavior of Spilled Material:

The floating product formed slicks, sheen, and mousse. Impacts occurred along shorelines between Humboldt Bay and Patrick's Point. The amount spilled was estimated at 2000 gallons and the amount recovered is unknown.

Countermeasures and Mitigation:

The source of the spill was controlled at the spill site by the vessel's captain. The ship was ballasted and maneuvered to keep the fracture above the waterline. The vessel steamed offshore initially to keep the spilling oil away from the sensitive shoreline. Once the spill was determined secured, the vessel entered the Bay and lightered the contents of the damaged tank. Precautionary protection strategies were implemented along the area of impact.

Open-water recovery was attempted, however the product had quickly weathered into broken tar patties and tarballs limiting the effectiveness of on-water operations. Shoreline cleanup efforts were substantial and quite successful at removing the majority of product that reached the coastline. Removal and disposal of spilled material was handled in accordance with regulations.

Other Special Interest Issues:

Some of the issues that were of concern during this response were the effects to tourism, recreation areas, and personal property. The impact the closure of commercial or recreational fishing areas and public lands would have. There could be significant bird impacts and rehabilitation; ecological destruction, and habitat loss due to spilled material. Would cleanup operations cause ecological destruction and habitat? What logistical or operational problems (including adverse weather conditions) might limit cleanup operations? There was high media interest.

NOAA Activities:

NOAA was notified of this incident on September 6, 1999, by MSO San Francisco. The SSC traveled to Humboldt Bay with MSO personnel to set up the Command Post on-scene. NOAA's support included trajectory analysis, twice-daily weather and tide reports, daily overflights, and resources-at-risk information, information management, and SCAT input. The SST prepared briefing packets and attended two town meetings. The SSC was interviewed by television and radio news crews. NOAA also set up and maintained a web site for the incident containing digital photos and other spill-related products. NOAA support lasted about 2 weeks.

Reference:

NOAA Hotline 393, 62 Reports

Torgimson, Gary M. 1984. *The on-scene spill model: a user's guide*. NOAA Technical Memorandum NOAA OMA-12. Seattle: Office of Oceanography and Marine Assessment. 87 pp.

Name of Spill: **M/V NEW CARISSA**

Date of spill: **February 4, 1999**
Location of spill: 2.7 miles north of entrance to Coos Bay, Oregon
Latitude: 43°21.4' N
Longitude: 124°18.7' W
Spilled material: Type 2, Type 4
Amount: 360,000 gallons (60,000 spilled; 200,000 burned; 100,000 sank with vessel)
Source of spill: non-tank vessel
Resources at risk: sea lions, haulouts, diving coastal birds, shore birds (endangered); national park, national estuarine research reserve
Dispersants: no
Bioremediation: no
In-situ burning: yes
Other special-interest issues: in-situ burning; media interest; complex salvage operation; ESA issues
Shoreline types
Impacted: sand/gravel beach, coarse/fine sand beach, tidal mudflats, marshes, fishery closure
Keywords: in-situ burning, salvage, endangered species
NOAA SSC: Sharon Christopherson
USCG District: 13

INCIDENT SUMMARY

The M/V *New Carissa*, a 639-foot bulk freight ship of Panamanian registry, arrived off the entrance to Coos Bay, Oregon, the night of February 3, 1999 during a strong ocean storm with high winds (39 knots) and 26-foot seas. Approximately 400,000 gallons of bunker fuel, diesel, and lube oil were on board. The vessel carried no cargo and was inbound to load a cargo of wood chips in Coos Bay. The Coos Bay pilot warned the vessel not to enter the bay until conditions moderated. The Captain of the *New Carissa* anchored the ship 1.5 nm offshore. During the night, the vessel dragged anchor and, early on the morning of February 4, the *New Carissa* went hard aground about 150 yards off a sandy beach 3 miles north of the entrance to Coos Bay.

A Unified Command (UC) was established in Coos Bay with the Federal On-Scene Coordinator (FOSC), Oregon state on-scene coordinator (SOSC), and the Responsible Party (RP) represented by the spill management team Gallagher Marine Systems, Inc. The RP contracted Smit Americas as the salvor. The UC called upon key federal, state and local agencies, stakeholders, and contractors to assist with the response. Before the incident ended, 58 different agencies and groups, and about 700 people, participated in the response. One storm after another came through the area during the four weeks following the grounding. Due to the constantly changing conditions and movement of the vessel in the surf zone, simultaneous planning efforts were initiated early in the spill to address numerous response operational options, including vessel salvage, protective booming of sensitive environments, lightering, in-situ burning, scuttling at sea, and shoreline cleanup. Given the viscosity of the oil and the shallow-water depth, dispersant use was deemed inappropriate.

Initial attempts to salvage the *New Carissa* were thwarted by severe winter storm conditions that trapped the salvage tug in Astoria and pushed the grounded vessel closer into shore. On February 8 the vessel began to leak oil due to structural damage. The salvage tug could not get close enough to hook up the towline. By February 10, the engine room flooded; fuel tanks, ballast tanks and cargo holds were compromised. The deteriorating condition of the hull and another severe winter storm warning led the insurance underwriters to declare the vessel a constructive total loss. The Unified Command, in consultation with the Regional Response Team, decided to burn the fuel on board the vessel rather than chance a catastrophic release of oil in the sensitive nearshore waters and Coos Bay. With the assistance of an U.S. Navy Explosive Ordnance Demolition Unit, the fuel was successfully ignited and burned for 33 hours. NOAA and the USCG PST coordinated monitoring of the smoke with local health officials. During the night, the vessel broke in half through the No. 5 cargo hold.

Inspection of the bow section after the burn indicated that approximately 200,000 gallons of fuel were consumed, leaving 100,000 gallons still on board. Over the next two weeks, attempts to lighter the remaining fuel to onshore Baker tanks failed due to the high viscosity of the oil and constant movement of the bow section in the surf line. The decision was made to tow the bow section 300 miles offshore and scuttle it in 12,000 feet of water. Given the viscosity of the oil and the temperature at that depth, the majority of the oil would be expected to remain trapped in the bow.

The bow was successfully rigged and refloated on March 1. After 3 days of pulling, the bow section refloated and was towed out to sea followed by the MSRC *Oregon Responder* spill-response vessel. Another storm was forecast offshore, but the expected conditions were considered within the capabilities of the tow. However, the storm intensified as it approached the coast. With the bow 50 miles offshore and 19 hours into the tow, high winds and 30-foot seas parted the chain connecting the tow cable to the tug, setting the bow section adrift again. The bow drifted at up to 7 knots on a north-northeast course. On March 3, 14 hours later, the *New Carissa* grounded on a sand beach just north of Alsea Bay in Waldport, Oregon. The Navy supplied a new, 2,400-foot towline, but another storm delayed its rigging. The bow section was again refloated and towed out to sea on March 8. The bow section of the *New Carissa* was sunk by a joint effort of the USCG and Navy on March 11 in 1,811 fathoms 282 nautical miles off the Oregon coast.

The stern section remained grounded at Coos Bay. The USCG supervised the removal of an additional 14,000 gallons of an oil/water mixture and over 100 cubic yards of oiled debris using divers and helicopters for access. The RP tried to refloat and remove the stern section over the summer months, only to be thwarted by heavy surf and the deteriorating condition of the hull. A final, all-out effort at the end of the summer of 1999 succeeded in moving the vessel only a short distance out to sea, before another storm and high seas made it too dangerous to continue; following the storm, the stern had again been pushed back into the surf zone. On October 1, salvage attempts were discontinued for the winter.

BEHAVIOR OF SPILLED OIL

The *New Carissa* was carrying about 360,000 gallons of heavy refined products with an API of 13.6 to 20.8, in addition to 37,000 gallons of marine diesel with an API of 29.7. Because of the grounded vessel's location, oil was released directly into the surf zone during periods of high storm activity. Large slicks beached very near the accident site; all other shoreline impacts were in the form of small tarballs.

Wave-driven currents dominated the movement of oil released in the surf zone. During most of the time that oil was being released, the dominant wave direction was from the west-southwest to west, resulting in upcoast, alongshore currents. During the first few days after the grounding, a west-northwest wave direction and high winds resulted in a temporary southward flow to the alongshore current. Because of this southerly flow, some tarballs were seen in Coos Bay and on beaches immediately to the south. After the first few days, all environmental data and observational information confirmed a northward movement of tarballs. During periods of offshore winds, the tarballs could be seen moving offshore, outside of the breaking waves. As the tarballs moved farther offshore, they were more widely dispersed and more difficult to locate. The circulation off Oregon is part of the California Current. During this time of year, the northward-flowing Davidson Current inshore of the California Current could carry widely scattered tarballs as far north as Washington. Light, intermittent shoreline impacts were observed from Cape Arago to north of Waldport, Oregon.

Following the grounding of the bow of the *New Carissa* just south of the entrance to Waldport on March 5, oil was flushed out of the open section of the bow by surf action and stranded on the shoreline and adjacent mudflat. Transient concentrations of small, fresh tarballs and heavily weathered, larger tarballs were reported on widely spaced stretches of beach north and south of Waldport over the next several weeks. Repeatedly, because of remobilization by high tide, concentrations of the smaller, fresh tarballs reported one day would no longer be present the next day. Small numbers of widely scattered, fresh tarballs were also observed stranded on shorelines inside Alsea Bay directly downwind from the bay entrance. In general, movement of the tarballs was to the north, with some moving inside of Alsea Bay during flood tides.

Quantities of oil that moved away from the spill site are difficult to determine. For instance, throughout the spill and all along the Oregon coast, diatom concentrations were mistaken for oil in water and on the beach. Based on observations early in the spill, about 10,000 gallons on the water surface were accounted for before the burn. The *New Carissa* breakup after the burn released about 50,000 gallons more of floating oil. In addition to the floating oil, some oil remained trapped on the vessel. Attempts at mass-balance estimates varied, generally indicating that about 200,000 gallons burned and another 137,000 gallons remained onboard the vessel or were released. These estimates were clouded by uncertainty in visual data because of the rapid tarball formation, the uncertainty in the amount of oil that might have naturally dispersed due to the high surf conditions, and the uncertainties associated with burn-rate information.

The effective in-situ burn time of the fuel onboard the vessel lasted about 33 hours. After that, and during preparations for towing the vessel out to a scuttle site, no significant amounts of floating oil were observed. Trajectory analysis was considered in the selection of a scuttle site. The northward-flowing Davidson Current inside the shelf break (~50 miles) and the southward-flowing California Current offshore of this, could lead to oil impact either north or south during the towing operation if significant amounts of oil were lost. The dominant winds during February are from the south. At about 200 miles offshore, oil lost would be under the influence of a weak, southward-flowing California Current and opposing winds. Based on this and the distance offshore, trajectories indicated that the oil would be so widely scattered by the time shorelines could be impacted that it would not be noticeably above the background tarball levels.

SHORELINE IMPACTS

The only observed heavy shoreline impacts were in the immediate vicinity of the stranded bow section during the several days following the in-situ burn. Large mats of oil were observed at high tide. Further north of the vessel, oiling was intermittent along the beach, especially following periods of onshore winds. The impacts typically consisted of accumulations of small, sticky tarballs in the surf zone and along swashlines. If not picked up, these tarballs were frequently refloated by the next high tide. A smaller number of larger tarballs, even tar patties, were sometimes observed as well. These larger tarballs were frequently observed to be more weathered, and tended to incorporate significant quantities of sand and vegetation material. The tarball impacts continued throughout the spring, but began to significantly decrease once the *New Carissa* bow section was refloated and towed out. By June, all beach segments had been signed off except those immediately north and south of the still remaining stern section. Trace amounts of tarballs were observed intermittently on these sections throughout the summer while lightering and salvage activities continued on the stern. These segments were finally signed off by the Unified Command in January 2000.

Shoreline impacts following the grounding of the *New Carissa* bow in Waldport on March 5 were significantly lighter. Heavy surf flushed the broken section of cargo hold No. 6, causing light to moderate tarball impacts in the immediate vicinity of the bow, as well as intermittent patches of light tarball oiling along the northern coast. Some tarballs were flushed into Alsea Bay, resulting in intermittent light impacts on marshes east of the bay entrance.

RESOURCES AT RISK

Initial grounding

The initial grounding and release off the entrance to Coos Bay potentially affected a number of sensitive habitats and resources. Coos Bay itself is a shallow-water estuary containing large areas of sheltered mudflats, shellfish beds, and nursery areas for fish and shellfish species. Other sensitive estuarine areas located north of Coos Bay were within the potential impact area from a catastrophic release, including the Umpqua River, Siltcoos River, Suislaw River, and numerous small coastal creeks and inlets. The Oregon Dunes National Recreation Area is located on the north spit in Coos Bay. The dune structure is particularly vulnerable to human activity involving heavy vehicle or equipment traffic. South Slough National Estuarine Research Reserve is located at the south end of Coos Bay.

- **Marine mammals** Northern sea lions, California sea lions, and harbor seals are present throughout the area, with a major haulout and pupping site for the Northern sea lion located just south of Coos Bay at Cape Arago. Northern elephant seals are also found in the vicinity of Cape Arago.
- **Birds** Birds normally present in the coastal waters at this time include gulls, some shorebirds, scoters, scaups, loons, and bald eagles. Shorebirds feeding along the tideline, including plovers, sanderlings, snowy plovers, sandpipers and dunlins, were more likely to be impacted by stranded oil. Of particular concern were wintering colonies of Western snowy plover. This federally threatened species feeds in the swash zone of coastal sandy beaches, and typically uses sand spits, dune-backed beaches, unvegetated beach strands, open areas around estuaries, and beaches at river mouth as preferred coastal habitats for nesting. A small colony of snowy plovers was known to

be present 300 yards south of the vessel, but these habitats were common throughout the potential impacted area. Biologists identified a number of other specific snowy plover concentration areas to monitor during the response. Migratory snowy plovers also began arriving in the spring to establish nests. Coastal offshore birds foraging in the area included cormorants, murrelets, auklets, gulls, and puffins.

- **Fisheries** Coos Bay and the Umpqua River are important estuaries for outmigrating salmon (chinook and coho). Juveniles begin outmigration in March; chinook juveniles are especially vulnerable because they may spend weeks in the estuary before entering the ocean. Both estuaries also contain Pacific herring. Shellfish such as Dungeness crab, razor clams, and mussels are present along the outer coast north of the grounding site. Important recreational and commercial clam and oyster beds are found throughout Coos Bay, especially in South Slough. Clams and Pacific oyster are also abundant in the Umpqua River estuary.

Re-grounding of bow section at Alsea Bay.

The second grounding of the bow of the *New Carissa* occurred on a sand beach just north of the entrance to Alsea Bay. The entrance to Alsea Bay is composed of riprap structures and a large, exposed tidal flat in front of the riprap along the southern side of the bay. Alsea Bay, and Yaquina Bay, located 15 miles further north, contains extensive sheltered tidal flats and marshes. The Yachats River, a smaller estuarine area, is 10 miles south of Alsea Bay. The outer coast shoreline from the grounding site north to Yaquina Head consists of stretches of sand beaches alternating with wave-cut platforms with scattered offshore rocks.

- **Marine mammals** Seal Rocks State Park to the north is a major haulout for harbor seals and Northern sea lions. California sea lions are also in the general area. Harbor seals congregate in and haul out on the tidal flats in Alsea Bay.

- **Birds** The sand beach north of the grounding site is western snowy plover habitat. Seal Rocks is a site for nesting gulls, black oystercatcher, and pigeon guillemot. Yaquina Bay is important bird habitat, particularly the south area, where cormorants, gulls, sandpipers, snowy plover, and pelicans concentrate. Large numbers of migrating marine birds and shorebirds were expected to start passing through the area soon.

- **Fisheries** Alsea Bay and the Yaquina River are important estuaries for outmigrating salmon (chinook and coho). Juveniles begin outmigration in March; chinook juveniles are especially vulnerable because they may spend weeks in the estuary before entering the ocean. Both estuaries contain Pacific herring and Yaquina Bay also contains steelhead trout. Shellfish such as Dungeness crab, razor clams, and mussels are present along the outer coast north of the grounding site. Recreational and commercial clam and oyster beds are in Yaquina Bay. There was a greater risk of oil reaching the bay habitat following this grounding, since the grounding site was so close to Alsea Bay. Fortunately, only a small quantity of oil entered the bay.

COUNTERMEASURES AND MITIGATION

- **Protection of Sensitive Areas** The Northwest Area Plan's Geographical Response Plans (GRP) for Coos Bay and the southern Oregon coast have identified specific booming protection strategies to protect priority sensitive environmental resources in the event of an oil spill. Prior to any oil being released, the environmental unit of the planning section worked closely with the Operations Section to identify which of these protection strategies needed to be deployed. Using the NOAA trajectory analysis for a catastrophic spill, the decision was made to implement strategies for any sites that

might be impacted within 12 hours of a spill. Equipment for strategies protecting areas that might be impacted within 24 hours of a spill occurring was pre-staged near the specific site to ensure rapid deployment if necessary. Over 10,000 feet of protective booming was deployed within the first 10 days of the response. The same process of identifying and deploying GRP strategies was followed when the *New Carissa* bow re-grounded at Waldport on March 5. As a result of our experiences during the *New Carissa*, a number of the Oregon coastal inlet protection strategies were modified in the GRP to reflect what we had learned about deployment under severe storm and surf conditions. One of the issues raised both during and after the response was the lack of strategies to adequately protect commercial oyster and clam beds in the expansive shallow mudflats of Coos Bay and other estuaries with the response technology available to us at this time. This issue highlights the importance of preventing spills and/or keeping oil out of estuarine areas.

Throughout the response, the environmental unit and operations section cooperated closely to minimize the potential for response activities causing any additional environmental impacts, especially in area where the Western snowy plovers were foraging or nesting. Specific guidelines limiting vehicle access, overflights, or requiring biologists to accompany cleanup crews were developed for specific sites in the response zone. The environmental unit also ensured that a biologist was made available to operations for those sites when needed. These guidelines were included on the site-specific response workplans, as well as graphically on the daily situation update maps.

• **Initial salvage and lightering attempts** The *New Carissa* ran aground during a severe winter storm. The waves were too high to bring a vessel alongside to lighter and the closest salvage tug, *Salvage Chief*, with sufficient bollard pull was 200 nautical miles away in Astoria. By the time the *Salvage Chief* was mobilized to head for Coos Bay, the Columbia River bar in Astoria was too rough to cross. On February 8, the *New Carissa* began losing oil from the vicinity of the Nos. 1 and 2 fuel tanks. By the time the bar calmed and the *Salvage Chief* arrived on scene on February 9, the *New Carissa* had been blown closer to the shore. The water was too shallow under the existing sea conditions for the *Salvage Chief* to get close enough to her to pass a line. The ship's crew and salvage master were monitoring the vessel's condition on February 9 and expecting another Pacific storm to push in. Inspection confirmed that four of the six cargo tanks were compromised; 4 ballast tanks were also holed. With the impending arrival of another winter storm, the continuing deterioration of the vessel's hull, and the potential for a catastrophic release in the nearshore waters outside of Coos Harbor, the Unified Command began to consider in situ burning as a response option. The morning of February 10 the engine room was taking on water and a 20-ft long transverse crack was discovered in cargo hold No. 6. The vessel's insurance underwriter declared the vessel a constructive loss. After consultation with the Regional Response Team, the decision was made to burn the fuel on board.

• **In-situ burning** The decision to burn the fuel was based on the continuing deterioration of the vessel's integrity, the high winds/seas forecast, and the potential for releasing a large volume of oil into Coos Bay and sensitive nearshore areas of the Oregon coast.

An USCG naval architect worked with an U.S. Navy Explosives Ordnance Disposal (EOD) unit from Whidbey Island, Washington to identify where to place explosives to ignite and sustain the "burn." An initial attempt to ignite the oil failed, but on February 11, the Navy EOD team used 400 pounds of explosives to rupture the fuel tank tops and a napalm mixture to help ignite and sustain the burn. The fire burned 33 hours and

successfully consumed about half of the ship's fuel load. When the burn died out, an estimated 130,000-155,000 gallons of fuel remained onboard. Pounded by the surf, the ship split into two pieces during the burn, just forward of the No. 6 cargo hold bulkhead. These sections began to drift apart in heavy waves and wind. All additional attempts to re-ignite the remaining oil in the bow failed.

To address the potential threat to public safety from the smoke plume generated from the in-situ burn, air monitoring for smoke particulates was conducted jointly by USCG, NOAA, and the U.S. Environmental Protection Agency (EPA). The SMART (Spill Monitoring for Advanced Response Technologies) protocols developed jointly by USCG, NOAA, EPA, and the USHHS Center for Disease Control guided the monitoring program. Monitoring was conducted at three locations in the vicinity of the predicted smoke plume: Empire, North Bend (near the airport), and Umpqua River CG station. The monitors were in place well ahead of the initiation of the burn to collect particulate data before and after. None of the readings exceeded background levels.

•**Disposition of the Bow Section** A survey of the bow section following the in-situ burn found that a significant quantity of fuel (approximately 100,000 gallons) remained in Tank No. 3, with a lesser amount in the cargo hold above Tank No. 2. Although the explosives had breached the Tank No. 3 top, the oil had not spread out in the cargo hold where it could be more effectively burned. The remaining fuel onboard the bow still posed a significant threat to the environment. The Unified Command considered several options for removing the bow. Given the sensitivity of the adjacent shoreline, the high seas/surf action where the vessel was located, landside removal was not deemed feasible. Due to the concerns over the pollution and possible navigational safety threat posed by the bow section, the responsible party could not find a port that would permit the bow section to transit their jurisdiction to reach a repair/scraping facility. The Unified Command, in consultation with the RRT, decided to tow the bow 200 miles offshore and scuttle it in deep water. Smit Americas ordered a special towline, 700-m long and 9.1-inch diameter, from the Netherlands.

While waiting for the towline to arrive and completion of the hook-up preparations, an attempt was made to lighten some of the fuel from Tank No. 3 to Baker tanks staged in the foredune area. The bow section was constantly being shifted by the strong wind and seas, and had moved within 300 yards of the beach. The bow section had moved close enough to the shore to make lightering logistically possible. The bow was fairly stable during low tide, but still had a tendency to move around during high tide. An opening was cut in the side of the vessel to allow viscous oil pumps and hoses to be staged. The Pacific Strike Team (PST) rigged the hoses up to a series of Baker tanks that had been staged on top of the dunes. This staging was very difficult; once during the preparations, a storm stranded the pumping crew onboard the bow overnight. Over a two-day period, the PST pumped 140,000 gallons of oil/water mixture. Unfortunately, due to the oil's viscosity (similar to cold peanut butter or soft asphalt), most of the collected fluid was water. Lightering operations were discontinued on February 22 when the special towline arrived on-scene.

Because of strong winds and heavy seas, it took three days for the helicopter to deploy the two ends of the towline to the bow and the tug *Sea Victory*. Once the towline was attached, it took 3 more days of pulling before the bow section broke free from the shore. On March 1, the bow was towed out to sea followed by the MSRC *Oregon Responder* spill-response vessel. Another storm was forecast offshore, but the expected conditions were considered within the capabilities of the tow. However, the storm intensified as it approached the coast. With the bow 50 miles offshore and 19 hours into the tow, high

winds and 30-foot seas caused the chain connecting the tow cable to the tug to part and set the bow section adrift again. The bow drifted at up to 7 knots on a north-northeast course. On March 3, 14 hours later, the *New Carissa* grounded on a sand beach just north of Alsea Bay in Waldport, Oregon. The bow section was again refloated and towed out to sea on March 8. The bow section of the *New Carissa* was sunk by a joint effort of the USCG and Navy on March 11 off the Oregon coast.

•**Lightering and salvage attempts on the stern section** The stern section of the *New Carissa* remained aground in the surf zone just north of the entrance to Coos Bay after the bow was successfully removed. Although most of the oil onboard the stern section was believed to have already leaked or burned, the FOSC determined that enough oil remained on board to pose a threat to the environment. During the summer of 1999, a concerted effort supervised by the USCG was made to open up and remove as much oil as possible from the 20+ day tanks, reservoirs, crankcases, piping, etc. associated with the wreck. The oil was recovered from the engine room by passive absorption, or skimming and pumping directly to temporary storage tanks for removal from the vessel. At the request of the FOSC, the Regional Response Team approved the use of the chemical Cytosol™ to help clean under the heavily coated decks and bulkheads within the submerged engine room. By the end of June, about 14,000 gallons of an oil/water mixture and over 100 cubic yards of oiled debris were removed from the stern section.

The responsible party continued to efforts to refloat and remove the stern section. These attempts were complicated by the heavy surf, a significant quantity of sand that had collected in the engine room, the presence of numerous cracks and openings that needed repair, and hazardous sections of piping, derricks, and decking that remained attached to the stern. The superstructure was cut away and numerous cracks in the hull repaired. A final all-out effort at the end of the summer of 1999 succeeded in moving the vessel only a short distance out to sea, before another storm and high seas made it too dangerous to continue; following the storm, the stern had again been pushed back into the surf zone. On October 1st, salvage attempts were discontinued for the winter. The stern continued to deteriorate over the winter, and in the spring of 2000, the salvers notified the State of Oregon that salvage from the water was no longer a possibility.

•**Cleanup** Skimming of floating oil was largely ineffective during the *New Carissa* response because of the location of the vessel in the surf zone. Oil discharged from the vessel was rapidly dispersed and/ mixed into the water column. In addition, the viscosity and the pour point of the heavier fuel oil resulted in rapid formation of tarballs, which made the oil very difficult to track.

The primary cleanup method throughout the response was manual pick up of stranded oil using shovels and rakes. A significant oil mat several inches thick and 100 m long with a similar buried layer underneath was manually removed from the shoreline immediately north of the wreck following the in situ burn of the fuel on board and the breaking of the vessel into two sections. Tar patties weighing up to 50 pounds were found infrequently and recovered over a number of months. For the most part, especially after the bow was refloated and removed, cleanup consisted of removing patches of very small tarballs accumulated along the swashlines by a falling tide and onshore breezes. In June, the USCG completed oil recovery operations on the stern section. All shoreline segments, with the exception of the two immediately adjacent to the stern wreck, had been signed off by the Unified Command.

Daily monitoring of these two beach sections continued until the end of the summer while attempts to remove the stern continued. Observations were documented on a standardized Beach Assessment Reporting Form. This ensured that any oil released or

mobilized from the sediments by salvage operations would be removed. Due to the nesting and fledgling activity by Western snowy plover in the area, even small quantities of oil were removed when observed. Quantities of oil collected typically ranged from ounces to a few pounds, with only occasional incidents of larger quantities being found. These final two beach segments were signed off by the Unified Command in January 2000.

• **Oiled wildlife recovery and rehabilitation** On February 8, as soon as oil started to leak, the U.S. Fish and Wildlife Service (USFWS) and the Oregon Department of Fish and Wildlife (ODFW), in cooperation with the Responsible Party, set up a wildlife response and rehabilitation mobile facility on the east side of North Spit in Coos Bay. The International Bird Rescue and Research Corporation was mobilized. Spill response efforts included trained wildlife survey teams to recover dead birds, report live oiled birds for recovery and rehabilitation, and census bird populations at risk. On March 3, when the bow section grounded near Waldport, a second wildlife rehabilitation facility was set up there. During the primary response, approximately 1500 birds were collected. Of these, 133 oiled birds (mostly sanderlings, cormorants, and scoters) were treated and released. Seventeen oiled snowy plovers were treated and released. Less heavily oiled birds observed in the field were not routinely collected for rehab, since they were very difficult to capture and the stress induced from handling could be more harmful. USFWS, ODFW, and NOAA conducted field surveys to identify bird and marine mammal populations at risk and the percent of the population that was oiled. This information was used to determine the intensity and duration of wildlife recovery and rehabilitation activities.

OTHER SPECIAL-INTEREST ISSUES

• **Snowy plover response restoration activities initiated during active phase of response.**

The trustees negotiated several emergency-phase restoration activities within the snowy plover habitat areas that were initiated while the active response was still in progress. These activities included fencing nesting sites to better protect the chicks, monitoring the occurrence of tarballs in snowy plover habitat areas, reduced public access, and assignment of a trained biologist to accompany cleanup and survey teams into critical habitat areas to minimize disturbance of the birds. This helped ameliorate some of the early impacts to the population by improving the birds' chances of successfully breeding and thereby hopefully improving natural recovery of the population. This did lead to confusion by several agencies about which were response actions and which were restoration, especially relative to expectations for beach cleanup and sign-off criteria. Early restoration activities concurrent with active response should be considered when a highly sensitive or vulnerable resource is at risk or the incident is likely to last for an extended period of time. Consideration must, however, be given to the effect of the restoration activity on response activities to ensure that response is not unduly hampered, increasing impacts to resources of concern by delaying response efforts.

• **The *New Carissa* was the first incident in the lower 48 states involving intentional in-situ burning of bunker fuel in a vessel.** Intentional in-situ burning of fuel on stranded vessels has been used as response option in Alaska and other remote areas where it was not possible to lighter or salvage the vessel. The *New Carissa* was the first incident where this option was utilized in the more populated lower 48 states. The four-to seven-day sequence of repetitive violent winter storms passing through the area created such high winds and surf that access to the vessel was extremely limited and then only by lowering personnel and equipment from helicopters. No support vessels could be brought in next to the *New Carissa*. The vessel's steadily deteriorating condition

made the risk of a catastrophic oil spill in the extremely sensitive nearshore waters and adjacent Coos Bay estuary appear imminent. On February 11 half of the vessel's cargo was successfully burned. This operation followed the existing in-situ burning policy in the Northwest Area Plan. However, this policy dealt primarily with in situ burning of oil on water contained by a fire-resistant boom. A number of operational and coordination issues had to be addressed during this incident that had not been covered by the existing policy. These lessons learned are now being incorporated into the Northwest Area Plan and have sparked a number of regional and national dialogs on topics. These topics include coordination of salvage and spill response activities, in-situ burning operational support and existing USCG/USN Memoranda of Agreement, and coordination with community and state health officials for in-situ burning operations that cannot be readily extinguished if the wind shifts.

NOAA ACTIVITIES

The NOAA Scientific Support Coordinator and Scientific Support Team were activated by the Federal On-Scene Coordinator on February 4 and requested to go on scene. The NOAA Scientific Support Team for this incident was made up of personnel from the Office of Response and Restoration, National Weather Service, National Marine Fisheries Service, and NOAA support contractors. Over the course of the response, they provided technical information to help guide response operations; coordinated with a wide spectrum of stakeholders and facilitated the development of consensus recommendations to the FOSC and Unified Command; participated in field surveys, overflights, and beach inspections; helped public affairs staff in press conferences, town hall meetings; and developed and maintained an incident-specific public web page. During the first 6 weeks of the response, NOAA provided 234 person-days (1,874 hours) of on-scene and 101 person-days (814 hours) in Seattle and satellite offices in direct support of the *New Carissa* spill response. After demobilization, NOAA continued to provide intermittent field and technical support to the FOSC over the next 10 months dealing with issues of "how clean is clean," beach inspections, and final shoreline signoffs.

• **Technical Information Support** The NOAA Scientific Support Team was an integral part of the Incident Command System (ICS) Situation Unit, routinely providing site-specific weather forecasts, tidal height information, spill trajectories, overflight information, information on oil weathering and behavior, oil mass balance, and resources at risk. NOAA developed an array of maps and graphical products illustrating operational and environmental information summaries, including daily operational status of response and salvage activities; location of response equipment; flight restrictions; overflight maps of oil; shifting position of the stern and bow sections over time; trackline of salvage tug and bow en route to scuttling site; shoreline oiling and cleanup status; location of sensitive environments and site specific operational restrictions. NOAA also produced a series of base maps to be used by field personnel doing response and wildlife surveys. NOAA also established an initial system to track and document SCAT survey information being collected.

Prior to any release of oil into the water, NOAA provided statistical trajectory analyses for a several different scenarios. One analysis assessed the maximum distances that oil could travel in the first 6, 12, and 24 hours following a catastrophic release. This information was used to prioritize protection-booming strategies and whether boom needed to be deployed or need only be staged at the site. A second analysis compared the potential impact zones if the source (vessel) was moved from its current position to 25, 50, or 200 miles offshore. This information was used to help evaluate the environmental trade-offs of the in-situ burning and scuttling options.

NOAA provided smoke-plume estimates to assist in planning for the anticipated burn of the vessel's contents. Ground-level particulate concentrations were estimated using weather forecasts, special vertical mixing predictions from the National Weather Service (NWS), estimated burn rates from on-scene experts and discussions with A. Allen of SpillTec, modeling assistance from the NOAA National Institute for Standards and Testing (NIST) using the ALOFT model, and the NOAA In-situ Burn Calculator™. This information was then used to identify a "window" in which in situ burning could be safely done and help identify downwind airborne particulate monitoring sites.

NOAA was also requested to provide a recommendation to the FOSC on establishing a safety zone around the vessel for the in-situ burning operation. Using empirical data, potential fragment distribution from an explosion was estimated to be less than a kilometer. After consideration, the UC designated a safety zone of 1 mile around the vessel.

NOAA also provided information to representatives from the Oregon Department of Agriculture regarding oil impacts on shellfish and lessons learned from other spills in deciding when to close or open a fishery.

NOAA was asked to assist in discussions on "how clean is clean" before the final signoff of beach segments closest to the wreck of the stern in the late summer. There was no baseline data on the West Coast shoreline tarball concentrations. NOAA reviewed selected literature and interviewed researchers active in the field to develop a table summarizing tarball concentrations observed along the West Coast, especially in areas where Western snowy plovers and/or shorebirds were known to be present. When available, concurrent observations of numbers/condition of shorebirds were included. This information was summarized in a spreadsheet as grams of oil per linear feet of beach, and could then be compared to tarball survey information collected for the *New Carissa*.

• **Field Activities** NOAA personnel participated in daily overflights to determine the extent of spill and collect information for the trajectory monitoring. After the initial release of oil, the NOAA Scientific Support Coordinator participated with Coast Guard and Oregon State representatives on a shoreline assessment and jointly developed initial cleanup recommendations. NOAA accompanied shoreline branch personnel on beach surveys to confirm the feasibility of protection strategies and recommend appropriate cleanup techniques for specific shorelines.

The NOAA SSC represented the FOSC on the official shoreline signoff inspection team. This team consisted of 6-7 representatives from the Unified Command, resource trustees, and land managers whose property had been impacted. This team inspected each oiled beach segment after it was cleaned and provided a recommendation to the Unified Command whether the segment should be signed off or further cleanup was needed.

The question was raised of whether significant quantities of oil might have been mixed with the sand in the surf as a result of the turbulence generated during the numerous storms impacting the *New Carissa* during February. The concern was if such areas of oiled sediment were present in the nearshore area, at the end of the storm season when sediment processes changed from net erosion to net deposition, large quantities of oil might be transported back up onto the shoreline. Several attempts to sample for oiled subsurface sediments were all negative. At the FOSC's request, NOAA developed guidelines for a post-deposition transition survey of beach segments where the heavier

oiling had occurred in Coos Bay and Waldport. These inspections involved systematic trenching in depositional areas on these beaches, and were carried out by the shoreline signoff inspection team in May. There was no evidence that oil was being remobilized and deposited or buried on the beaches.

A marine mammal expert from NMFS National Marine Mammal Laboratory participated in overflight surveys to help assess risk to marine mammal haul-out and concentration areas. These surveys found no evidence that would require setting up any collection/rehabilitation facilities.

• **Stake-holder Coordination** The SSC worked with the trustee stakeholders to identify environmental issues to be addressed by the response and provide consensus recommendations to the Unified Command. Members of the environmental unit at the *New Carissa* response included personnel from Oregon Fish and Wildlife, Oregon Parks and Recreation, DOI Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, Oregon Dunes National Recreation Area, and the South Slough National Estuarine Research Reserve.

The NOAA Scientific Support Coordinator was the Environmental Unit leader at the start of the spill. This is the unit within the Planning Section that addresses environmental issues related to response operations for the Unified Command and highlights the environmental issues that need to be addressed in a response. Members of the environmental unit at *New Carissa* included personnel from Oregon Fish and Wildlife, Oregon Parks and Recreation, DOI Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, Oregon Dunes National Recreation Area, and the South Slough National Estuarine Research Reserve. Through their individual expertise, local knowledge, and agency contacts, they were able to develop protection priorities; streamline permit requirements for activities in protected areas, and recommend cleanup methods that minimized environmental impact.

The Environmental Unit mapped sensitive resources, identified protection strategies, and reviewed contingency lighting options. The Environmental Unit helped the Operations Section get a plan approved that improved beach access for removing oil wastes from the beach as long as the access points were restored to their original conditions to minimize recreational access to the dune areas.

NOAA helped develop guidelines for reaching a consensus on recommending to the Unified Command that a shoreline segment be signed off as requiring no further cleanup. Reaching this consensus was particularly difficult, since a number of the members were proposing a "zero tolerance" for any oil remaining on the shoreline. This was not considered technically feasible by a number of responders and biologists with extensive spill experience. A compromise position reached stated that cleanup was complete when, in the "best professional judgment of the shoreline signoff inspection team, no environmental benefit would be gained from further cleanup activities." The shoreline signoff inspection teams were able to reach consensus on all but a few shoreline segments. When consensus could not be reached, a majority recommendation was forwarded to the Unified Command with an explanation of the issues in contention.

NOAA SSC coordinated with biologists, AT&T cable personnel, and undersea volcano researchers for selection of towing path for the bow section to minimize possible environmental effects if the vessel were to sink en route to the scuttling site

NOAA SSC chaired evening science meetings at the command post. The SSC provided a brief overview of the status of the response and what issues were currently being

worked. The format of the meeting allowed each SCAT or wildlife field team to give a short debrief on the day's results, and bring up new concerns and issues relative to the response. This allowed the SSC to either address the concerns/issues raised, or forward them to the appropriate ICS section. It also allowed the NOAA SSC to ensure that scientific studies being conducted by various agencies and researchers in the spill area were coordinated with response operations to ensure no conflicts with response activities

NOAA met with the director of the Oregon DEQ and the local, county, and state health officers to answer specific questions on in-situ burning, and smoke plume composition and behavior shortly after the decision to conduct in situ burning. The original announcement initially raised a number of public health concerns with local health and state agencies. A NOAA industrial health expert with in- situ burning experience described the potential health effects and compared them with similar exposures to slash fires. He facilitated a discussion that weighed the potential threats to public safety against the environmental threats that were expected if the vessel broke up and released 400,000 gallons of oil into the nearshore area off Coos Bay. NOAA also worked with the Coos County Health Officer in developing steps the public could take if exposed to short periods of smoke. This coordination was especially important because, once the burn was initiated, it would be impossible to shut the burn down if the wind shifted. Recommendations for "sheltering in place" and voluntary relocation of those who desired it were worked out jointly with the County Health Officer and communicated to the local government.

NOAA SSC coordinated chemical sampling of oil with a number of state, trustee and responsible party groups. Confusion in clearly identifying which samples to use for source characterization had resulted because of problems in sampling, as well as the fact that a number of labs with different protocols were being used. The NOAA SSC facilitated dialogue among all the players on techniques, samples collected, and helped the group reach consensus on what would be used for source comparison.

•**Public Outreach Activities** NOAA helped develop technical fact sheets, briefing packets, maps, and graphics for use by the Joint Information Center. A list of frequently asked technical questions was also prepared to assist the JIC in telephone interviews and questions from the public. Members of the Scientific Support Team routinely participated as technical experts in press conferences, public meetings, and local government briefings.

The Coast Guard established a public website to provide response-related information to the public, other agencies, and the media. Its capacity was quickly exceeded and the Unified Command requested NOAA to maintain a site with sufficient capacity to handle this large of an incident. Within 24 hours, the website was built and posted. It was used not only for press releases, but also for Unified Command decision memos, pollution reports, technical reports, maps, and photos. The site was maintained until the end of August and received over a million "hits".

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Name of Spill: M/V *Haida Monarch* Gulf of Alaska Log Spill #1
 NOAA SSC: John W. Whitney
 USCG District: 17
 Date of Spill: 12/09/98
 Location of Spill: south of Cape St. Elias, Kayak Island AK
 Latitude: 58°39' N
 Longitude: 144°31' W
 Spilled Material: bundles of logs
 Spilled Material Type: Sitka spruce and hemlock
 Amount: 500 bundles of logs
 Source of Spill: non-tank vessel
 Resources at Risk: maritime traffic in the northern Gulf of Alaska (oil tankers, fishing boats, Sealand and TOTE container vessels, etc.)
 Other Special Interest: none
 Shoreline Types Impacted: none
 Keywords: logs, navigation hazards

Incident Summary:

Due to heavy seas on December 9, 1998, M/V *Haida Monarch* lost her deck cargo of logs into the northern Gulf of Alaska (GOA) about 70 miles due south from Cape St. Elias on the southern tip of Kayak Island. The quantity of logs was quite large—500 log bundles of 80 to 100 logs per bundle. Each bundle contained 80 to 100 logs about 41 to 45 feet long and 4 to 15 inches in diameter. Each bundle weighed approximate 27 tons. The USCG deemed these logs a hazard to navigation of TAPS tankers, container vessels, and maritime traffic in the GOA.

Initially the logs were in the MSO Valdez zone, and they, along with the Seventeenth District Coast Guard Operations Center in Juneau, requested that NOAA provide weather forecasts and predict trajectories of the logs to monitor the position of the logs to help their C-130 overflights. Early on the logs stayed fairly tightly clustered, but after a storm on December 13 many of the log bundles broke apart making it very difficult for ships to pick up this debris on radar. The weather was an adverse factor particularly for overflights, they could only be conducted every 3 to 5 days. As location reports came in, they were forwarded to NOAA in Seattle who used this information to provide a search location for the next overflight. The Alaska Stream occupies this portion of the GOA and moves from east to west. As a result the logs were gradually dispersed and carried toward Afognak and Kodiak islands. As the logs moved west MSO Anchorage became involved in the tracking effort and served to coordinate information flowing to and from USCG Kodiak Air Station conducting the overflights. Weather and trajectory support by NOAA continued for approximately 3 weeks.

Name of Spill:	UTV <i>Seaspan Commodore</i> , Gulf of Alaska Log Spill #2
NOAA SSC:	John W. Whitney
USCG District:	17
Date of Spill:	02/11/99
Location of Spill:	Gulf of Alaska
Latitude:	58°00.18' N
Longitude:	137°37.74' W
Spilled Material:	bundles of logs
Spilled Material Type:	Sitka spruce and hemlock
Amount:	200-400 bundles of logs
Source of Spill:	barge
Resources at Risk:	maritime traffic (oil tankers, fishing boats, Sealand and TOTE container vessels, etc.)
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	none
Shoreline Types Impacted:	none
Keywords:	logs, navigation hazards

Incident Summary:

Due to heavy seas on February 11, 1999, the F/B *Seaspan Rigger*, being pulled by the UTV *Seaspan Commodore*, lost her deck cargo of logs into the northeastern Gulf of Alaska (GOA) about 38 nautical miles (nm) west of Cape Spencer. On-scene conditions were 55-knot winds, 30-foot seas, snow, icing conditions, and 1/4 nm visibility. The quantity of logs was quite large—200 to 400 log bundles of 80 to 100 logs per bundle. The logs were 41 to 45 feet long and 4 to 15 inches in diameter; each bundle weighed approximate 27 tons. The USCG deemed these logs a hazard to navigation of TAPS tankers, container vessels, and maritime traffic in the GOA. Initially the logs were in MSO Juneau's zone and, along with the Seventeenth District Coast Guard Operations Center in Juneau, requested that NOAA provide weather forecasts and predict trajectories of the logs to monitor the position of the logs help their C-130 overflights. NOAA's initial report to the USCG was that the trajectory of the logs will continue west-southwest at 2% of the wind speed (0.5 knots) until they cross the 100-fathom curve where they will encounter the Alaska Current and begin moving in a west-northwest direction at approximately the same speed.

Due to the severe weather, many of the log bundles broke apart making it very difficult for ships' radar to see this debris. The weather was not cooperative and overflights could be conducted only every 3 to 5 days. As location reports came in, they were forwarded to NOAA in Seattle who then used this information to provide a search location for the next overflight. The Alaska Stream occupies this portion of the GOA and moves from east to west and the logs were gradually dispersed and carried west-northwest toward the central GOA. As the logs moved west, MSO Valdez became involved in the tracking effort and served to coordinate information flowing to and from USCG Kodiak Air Station who was conducting the overflights. Weather and trajectory support by NOAA continued for approximately two weeks after which time the logs were too widely dispersed to make any meaningful trajectory predictions.

Name of Spill:	F/V <i>Controller Bay</i>
NOAA SSC:	John W. Whitney
USCG District:	17
Date of Spill:	05/08/99
Location of Spill:	Unimak Island at Cave Point, Alaska
Latitude:	54°48.2' N
Longitude:	164°36.1' W
Spilled Material:	diesel, hydraulic fluid, and lube oil
Spilled Material Type:	2
Amount:	6000 gallons diesel 600 gallons hydraulic fluid 250 gallons lube oil
Source of Release:	non-tank vessel
Resources at Risk:	stellar sea lion rookery
Dispersants:	N
Bioremediation:	N
In-situ Burning	N
Other Special Interest:	N
Shoreline Types Impacted:	rocky, wave-cut platforms
Keywords:	diesel, no response

Incident Summary:

Early in the morning of May 8, 1999, with the vessel on autopilot, the master of the 78-foot F/V *Controller Bay* fell asleep at the wheel. The vessel went aground at Cave Point on Unimak Island releasing roughly 7000 gallons of fuels producing a sheen about 50 feet wide and 1 mile long stretching off to the north and east. The four members of the crew were rescued by another fishing boat. Heavy weather and high winds persisted throughout the area and contributed to the accident. On-scene conditions of 24-foot seas were reported. Personnel on a May 10 USCG overflight reported that the vessel severely damaged and breaking up with only the stern visible. The powerful storm made it impossible to unload the fuel before the vessel broke up on the rocks.

Behavior of Oil:

High winds and heavy seas naturally dispersed the oil as it leaked from the vessel

Countermeasures and Mitigation:

Due to heavy weather, countermeasures were impossible to employ

NOAA Activities:

NOAA's involvement in the response was restricted to phone and fax. The USCG requested information on weather and resources at risk. NOAA confirmed that heavy weather and high winds persisted throughout the area of the incident and would continue for several more days before abating. Discussions with the resource agencies revealed the existence of a sea lion rookery roughly 1 mile west along the coast from Cave Point. However, because the oil was coming from the west and northwest, the sheening off the grounded vessel went in an easterly direction and was expected to have no effect on the rookery.

Name of Spill:	F/V <i>Ying Fa</i>
NOAA SSC:	John W. Whitney
USCG District:	17
Date of Spill:	05/10/99
Location of Spill:	Adak, Alaska
Latitude:	51°45' N
Longitude:	176°45' W
Spilled Material:	anhydrous ammonia
Spilled Material Type:	5
Amount:	unknown
Source of Spill:	non-tank vessel
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Shoreline Types Impacted:	none
Keywords:	none

Incident Summary:

During the first week of May 1999 the USCG intercepted a Chinese fishing vessel illegally fishing in the Bering Sea and took it under escort to Adak Naval Station on Adak Island to deliver it to the National Marine Fishing Service (NMFS). They have jurisdiction for the fishing violation. The USCG boarded the vessel and found a decrepit old ship, just an accident waiting to happen. The fore fish hold was filled with diesel fuel, which although not a violation, was an extremely sloppy maritime practice. The vessel was rusty, cramped, full of junk, and her systems were just barely in working order. While in port, a serious ammonia leak occurred driving the crew out of the lower levels. As a result of this chemical incident the USCG called in the Pacific Strike Team (PST). The PST sent seven members who arrived on-scene and, outfitted in level B protective gear, began monitoring the levels of ammonia in the ship. In several locations concentrations of several hundred ppm were measured, and since the IDLH for ammonia is 300 ppm, it was deemed a very serious situation. Not knowing how much ammonia was onboard the vessel the PST decided to bleed off the system. On the fourth level down in the ship, a 55-gallon drum of water and fans were set up to bleed the ammonia into. MSO Anchorage personnel became very concerned about the safety of this procedure and asked NOAA for advice. After consulting with NOAA chemists and industrial hygienists, the SSC reported that this procedure was potentially unsafe. The ammonia will eventually supersaturate the water in the drum and begin coming out of solution. Not only is it a human-health hazard but also poses a fire danger. The PST shortly thereafter began to bleed the ammonia overboard into the sea. It appears that the use of the 55-gallon drum of water was just some sort of monitoring device. The dumping of the ammonia proceeded without further incident.

Name of Spill: M/V *Wilderness Adventurer*
NOAA SSC: John Whitney and Ken Barton
USCG District: 17
Date of Spill: June 12, 1999
Location of Spill: Head of Dundas Bay, Glacier Bay National Park, southeast Alaska
Latitude: 58°26' N
Longitude: 136°30' W
Spilled Material: diesel and engine room slops
Spilled Material Type: 2
Amount: 4200 gallons diesel, minor lube oil
Source of Release: non-tank vessel
Resources at Risk: **Birds:** eagles
Habitats: sheltered tidal flats, marshes
Mammals: sea otters
Dispersants: N
Bioremediation: N
In-situ Burning: N
Other Special Interest: occurred in Glacier Bay National Park
Shoreline Types Impacted: potentially marshes and sheltered tidal flats.
Keywords:

Incident Summary:

The 156-foot M/V *Wilderness Adventurer* struck rocks, cracked its hull, and began taking on water at 1425, Saturday, June 12, 1999, in Dundas Bay, Glacier Bay National Park. The 56 passengers and 24 crewmembers were evacuated safely with no injuries. As the tide subsided, the vessel was hard aground with a 40-degree list to port and down enough at the stern to allow water to wash through the engine room. The vessel was in a perilous situation, being extremely unstable at low tide and unsafe for boarding, but the main fuel tank containing 4200 gallons of diesel was not compromised. Only small amounts of lube oil and diesel leaked from the engine room. At the time of the grounding, winds were 15 knots from the south-southeast with unrestricted visibility. Once notified, the USCG responded with a double boom around the vessel and pumps to help dewater her. A 3-foot tear in the hull allowed water to wash over the stern at low tide.

An incident command post was established at the MSO Juneau office with the environmental unit in Gustavus and consisted of national park personnel. Several vessels went on-scene including tugs, response boats, and salvage vessels. The objective was to refloat or gently pull the grounded vessel off the rock at high tide while simultaneously using the pumps to dewater her as much as possible. This plan was carried out on the afternoon of June 16 and the *Wilderness Adventurer* was successfully refloated with no additional loss of oil.

After stabilizing the vessel and placing temporary patches on the 3-foot crack, she was taken to Hoonah and then on to Ketchikan for permanent repairs. In the end, only about 20 gallons of lube oil and diesel from the day tank were lost and produced some sheening in northern Dundas Bay. All the streams at the head of the bay were boomed prior to the attempt to refloat the vessel.

Behavior of Oil:

Only a small oil sheen appeared on the water.

Countermeasures and Mitigation:

The vessel was double-boomed to collect any oil released. Skimmers were on-scene should they be needed, and sensitive areas were boomed as precautionary protective.

NOAA Activities:

NOAA was notified of this incident on June 12, 1999, by MSO Juneau who requested considerable amounts of support for this incident via phone and fax, but did not ask the SSC to go on-scene. The first request from the USCG was to provide weather support, this was supplied in conjunction with the National Weather Service (NWS) office in Juneau. NOAA was also asked to provide some worst-case trajectory scenarios should the refloat fail and cause a large release of diesel. NOAA reported that the diesel slick would rapidly spread out downwind, produce a toxic pulse in the immediate waters possibly causing some mortality, but would naturally disperse to non-toxic levels in several hours. Weather support was continued for 2 days after the vessel was reloaded and while it was in transit to Hoonah.

Name of Spill:	M/V Spirit of 98
NOAA SSC:	John W. Whitney
USCG District:	17
Date of Incident:	07/27/99
Location of Incident:	Tracey Arm, southeast Alaska
Latitude:	57°33' N
Longitude:	133°11' W
Spilled Material:	diesel and lube oil
Spilled Material Type:	2
Amount:	9400 gallons diesel, 1000 gallons lube oil
Source of Potential Spill:	non-tank vessel (cruise ship)
Resources at Risk:	none
Dispersants:	N
Bioremediation:	N
In-situ Burning:	N
Other Special Interest:	N
Shoreline Types Impacted:	none
Keywords	none

Incident Summary:

The USCG MSO Juneau office reported that at 0900 on July 27, 1999, the 192-foot cruise ship, M/V *Spirit of 98*, hit a rock in the eastern end of Tracy Arm in southeast Alaska making a hole into the engine room. No fuel tanks were punctured and no release of fuel occurred. Nevertheless, the vessel was in jeopardy of sinking because of the flooding engine room. The eastern 5 to 6 miles of Tracy Arm are vertical cliffs with no beach to intentionally ground the vessel to keep it from sinking. The captain was able to motor the vessel far enough to the west to intentionally ground the vessel at about 57°53' N, 133°22' W, 6 to 7 miles from its collision point. Meanwhile the USCG responded with air-lift pumps and crew to stem the incoming water. The USCGC *Anacapa* was on-scene and constructed a cofferdam around the leak for a concrete patch. With the engine room dewatered, the *Spirit of 98* was towed to Ketchikan for repairs.

NOAA Activities:

NOAA was notified of this incident by USCG MSO Juneau who asked for trajectories, both an instantaneous and a slow continuous one; weather information and forecasts, tidal data, and a synthesis of resources at risk. The SSC indicated that diesel, being a refined product, would largely evaporate and disperse in the first 24 hours and not form persistent slicks. Further, due to the relatively high concentration of light aromatic compounds in diesel, it tends to be more soluble and more toxic than heavier oils. If released the diesel would spread rapidly into thin sheens and would be expected to spread along the Arm for a mile or so from the vessel impacting the downwind shoreline. The incident occurred during a zero ceiling with rain. The SSC told the USCG that showers and mist would continue and the ceiling and visibility would improve somewhat. After consulting with all the resource agencies, NOAA advised the USCG that harbor seals are the main resources at risk in Tracy Arm, but that they tend to concentrate at its mouth and head. Several anadromous streams flow into Tracy Arm and, at this time of year, the number of birds in Tracy Arm is minimal. There were no sea otters in residence..

Name of Spill:	M/V <i>River Ways 10</i>
NOAA SSC:	John W. Whitney
Date of Spill:	09/30/99
Location of Spill:	Just offshore the village of Mekoryuk on the north side of Nunivak Island in the Bering Sea
Latitude:	60°23' N
Longitude: 1	66°11' W
Spilled Material	fuel oil
Spilled Material Type:	1
Amount:	<10 gallons
Source of Release:	non-tank vessel barge
Resources at Risk:	Fish: herring spawning ground with juvenile herring present, salmon, Arctic char, juvenile salmon and/or char
Dispersants:	N
Bioremediation:	N
In situ Burning	N
Other Special Interest:	subsistence use
Shoreline Types Impacted:	none
Keywords:	boom, skimmer

Incident Summary:

On the morning of September 30, 1999, MSO Anchorage received a report that a small release of #1 fuel had occurred from the M/V *River Ways 10*, a small non-tank barge belonging to Yutana Barge Lines. The spill was in the bay just offshore the village of Mekoryuk on the north side of Nunivak Island. The reason for the release was uncertain, however, the USCG was informed that the fuel in the barge was being transferred to other intact tanks. The USCG also learned that the barge crew had deployed a boom around the spill and were in the process of skimming. The total amount of fuel onboard was 78,000 gallons

This area is part of the Yukon Delta National Wildlife Refuge (NWR) administered by the U.S. Fish and Wildlife Service (USFWS). The combination of skimming, evaporation, and natural dispersion soon eliminated the problem and no resources were impacted. Weather at the time was 10 knot winds, 26°F, and a cloud ceiling of 1000 feet.

Behavior of Spilled Material:

The small amount of #1 fuel on the water formed a slick that rapidly evaporated and naturally dispersed.

Countermeasures and Mitigation:

The barge crew quickly boomed off the slick and deployed a skimmer to recover the oil.

NOAA Activities:

NOAA was notified of this incident by the USCG who asked for an evaluation of the resources at risk. This area was identified as part of the Yukon Delta NWR, and the ESI maps showed that the fisheries and bird resources normal to summer were probably not there at this time of year. Nevertheless, the USFWS was contacted and they in turn, contacted the manager of the Yukon Delta NWR in Bethel whose reaction to the spill was that there was little concern for birds, particularly close to the village where the spill was, because the spill was so small. The

state Alaska Department of Fish and Game (ADFG) said that there were important herring spawning grounds in the area and that the bay is a shallow sand flat that probably has bivalves. There may be some juvenile herring, salmon, and Arctic char in the area this time of year.