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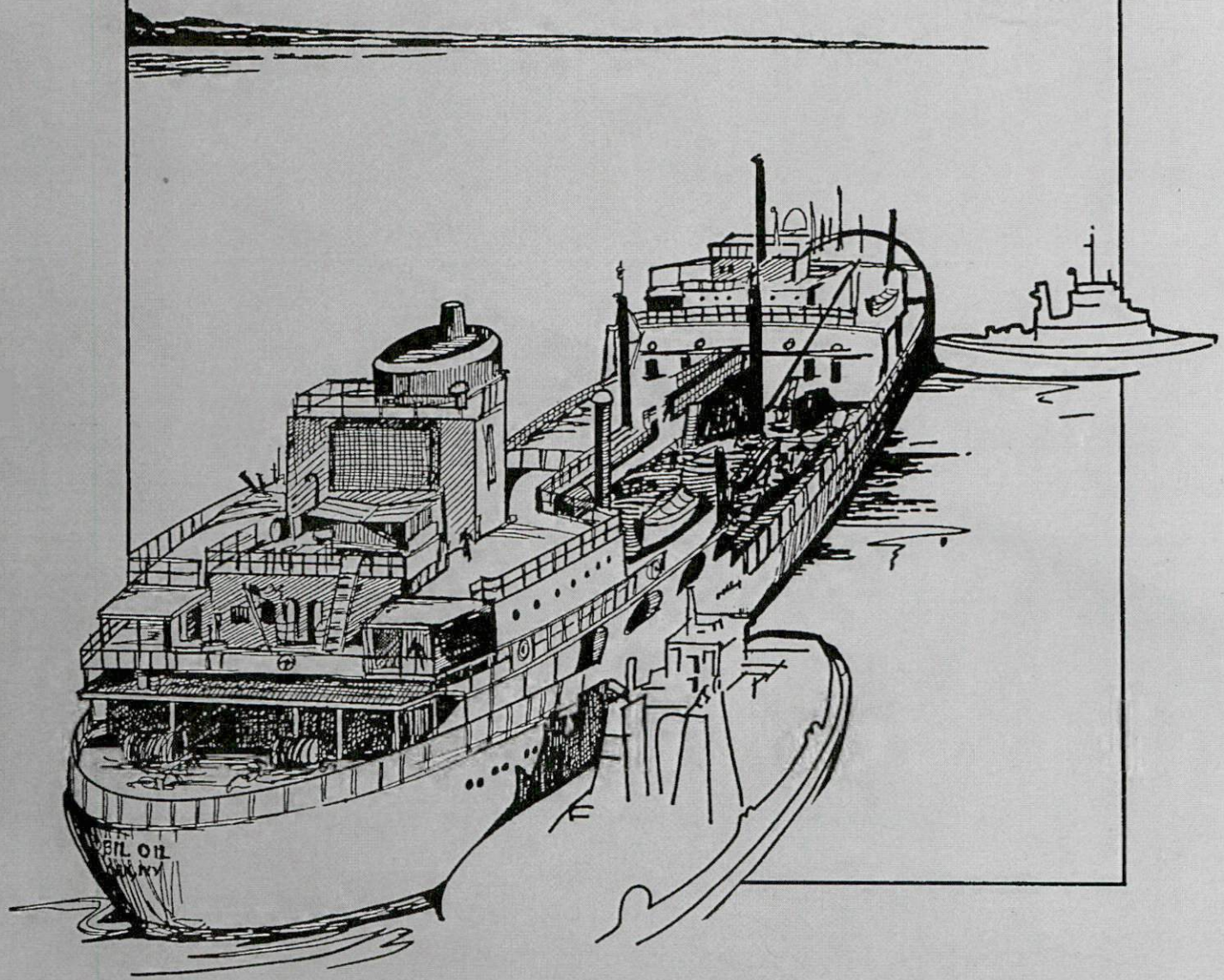
Fate and Effects Of The Mobiloil Spill In The Columbia River



OCEAN ASSESSMENTS DIVISION
OFFICE OF OCEANOGRAPHY & MARINE ASSESSMENT
NATIONAL OCEAN SERVICE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

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Office of Oceanography & Marine Services
National Ocean Service
National Oceanic & Atmospheric Administration

FATE AND EFFECTS OF THE *MOBILOIL* SPILL IN THE COLUMBIA RIVER

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I. EXECUTIVE SUMMARY

The tank ship MOBILOIL grounded on the Columbia River near St. Helens, Oregon, on 19 March 1984. Damage to tanks resulted in a spill of over 3,900 barrels of heavy crude oil. The National Oceanic and Atmospheric Administration (NOAA) was involved in the response, coordinating federal and state agencies in a fate and effects study. The methodology, detailed in this report, involved biological, chemical, and physical studies. Close communication between field samplers and planners allowed coordination and documentation of the sampling effort.

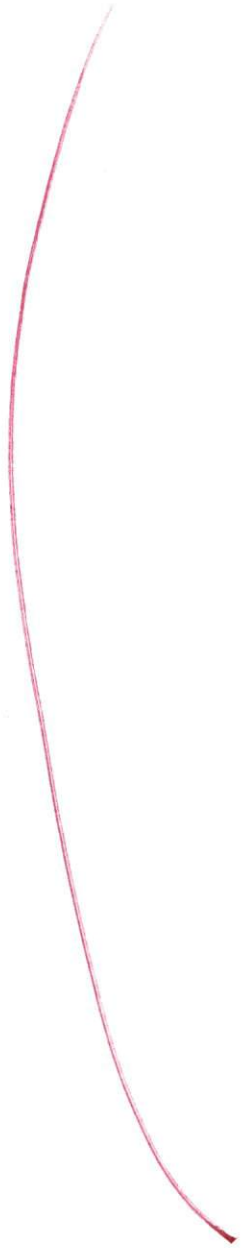
Due to the weight of the oil, the lack of low molecular weight and water-soluble components, and the volume and current velocity of the river, most of the oil was swept out to sea, then deposited along outer beaches of Washington. Fringe marsh oiling also occurred in the river. Oil on the outer beaches and along the river was either removed by cleanup crews or redeposited farther north.

The most noticeable effect of the oil was on seabirds, with dead birds numbering up to two per mile per day on the outer beaches. Of the 698 treated at a rescue center, 475 (68 percent) were released alive. Oiled fish were also commonly collected. Surfperch, petrale sole, and white sturgeon were collected with oiled mouths. Chemical analysis of white sturgeon tissues indicated uptake of naphthalenes and other hydrocarbons, probably from digestion of oil or oiled food.

The presence of immature and adult salmon in the river at the time of the spill may lead to long-term effects on the fishery. Coho salmon fry were exposed to oil in ponds at the Trojan Nuclear Power Plant, but these appeared healthy in preliminary physiological tests. Chinook salmon fingerlings were held in a Washington state hatchery well beyond the release date until bioassays indicated the waters of the Elochoman Slough area were safe. The effects of the oil on salmon life history (chemical imprinting and spawning) are unknown and will be subject to an ongoing investigation. Other ongoing investigations are being performed by federal and state agencies relative to benthic organisms, shellfish, other fisheries, birds, and mammals.

Past oil-spill impact studies have traditionally required months of preparation to be implemented. This study, while not a detailed environmental assessment, was planned and operational within a few days. The techniques

involved have application in future studies, and NOAA is pursuing and investigating this methodology as a standard operating procedure.



II. SPILL RESPONSE

A. EVENT

The tanker ship MOBILOIL grounded near Warrior Rock on the Columbia River (Fig. 1) as the result of a steering failure, after midnight on 19 March 1984. Punctures and gashes up to 100 feet (30 m) and 3 feet (0.9 m) wide were rent in starboard cargo tanks #1 through #5 (Fig. 2). The ship remained stable, but immobile, near Warrior Rock until 26 March.

The 25-year-old MOBILOIL is a 31,760-ton oil tanker with 30 cargo tanks, 10 rows of 3 tanks each (port, center, starboard) (Fig. 2). While enroute from Ferndale (Washington) to Portland (Oregon), the ship had cargo in all tanks except #5 center and #7 port and starboard. Tanks damaged in the grounding contained 28,404 barrels of heavy fuel oils (Table 1). Approximately 200,000 barrels of oil were on board the ship.

Warrior Rock extends out from the Oregon side of the Columbia River between river miles 87 and 88, 12 miles (7.4 km) downriver from Portland. The exact point of grounding was a shallow ledge 300 yards (272 m) south of Warrior Rock on the Oregon side of the shipping channel (Fig. 1). After grounding, the ship lay perpendicular to the current with the bow pointed west; one-third of the ship was on the rocky ledge.

During the days following the grounding, the U.S. Coast Guard (USCG) focused its efforts on monitoring two major areas of activity: vessel salvage and oil cleanup activities. Mobil had accepted responsibility for spill cleanup so a federal spill response was not declared. The USCG maintained the role of reviewing Mobil's proposed response actions and monitoring their activities to insure that an adequate response was taking place.

Mobil's efforts to remove the oil remaining in the damaged cargo tanks were initiated late in the evening of 20 March. By 0200 on 21 March, large-capacity pumps had been connected to #1 and #2 starboard tanks. Four thousand barrels were offloaded from tanks #1 and #2 by 0900. By 1000, cargo was also being removed from tanks #3 and #4. Twenty-two thousand barrels of oil were offloaded by 0940 on 22 March. Early in the afternoon of 22 March, tank #5 was completely offloaded. It was reported that 23,542 barrels of liquid had been removed from the five damaged cargo tanks by 1800 on 22 March (Table 2). Water which entered the damaged tanks made it impossible to determine what proportion of the liquid offloaded

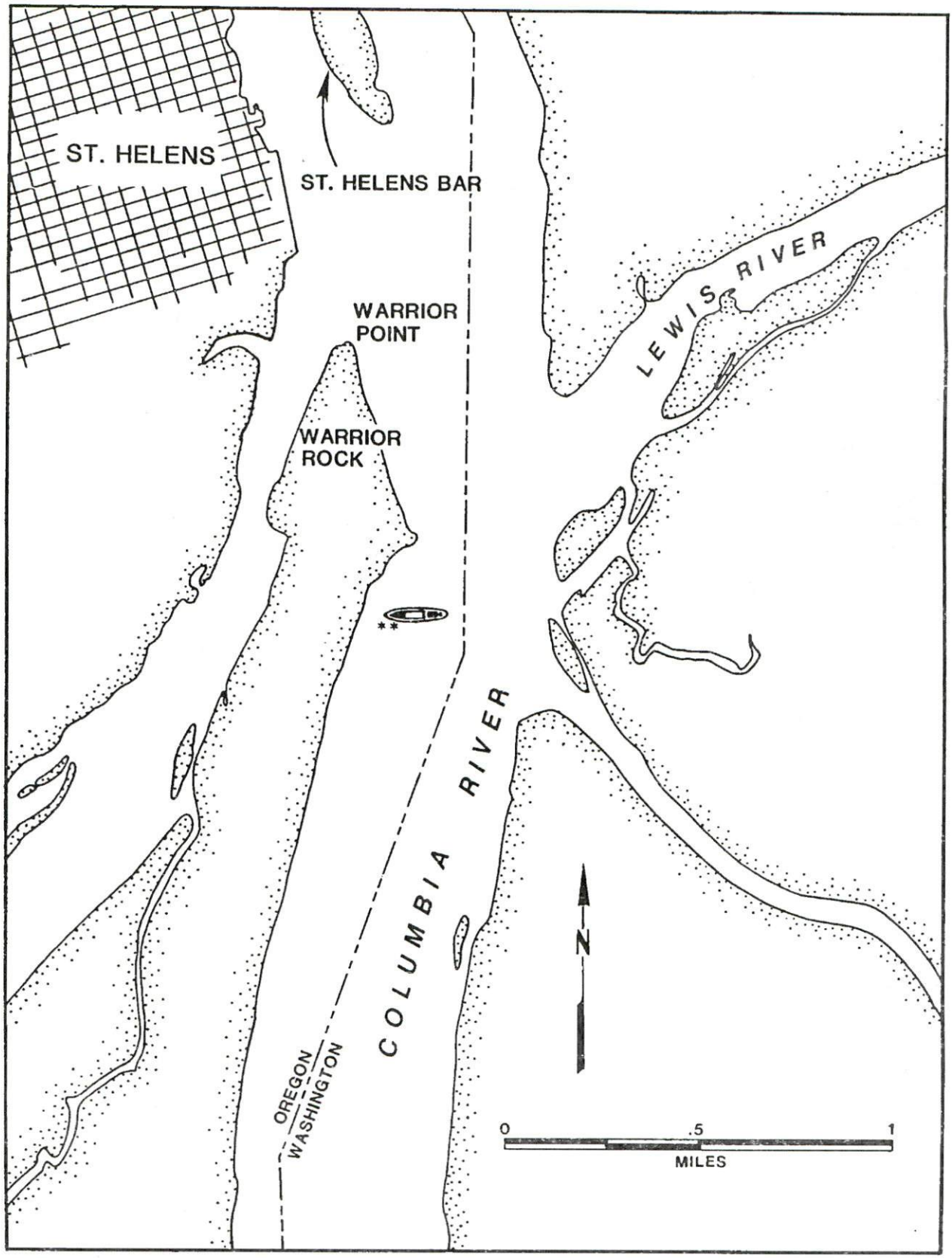


FIGURE 1. MOBILOIL spill site near Warrior Rock, showing position of ship perpendicular to the current and aground. The current flows northward.

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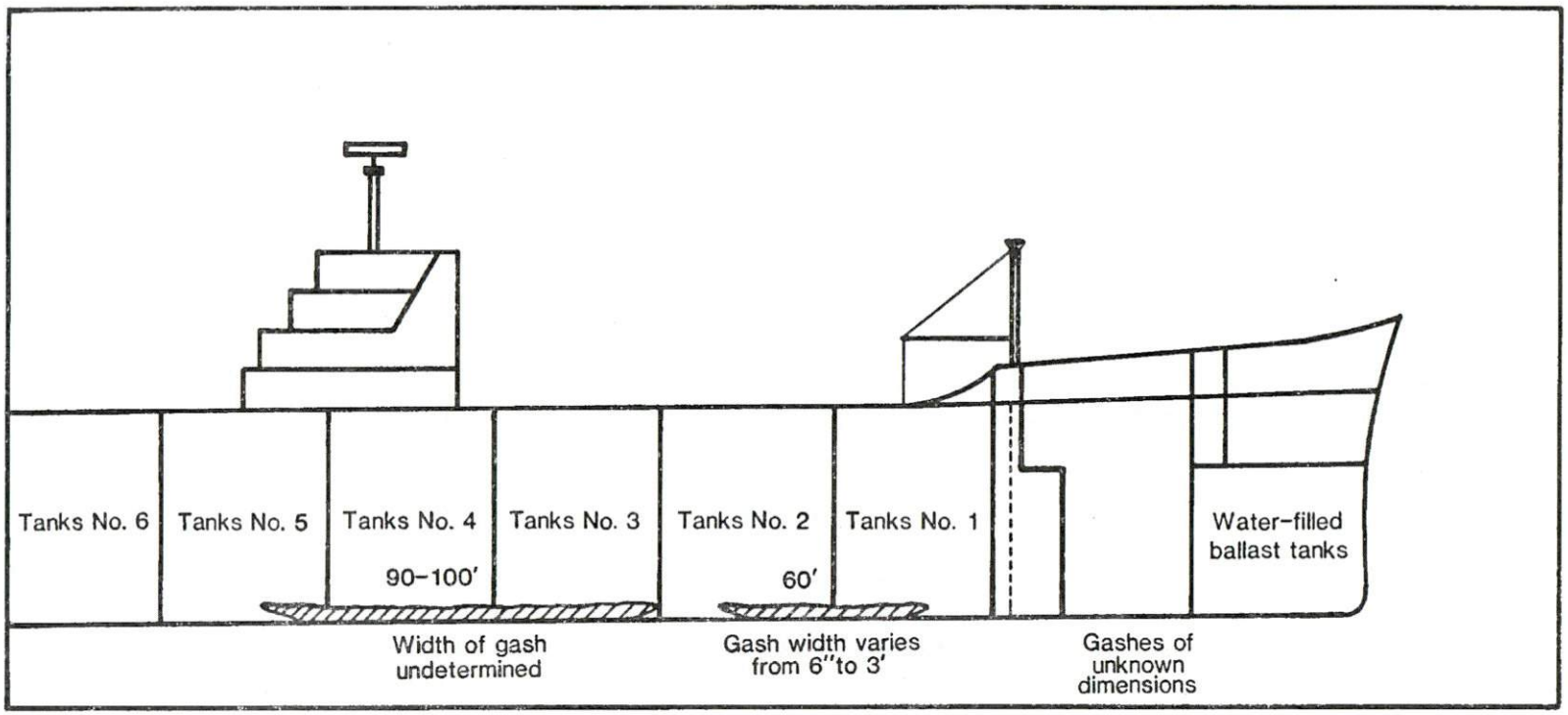

FIGURE 2. Illustration of a portion of the ship and the location of damaged tanks. (Source: U.S. Coast Guard, Portland, Oregon.)

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TABLE 1. Cargo contained in damaged tanks at time of 19 March 1984 grounding of the MOBILOIL. (Source: Information supplied by U.S. Coast Guard and Mobil Oil Company.)

Tank Number	*Cargo*	*Specific Gravity*	*Barrels*	*Gallons*	*Pour Point*	*API #*
STBD No. 1	Heavy residual	0.99	5,312	223,104	45°F	11.3
STBD No. 2	No. 6 fuel oil L.S.	0.98	6,255	262,710	30°F	12.6
STBD No. 3	No. 6 fuel oil L.S.	0.98	4,163	174,846	30°F	12.6
STBD No. 4	Industrial fuel oil	1.03	5,148	216,216	30°F	5.5
STBD No. 5	Heavy residual	0.99	7,526	316,092	45°F	11.3
Total Product Potentially Involved:			*28,404*	*1,192,968*		

was oil and what was water. An accounting of liquid transfer provided by Mobil is presented in Table 2.

Mobil continued to offload cargo from undamaged tanks in an effort to refloat the ship. At about 0130 on 26 March, the MOBILOIL swung parallel to the river current. Using tugs and the vessel's own power, the ship was backed off the rock ledge at 0430. By 1630, the MOBILOIL had been moved up the Columbia and Willamette Rivers to Swan Island where it was dry-docked for damage inspection (Fig. 3).

Cleanup of oiled shoreline areas was accomplished by Mobil through Environment Emergency Services (EES). Coordination with EES was accomplished through two field command posts, one at Kalama, Washington (later moved to Longview) and one at Long Beach, Washington. Approximately 3,500 man-days of effort were spent on the cleanup.

Mobil coordinated the bird-cleanup activities by transporting oiled birds to a cleaning center, temporarily located at the Columbian White-tailed Deer National Wildlife Refuge. This center was in operation until 23 April and facilitated the recovery and cleaning of 475 birds.

B. COORDINATION OF EFFORT

With the number of federal and state agencies having jurisdiction and interest in the Columbia River environment, a coordinated response to this incident was necessary. Therefore, a meeting was called on 23 March in Portland to assure effective use of people and funds. In attendance were representatives from the States of Oregon and Washington, and from the U.S. Department of Interior (DOI), USCG, and NOAA. At this meeting, it was decided that the scope of research needed to assess environmental impact went beyond that necessary for cleanup support. As a result, these agencies agreed to share their information and coordinate their research regarding the fate and effects of the oil. The state agencies and DOI were to continue their biological surveillance and record any incidents of oil impacts on the biota in the river and marine ecosystems affected. NOAA would continue to study the transport and fate of the oil in the environment and would act as the central coordination point for all agencies.

NOAA developed an environmental sampling-plan matrix (described later) to facilitate coordination and to assure that any critical research gaps would be filled by one of the cooperating agencies. This approach was

TABLE 2. Estimated cargo loss resulting from 19 March 1984 MOBILOIL grounding. (Source: Mobil Oil press release, 30 March 1984.)

		Barrels
Quantity discharged to barges from ruptured tanks (#1, #2, #3, #4, and #5 starboard)		23,542
Oil remaining on top of water in #1, #2, #3, #4, #5 starboard tanks after discharge		542
Total oil transferred to #5 center tank from ruptured tanks and #1 and #2 port tanks		2,558
	Subtotal	*26,642*
Oil in #1, #2, #3, #4, and #5 starboard tanks prior to stranding		(28,404)
Oil transferred from #1 and #2 port tanks		(2,163)
	Estimated Outflow	*(3,925)*

No changes, due to stranding, of quantities in other tanks.

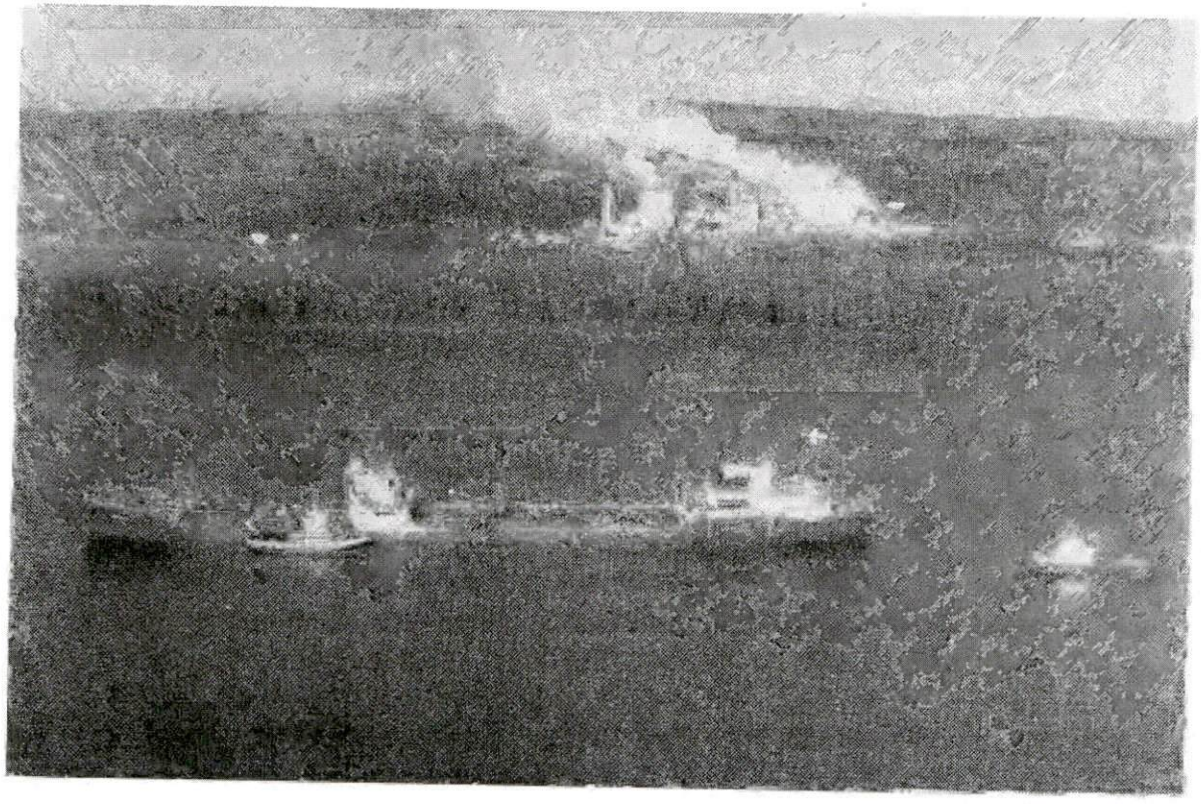

FIGURE 3. Movement of the MOBILOIL following refloating on 26 March 1984.

presented at a meeting of these agencies on 27 March in Battleground, Washington. At this meeting, each agency designated a primary contact point and relayed recently acquired information. Based upon the sensitivity of certain parts of the river and the expected areas of impact, sampling sites were established and agreed upon (Figs. 4 and 5).

This meeting also provided a forum for filling in the sampling-plan matrix and, where necessary, standardizing sampling procedures. Following this meeting, it was agreed that each evening there would be a meeting at the NOAA command post in Astoria, Oregon, that would be attended by each agency contact, either in person or by teleconference.

To track the sampling efforts being conducted by the various agencies, NOAA utilized a computerized sample-tracking system developed for hazardous materials responses. This system allowed the NOAA information management group to immediately begin tracking ongoing fieldwork. Additional personnel worked with the designated agency-contact people to assure that information collected earlier in the event was also included. This retrospective sample tracking was accomplished within a few days of the initial incident to minimize information loss.

Coordination of the NOAA sampling teams with other agencies continued throughout the study. Sampling procedures, equipment selection, sample locations, time schedules, results, and observations were coordinated through the NOAA command post in Astoria to assure that adequate effort was being exerted with a minimum of duplication. Daily meetings held each evening in Astoria, along with constant phone communication, allowed for this close cooperation.

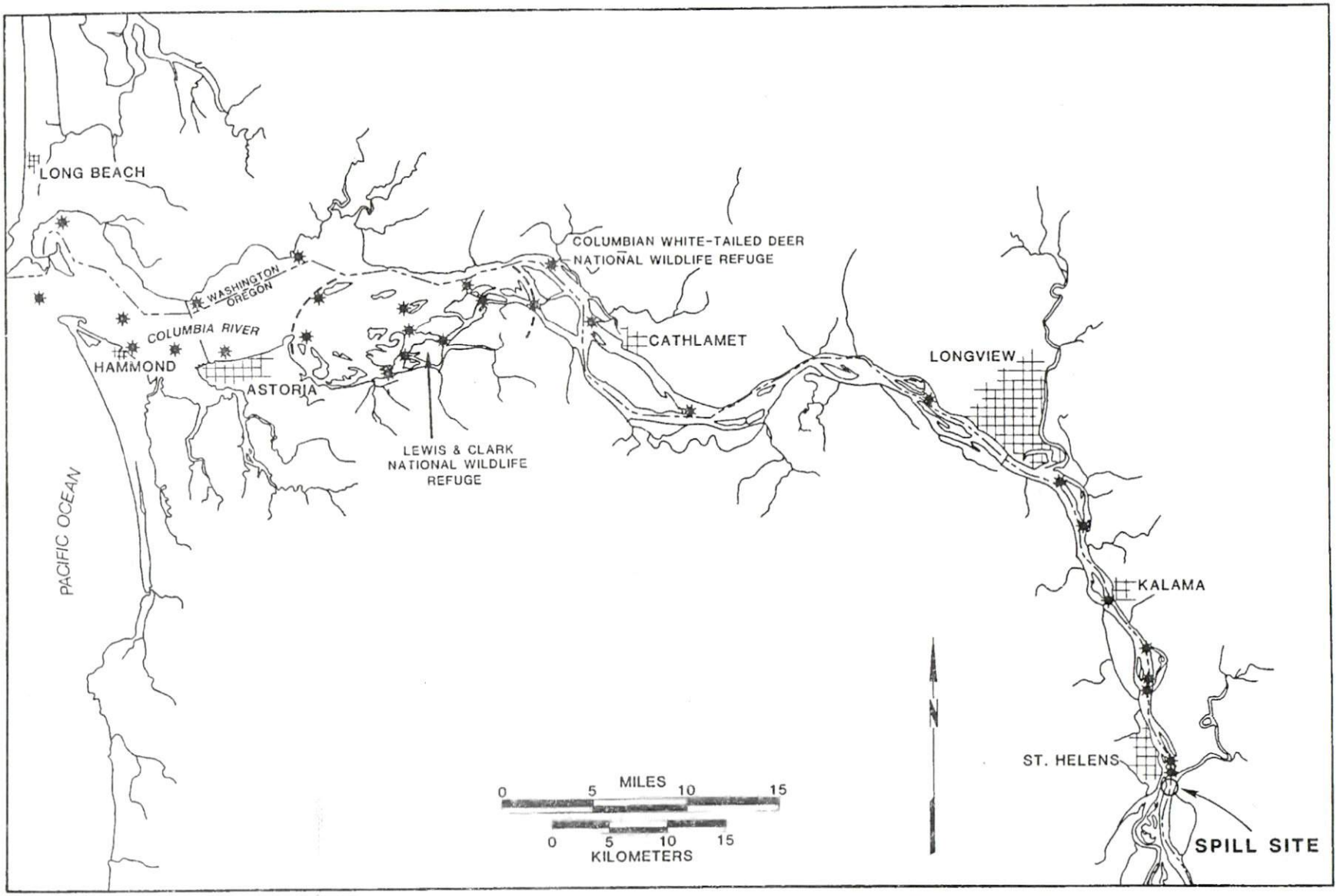

FIGURE 4. Spill site and downriver impact area. Primary study sites are indicated by *.

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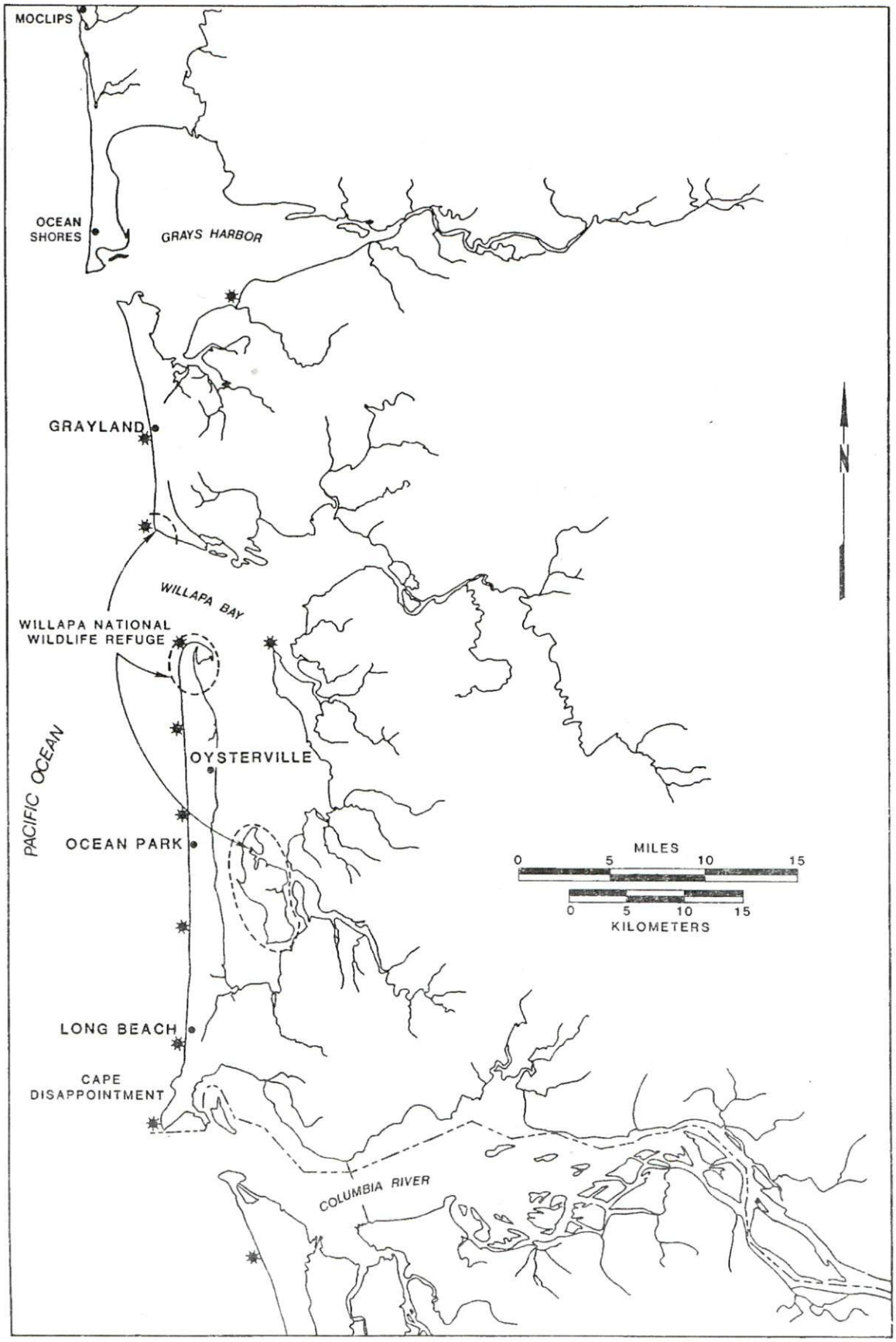

FIGURE 5. Impact area on the Washington and Oregon outer beaches. Primary study sites are indicated by *.

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III. FATE AND EFFECTS PROGRAM

A. BACKGROUND ON NOAA'S SCIENTIFIC SUPPORT TEAM

The Hazardous Materials Response Branch of NOAA has been established to provide qualified scientific advice to federal On-Scene Coordinators (OSCs) during oil and chemical spills in the marine environment. A Scientific Support Coordinator (SSC) is one member of a group of special forces available upon request to federal OSCs during actual or potential releases of pollutants and prespill contingency planning. During spills, SSCs serve on the OSC's staff to integrate scientific information pertinent to a particular incident and coordinate scientific activity on-scene.

The overall goal of the response program is to provide timely and effective deployment of scientific resources to minimize environmental and socioeconomic impact during an emergency oil or hazardous substance release. The major objectives of the program are:

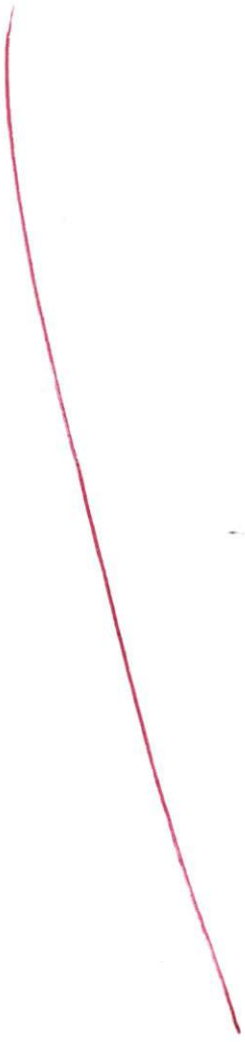
1) To provide the National Response Team, Regional Response Team, and OSCs with assistance in (a) evaluating imminent hazards to human health and the environment and (b) mitigating or preventing the environmental and socioeconomic impacts of oil and hazardous substance releases.
2) To provide scientific assistance in assessing the environmental and socioeconomic damage resulting from such incidents.
3) To maximize the research advantage offered by the spill situation, especially for improving future response capabilities.

B. RATIONALE

A program of fate and effects investigation was initiated by NOAA on 23 March 1984. Evidence accumulated over the preceding week strongly suggested that a number of conditions existed which have been prerequisites in the past for the authorization of such studies.

1. Substantial Threat to Resources of Trusteeship Interest to NOAA

Additional information suggested that the volume of the spill exceeded the initial Mobil/USCG estimate of 42,000 gallons, perhaps by a considerable margin. It was also clear, from preliminary sampling, that some fraction of the oil, perhaps the bulk of the spill, had become incorporated into the



water column and river bedload sediments, posing a much greater risk to natural resources than would have been the case if oil impacts had been restricted to surface contamination.

There are two resources of primary concern to NOAA that were potentially at risk from the spill. During the March-April period, hatcheries on the Columbia River release several million juvenile salmon into the river system upstream of the spill location. Previous studies have indicated that juvenile salmon are particularly sensitive to oil impact. In addition, there were migrating adult salmon in the river. These facts, coupled with the presence of 600-700 harbor seals protected by NOAA under the Marine Mammal Protection Act, provided a major motivation for NOAA to undertake a close examination of the nature and extent of oil impact.

2. Need for Additional Data to Meet Response Requirements

It was apparent early in the spill response that several decisions affecting river resource management would require detailed information on the quantity and fate of the oil spilled during the incident. The decision to hold salmon in upstream hatcheries would depend on information with which to forecast risks to survival at various release intervals. The possibility of relocating marine mammals, an unpleasant prospect at any time and especially so during the pupping season, might depend on the extent of oil reaching haulout areas. The management of river flow itself could affect not only stability of the vessel, but also the dynamics of oil movement, the availability of water for upriver marshes, and other characteristics of the estuary with resource management implications. These and other management uncertainties provided major impetus for the fate and effects investigation.

3. Existence of Background Information

Fate and effects studies in the past have been hampered by lack of information on natural environmental conditions against which excursions resulting from the spill incident might be compared. The Columbia River, however, is a well-studied system, so considerable data were available to meet study needs. In particular, data were available from the Columbia River Estuary Data Development Program (CREDDP) which were essential to study design and eventual interpretation on analytical measurements (Pacific NW River Basins Commission, 1979-1983).

C. GENERAL METHODS

1. Sample Planning and Coordination

To obtain an overview of the responsibilities and the purposes of sampling at the proposed sites, a chart was produced (Table 3) to allow agencies to see the effort taking place and to determine their roles in the effort based on their resources and interests. A sampling program was then generated which showed the overall effort at each sampling site (Appendix C). This program described the location, sampler, and what was sampled.

2. Sampling Execution: NOAA Sampling Efforts

[*A chronology of NOAA sampling efforts is given in Appendix A.*]

One day after the MOBILOIL went aground, the NOAA sampling effort began, spanning the period from 21 March to 9 May 1984. Initially, the program consisted of overflights and ground-truthing along upriver shore areas. This effort was expanded to include water and sediment sampling, additional staff, and use of a NOAA boat and other vehicles beginning on 21 March. Appropriate sampling equipment, administrative supplies, and communications gear, which had been prepackaged and staged for immediate use in a 24-hour accessible area, were transported from Seattle.

On Sunday, 25 March, a command post was established at the U.S. Army Corps of Engineers Field Station in Astoria, Oregon. Field personnel met there that evening, and these evening meetings were continued throughout the sampling period.

The most intensive period of sampling took place between 26 March and 31 March. During this time, 2 charter fishing boats, a NOAA boat, 3 vans, a charter aircraft, and 6 or more NOAA staff sampled the river from St. Helens to the Pacific Ocean, and the ocean beaches from Seaside (Oregon) to Grays Harbor (Washington).

Sampling efforts focused on the water column (water, plankton tow), surface water (sheens, tarballs), river bottom (trawl, sediment grab, sorbent ball), beaches (overflights, ground-truthing), and observation by the local residents and fishermen. Sampling by 5 m otter trawl was the most effective way of covering large areas of the bottom and deeper areas of the river (Fig. 6.). The cod end of the trawl was fitted with a sorbent pad which gathered oil or oiled debris (Fig. 7). The entire pad or a portion of

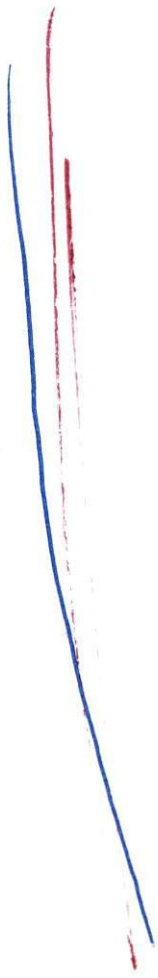


TABLE 3. Sampling program including agencies, parameters, and sites. Some sites are not shown on the map.

SAMPLE SITES	PHYSICAL	CHEMICAL	BIOLOGICAL					
	Oil Budget	Chemical Monitor	Marine Mammals	Marine Birds	Fisheries	Shellfish	Wetlands	Beaches
Cape Disappointment	WDF/NOAA	NOAA/WDF/Parks Dept.				WDF		WDF/NOAA
Long Beach	WDF/NOAA	NOAA/WDF	WDF	NOAA	WDF	WDF		WDF/NOAA/EPA
Ocean Park	WDF/NOAA	NOAA/WDF	WDF	NOAA	WDF	WDF		WDF/NOAA/EPA
Willapa Bay	WDF/NOAA	WDF/NOAA	WDF	NOAA	WDF	WDF		WDF/NOAA/EPA
Grays Harbor	WDF/NOAA	WDF	WDF		WDF	WDF		WDF/EPA
Fort Canby		WDOE	WDF		WDF			
Beeker Beach	NOAA	WDOE	WDOE		WDOE			
Chinook	NOAA	WDOE			WDOE			
Desdemona Sands	NOAA	NOAA	NOAA		NOAA			
Astoria Bridge	NOAA	NOAA			NOAA			
Taylor Sands	NOAA	NOAA			NOAA			
Hammond	NOAA	NOAA		NOAA				
Grays Bay	NOAA	NOAA			NOAA			
Rice Island	NOAA	NOAA						
Miller Sands	NOAA	NOAA						
Jim Crow Sands	NOAA	NOAA						
Steamboat Downstream	NOAA/ODEQ/ODFW	NOAA		DOI	WDF		NOAA/DOI/ODEQ/ODFW	
Steamboat Upstream	NOAA/ODEQ/ODFW	NOAA		DOI			NOAA/DOI/ODEQ/ODFW	
Elochoman Downstream	NOAA/ODEQ/ODFW	NOAA/WDF					NOAA/ODEQ/ODFW	
Elochoman Central	NOAA/ODEQ/ODFW	NOAA/WDOE			NOAA		NOAA/ODEQ/ODFW	
Elochoman Upstream	NOAA/ODEQ/ODFW	NOAA			WDOE		NOAA/ODEQ/ODFW	
St. Helens Shallows	NOAA/EPA/ ODEQ/ODFW	NOAA					NOAA/ODEQ/ODFW	
Mile 85	NOAA/EPA/ ODEQ/ODFW	NOAA					ODEQ/ODFW	
St. Helens Channel	NOAA/EPA/ ODEQ/ODFW	NOAA					ODEQ/ODFW	

DOI = Department of Interior
EPA = Environmental Protection Agency
ODEQ = Oregon Department of Environmental Quality
ODFW = Oregon Department of Fish and Wildlife
WDF = Washington Department of Fisheries
WDOE = Washington Department of Ecology

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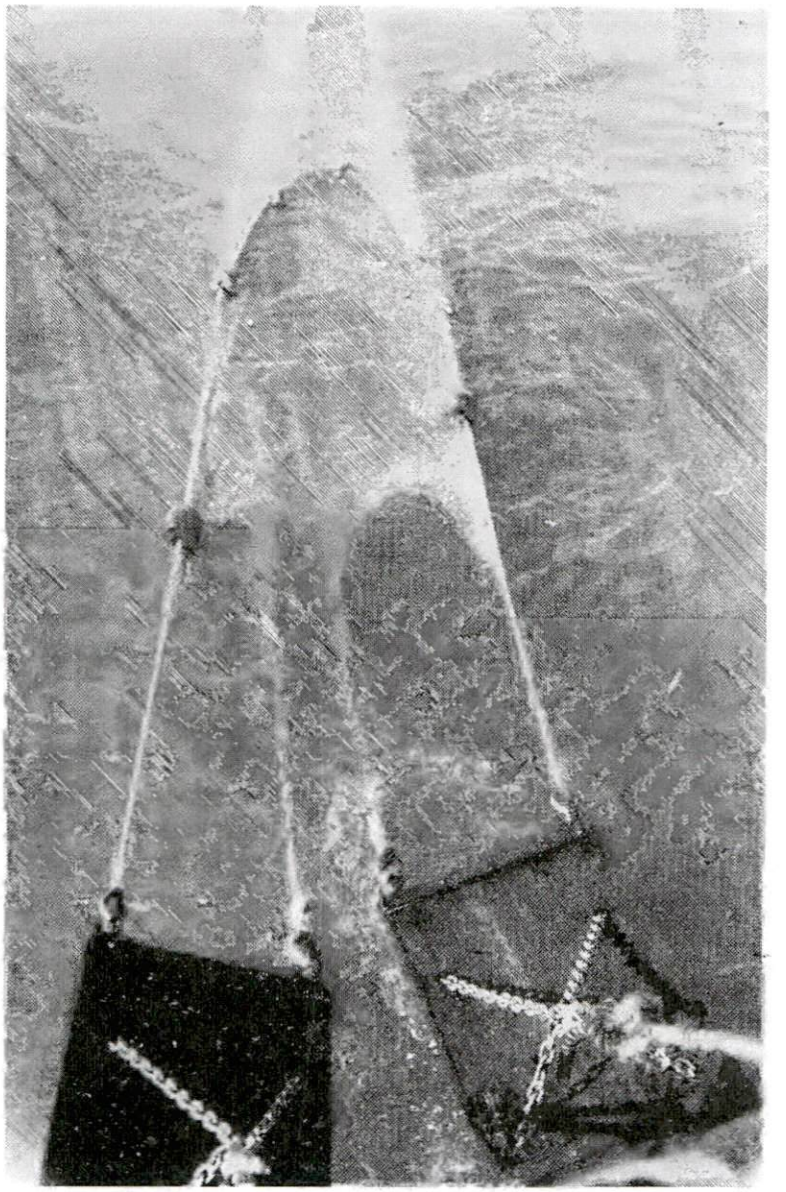

FIGURE 6. Otter trawl for sampling fish and large areas of bottom for oil.

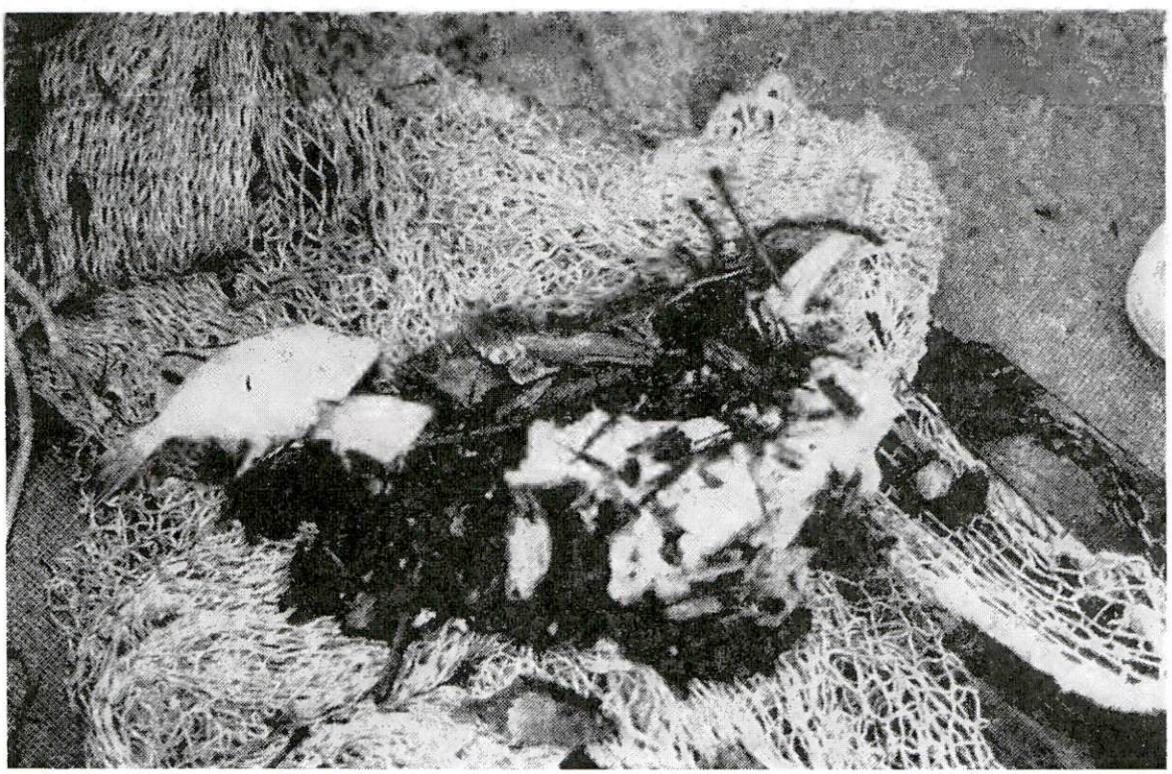

FIGURE 7. Otter trawl collection, including fish, oiled debris, and oiled sorbent pad.

oil was then kept as a sample. The net was washed by dragging it behind the boat, and a new sorbent pad was fitted for the next trawl.

Samples taken followed strict chain-of-custody sample storage and sample collection procedures. Documentation consisted of notes taken in bound fieldbooks by field parties. These notes were supplemented by sample tags and sample-tracking forms. Sample jars and collection devices were initially washed with soap and water, rinsed with water, rinsed with hexane, and sealed with aluminum foil. Samples were then stored in a locked refrigerator with controlled access.

3. Sampling Execution: Other Agencies

Details of other agency response are described in Appendix B and by sampling-tracking sheets in Appendix C. As described previously, agencies of the States of Oregon and Washington, as well as federal agencies, participated in this study effort. In general, each agency used its own field procedures and field tagging methods. However, there were specific sampling devices or techniques developed for this particular spill situation, for which the agencies shared expertise and resources to assure compatibility of results. Chain-of-custody sample treatment and tracking techniques established by NOAA were used by all agencies. Field study plans were coordinated between agencies each evening, and any new methods or results discussed.

D. BIOLOGICAL STUDIES

1. Resources at Risk

Information on the natural resources of the Columbia River and outer beaches was obtained from various sources (Beak Consultants, Inc., 1978; Pacific NW River Basins Commission, 1979-1983; Seaman, 1978; Sutherland, 1979; and USFWS, 1981).

The primary concerns relative to resources were based on the habitats, seasons of activity, likelihood of impact, and the organisms themselves. Following is a list of the areas which were determined to be most sensitive during the period of the spill and their criteria for sensitivity (return to Figs. 4 and 5 for Areas #1-#7 and Fig. 5 for Area #8):

1) Baker Bay - Chinook, chum, and coho salmon nursery; feeding and nursery area for dungeness crab and various fishes; waterfowl concentrations; high primary productivity.
2) Desdemona Sands - Harbor seal habitat area; concentrations of juvenile and adult starry flounder and other fishes; benthic organism concentrations.
3) Youngs Bay - Chinook, chum and coho salmon nursery area; feeding area and nursery for dungeness crab and various fishes; benthic organism concentrations.
4) Taylor Sands - Bald eagle feeding area; harbor seal habitat area; benthic organism concentrations.
5) Lewis and Clark National Wildlife Refuge.
   a) Rice Island - Harbor seal habitat area.
   b) Russian and neighboring islands - Bald eagle feeding area; chinook salmon and starry flounder nursery area; harbor seal habitat area; waterfowl feeding; benthic organism concentrations.
   c) Miller and Jim Crow Sands - Harbor seal habitat area; chinook salmon and starry flounder nursery area; waterfowl feeding; benthic organism concentrations.
6) Columbian White-Tailed Deer National Wildlife Refuge.
   a) Steamboat Slough - Waterfowl feeding area.
   b) Elochoman Slough - State fish hatchery; salmon spawning and fingerling habitat.
7) Upriver sites - These included islands and shoreline up to the Warrior Rock spill site near St. Helens. These are areas of waterfowl and fish habitat.
8) Outer beach sites - These included the outer beaches of Oregon and Washington to Grays Harbor. Included in this area were the habitats for marine birds, migrating waterfowl, anadromous fish, shellfish beds (oyster and razor clam), and recreational beaches.

Seasonal aspects, such as bird nesting and fish migration, were taken into account in determining sensitive areas. Certain other areas which contained sensitive habitats were not studied in this detail either because they were not impacted by oil or because they were determined not to be sensitive to oil impacts at the time of the spill.

A list of species present in the area and vulnerable to oiling is presented in Appendix D. Of primary concern were the following:

1) Several hundred harbor seals (mostly pregnant females) along the lower river, with pupping to begin soon.
2) Threatened or endangered species which use the area, including bald eagle, snowy plover, peregrine falcon, and Columbian white-tailed deer.
3) Large number of seabirds and migratory waterfowl in the impact area of the river mouth and outer beaches.
4) Chinook salmon fingerlings scheduled for immediate release from the Washington State Hatchery on Abernathy Creek.
5) Coho salmon fry being cultured by Oregon Department of Fish and Wildlife (ODFW) at the Trojan Nuclear Power Plant in ponds which received noticeable oil from the river.
6) Adult spring chinook salmon runs which were in progress, along with the downstream migration of juveniles.
7) Sportfishery based on large catches of flounder, sturgeon, steelhead, and spring chinook.
8) Commercial longline fishery for sturgeon.
9) Clam and oyster populations on the outer beaches and in Willapa Bay.

2. Methods

The data for fate and effects of resources were gathered by the following methods:

1) Field sampling, as described previously.
2) Aerial overflights and ground observations, to locate affected resources.
3) Interviews with fishermen, cannery operators, and agency personnel.
4) Investigation of reports from the public and state agency personnel.
5) Live box studies in Elochoman Slough [96-hr bioassays] of chinook salmon fingerlings followed by a saltwater challenge test [performed by Washington Department of Ecology (WDOE)].

6) Physiological examinations of gills, guts, and other organs of coho salmon fingerlings [performed by Oregon Department of Environment Quality (ODEQ)] at the Trojan Nuclear Power Plant.
7) Chemical analysis of tissues of white sturgeons collected in the river (performed by WDOE).

Detailed information on the methods used by WDOE and ODEQ is not included in this report, but can be obtained by contacting these agencies. Other observations and data in this report are either from NOAA personnel or were verified by NOAA personnel and are included in the sample-tracking sheets (Appendix C).

3. Findings

a) Marine Mammals

A concern during the spill was the effect on health and movement of harbor seals, especially since pupping usually begins in the first week of April. Observations made of seals on Desdemona Sands and upstream, with dead seals being investigated when reported, revealed that the seals were in typical numbers at the Desdemona Sands area, while only two were seen upstream. Observations of two dead seals indicated mortality had occurred prior to the spill, and that injuries from nets or boats were responsible. A dead whale was also reported which was investigated on 27 March. The dead whale was identified as one disposed of prior to the spill and was inadvertently towed to shore.

The cleanup of the shoreline and the short retention of oil in the vicinity of the Columbian White-Tailed Deer National Wildlife Refuge indicated that effects on the deer and furbearing animals would be minimal.

b) Seabirds and Waterfowl

The most conspicuous effect of the spill was on the coastal birds. As mentioned previously, a process of collection, transport, and treatment was initiated by Mobil Oil utilizing the services of the International Bird Rescue Research Center (Berkeley, California). Birds were captured on outer beaches, on roads, and along the river. Dead or severely weakened birds numbered up to two per mile per day on the outer beaches where they were often mixed in a swash of the marine invertebrate velella (Fig. 8). Dead

FIGURE 8. Oiled, dead bird (western grebe) found on outer beaches and mixed in with velella.

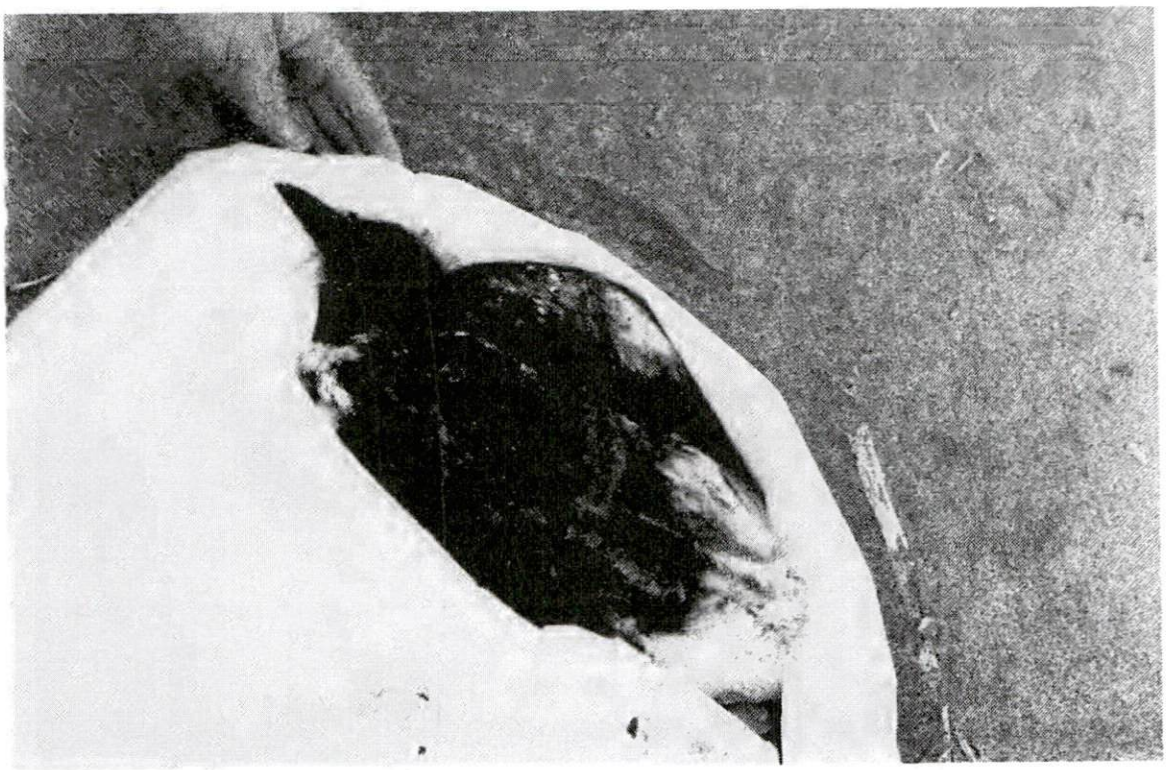

FIGURE 9. Oiled, dead bird (common murre) picked up by outer beach cleanup crews.

birds were picked up and disposed of by beach cleanup crews (Fig. 9). A total of 698 birds were transferred to the rescue center at the Columbian White-Tailed Deer National Wildlife Refuge where they were tagged, fed, and cleaned. Of these, 475 birds were treated and released. The species in decreasing order of abundance were western grebes, surf scoters, common murres, white-winged scoters, and black scoters.

No effects were noted on bald eagles feeding in the area. The snowy plovers nested without any observable effects and with little or no oil present at the Willapa National Wildlife Refuge.

c) Fish

Short-term, live box tests (96-hour in-situ bioassays) showed no lethal effects, and the saltwater challenge test was also negative. These tests, coupled with chemical analysis of river water from the vicinity, indicated to the Washington Department of Fisheries (WDF) that the chinook fingerlings could be released from the Washington hatchery.

Coho salmon fry stocked in river-fed holding ponds at the Trojan Nuclear Power Plant on the day of the spill were examined nine days later and were found to be within normal limits for physiological tests.

A total of 55 white sturgeon captured in a gill net were examined for oil, and 13 had oil in their mouths. A small portion of a commercial petrale sole catch was found to be oiled and was discarded by a Chinook, Washington, cannery. Various catches of oiled fish were turned in to state agencies by anglers, including a catch of surfperch with oil in the mouths.

Chemical sampling of sturgeons showed a high content of heavy naphthalenes, and the fish showed physical signs of stress (e.g., excess slime secretion). Heavy napthalenes are not particularly water soluble and presumably came from digestion of oil or oiled food by the fish.

d) Shellfish

Razor clam beds along the outer beaches were initially threatened by oil moving northward along the beach. Low population density, caused by disease and combined with negligible oiling, resulted in a minimal oil impact. In attempts to monitor the beds, collectors were required to spend up to four hours to find one specimen, making in-situ study unlikely.

Oyster beds were lightly oiled in southeastern Willapa Bay, and it is not known whether this oiling will affect their productivity.

In Grays Harbor, oyster cultch (used for setting larvae) was lightly oiled at Johns River. The effect of lost substrate for new oysters was minimal because of low coverage of the oil and the amount of cultch material available.

e) Wetlands

Aerial and ground surveys indicated that certain areas of shoreline marsh grasses in the river were lightly to moderately oiled. These and all oiled shoreline areas along the river were sites for a major cleaning effort (Fig. 10). Inspection of debris collected in some of these oiled areas indicated a low ratio of oil to debris, whereas oiled debris from outer beaches contained up to 60 percent oil (Fig. 11).

Major concerns regarding oiled marsh vegetation were:

1) Oiled blades of most species will die, fall out, and be a source of chronic low-level oil export from the river.
2) Birds and other animals are easily oiled by moving through the oiled vegetation.
3) The grasses and rushes are generally the most oleophilic substrates in the river and bays.

These concerns were minimized, however, by the overall low amount of oiling caused by rapid flushing of the river. In addition, the marshes are being monitored by Washington state agencies to determine the long-term effects of the oiling.

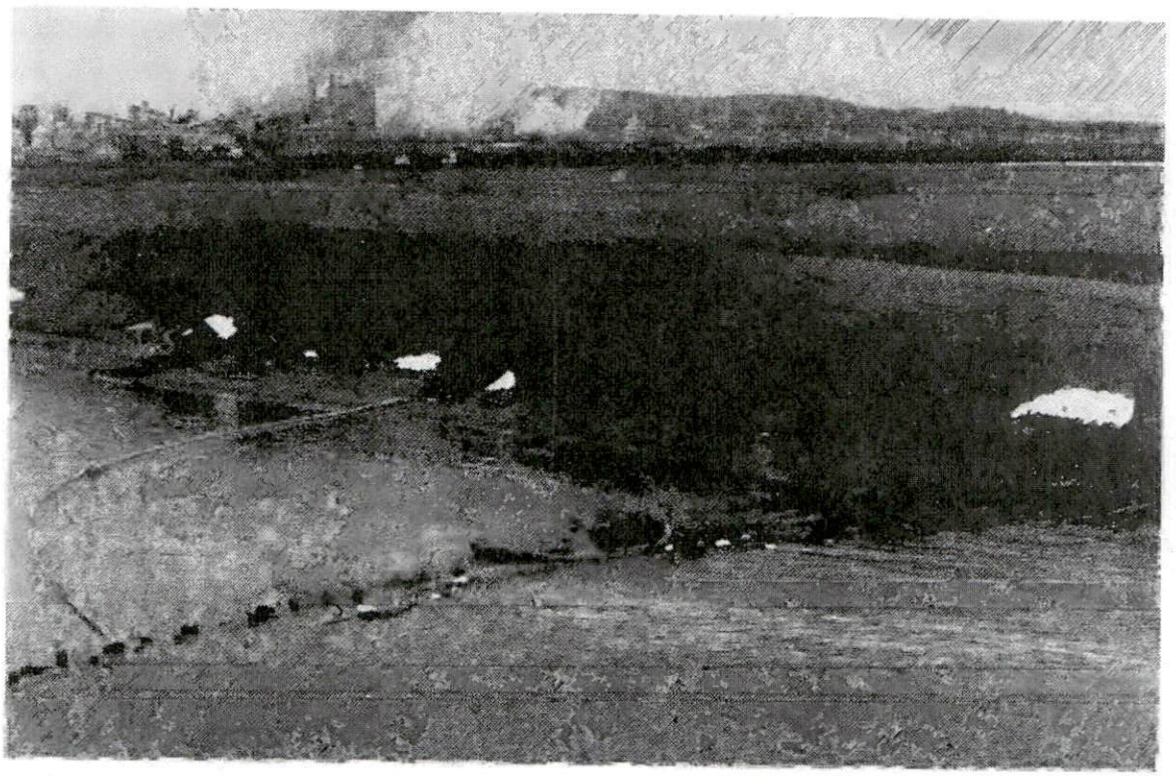

FIGURE 10. White bags of oily debris from shoreline cleanup.

FIGURE 11. Contents of bags of oil and debris from outer beach cleanup.

E. CHEMICAL STUDIES

1. Analytical Procedures

A variety of chemical analyses were performed. These analyses had three purposes:

1) To characterize or "fingerprint" the oil from the ship.
2) To identify the source of the oil collected on the shore and on the river bottom.
3) To identify the source of the oil collected from dead birds, fish, and other organisms.

Characterization of the oil was necessary to determine whether toxic, water-soluble fractions might be present and to allow identification of oil samples collected downstream. It was necessary to positively identify oil found on shorelines, in bottom sediments, and in organisms to determine its impact, movement, and weathering. In addition, reports of other spills in the area necessitated positive identification of the oil samples to be certain impacts were not being attributed to these "spills of opportunity."

Oil samples were prepared for analysis as follows. Twelve to 43 mg of the oily material were dissolved in 4 ml of n-hexane. The dissolved components were separated from the asphaltenes by centrifugation at 2,000 rpm for 5 minutes. One to three ml (µl) aliquots were injected in the splitless mode into a Hewlett-Packard 5711 gas chromatograph equipped with a flame ionization detector (injection port and temperatures were 250°C). The components were separated on a 30-m by 0.32-mm fused silica column coated with SE-52 cross-linked liquid phase (SPB-5 Supelco). The column was temperature-programmed from 70°C to 270°C at 8°C per minute. The helium carrier gas had a linear velocity at 70°C of 66 cm per second. Analog data were compiled by an IBM-9000 data system with an acquisition rate of 30 points per second.

Water samples were extracted 3 times with 60 ml of n-hexane. The extracts were instrumentally analyzed as described above. An oil/water equilibration experiment was carried out by mixing oil at 1,000 ppm distilled water and stirring the mixture. The water phase was separated from the oily residue and analyzed in the same manner as the water samples collected from the environment. Table 4 identifies those samples from the oil spill which were analyzed.

TABLE 4. Samples analyzed by gas chromatography.

Sample Number	*Description*
1	MOBILOIL tank #4
2	MOBILOIL tank #3
3	MOBILOIL tank #1
4	Seaside Beach tarball (Oregon coast)
5	Midship downriver from site
6	Oil below ship
7	Oil from Jim Crow Sands (near Hammond)
8	Tarball from Ocean City (near Ocean Park)
9	Water solubles
10	Water sample from Elochoman Slough (near Columbian White-Tailed Deer National Wildlife Refuge)
11	Water near Elochoman Slough

2. Chemical Analyses

Sample chromatograms are presented in Appendix E. Samples 1, 2, and 3 show a 20-minute portion of the high-resolution gas chromatograms from analyses of the three cargo samples. Chromatographic data from Samples 4 to 8 show similarities to analyses of samples collected from the environment. Examination of these data suggests to the following conclusions:

1) Chromatographic profiles from the three cargo samples were essentially identical, indicating very similar source crudes for these refined products.
2) The three cargo samples contained relatively greater quantities of insoluble components than normally encountered in unrefined crude oils. However, of the three samples, the No. 6 fuel oil contained relatively fewer insolubles than the industrial fuel oil or the heavy residual fuel.
3) It was determined, by comparison with the elution pattern of aromatic components in a reference crude oil (South Louisiana crude), that the major single class of compounds in these samples was the C1 and C2 alkyl naphthalenes.
4) The water equilibration experiment determined that these alkyl naphthalenes could be leached into the water column surrounding the spilled oil. Sample 9 shows the chromatographic data from the this experiment.
5) The chromatographic profiles from all environmental samples were essentially identical, indicating these samples had a common source.
6) These chromatographic profiles of the environmental samples were also identical to those from the cargo samples, indicating beyond a reasonable doubt that the oily residues found in the environment originated at the same source as the cargo samples (i.e., the MOBILOIL).
7) As seen in samples 10 and 11 (high-resolution gas chromatographic data from analyses of the two water samples), data from analyses of the water-column samples did not contain evidence to indicate that components from the MOBILOIL cargo were found, above detectable levels, in the water.

F. PHYSICAL STUDIES

1. Extent of Oiling (Physical Processes)

a) River Flow.

The major transport mechanism for oil spilled during the MOBILOIL event was associated with the river flow in the Columbia. The currents within the river are primarily controlled by the volume flow which is directly related to the input through the Bonneville Dam and the flow from the Willamette River. During the first week of the spill, estimated volumes of total flow at the confluence of the Willamette and Columbia Rivers were approximately 320,000 cubic ft per second (cfs) with day-to-day variations on the order of 20,000 cfs (Personal Communication, Corps of Engineers Reservoir Control Center, Portland). These river-flow volumes resulted in an average current at St. Helens of just under two knots. The fluctuations in the currents caused by variations in the Bonneville outflow made approximately a 5 percent change in the mean flow of the river and correspond to changes in river height of about one foot. At the spill site, the dominant advective and transport processes were clearly associated with this strong river flow.

b) Tides.

Ocean tides propagate up the Columbia River, and the range of tidal height in the vicinity of St. Helens is approximately one ft. As the progressive wave moves up the river, it causes an oscillatory tidal current of approximately 0.5 knots. This tidal current is in addition to the major river flow. During low water when the tidal currents and river flow are added together, expected currents would be approximately 2.5 knots downstream. During the high-water period when the tidal wave is progressing up the river, it is subtracted from the expected river flow, resulting in downstream currents of 1.5 knots or slightly less. On 19 March, the tidal range at Tongue Point was 0.4-10.0 ft.

c) Downriver Convergent Zones.

Consideration of the tides and river flow at St. Helens clearly points out the dominant downstream flow associated with the river currents. As

one progresses seaward down the Columbia, the effect of the river currents is diminished because the channel widens and the cross-sectional area increases. In addition, the effects of the tidal currents increase because of the stronger tidal signal. The net result of these two processes is that around the vicinity of Puget Island (river mile 42), the tidal currents become strong enough to temporarily overcome the river flow. The result is a change in the flow direction or a reversal in the currents, so that for a short period during the tidal flow, the river comes to a halt and actually shows some upstream motion. This reversal has the effect of causing a strong surface convergence, and in the region of Puget Island and slightly downriver around river mile 35, one might expect some convergence of the floating surface oil. The strength and duration of the current reversal continues to increase from this location down to the river mouth.

Intrusion of salt water from the ocean can be recognized in the Columbia River near mile 20 [A. T. Pruter and D. L. Alverson (Eds.), 1972]. This intrusion leads to a classical, two-layer circulation system. The tendency in a salinity-stratified regime is for the water to flow in at the bottom and out at the top. Two-layer circulation is superimposed on the net outflow associated with the river, and not until river mile 5 or 10 is the net inflow in the bottom layer enough to overcome the mean river flow seaward. When averaged over a number of tidal cycles, there is a net upsteam current at the bottom in this area, which corresponds to a strong convergence zone in the lower layer of the river and is associated with the turbidity maximum observed in the suspended sediment distribution (Gelfenbaum, 1983). Once again, the convergent zone area has the potential to lead to higher concentrations of oil moving along the bottom of the river, either as bed load or as suspended pollutant within the deeper section of the water column. This type of convergence zone is typically associated with increased biological activity.

d) Wind Drift.

Floating oil concentrations are affected by wind drift. During most spill incidents, the effects of wind are comparable to advection because of ocean currents, but for the Columbia River spill, the river flow dominated the factors controlling movement of the oil. The winds' effects were only secondary as long as the oil remained within the river. These secondary

effects were sufficient to influence which bank of the river received the most oil. During most of the first week following the spill, the winds had a predominantly southerly component which forced surface oil onto the northern bank, or Washington coast, and led to higher concentrations of oil along that shoreline.

e) Secondary River Flow at Bends in the Channel.

Classical channel-flow models predicts uniform currents across a river as long as the channel is straight. When bends occur, cross-channel variations in the flow occur and lead to a slight tendency for surface water to move to the outside of the curve and bottom water to move to the inside. Therefore, floating pollutants would tend to accumulate on the outside of curves in the river channel. This would suggest, for example, that surface oiling might be expected along such areas as Cottonwood Island at river mile 70, or the Steamboat Slough region at river mile 34.

2. Oil Transport

a) Surface.

During the MOBILOIL oil spill, a significant amount of cargo floated on the surface of the river. The oil moved rapidly downstream and, early on the morning of 19 March, was reported in the Longview area near river mile 65. Throughout the first day, it continued to move downstream and, by evening, was in the vicinity of Wallace Island. On the morning of 20 March, it had progressed as far as Welch Island and river mile 35. This pattern continued throughout the remainder of the spill for any oil introduced at the spill site. The oil moved rapidly downstream within a two- or three-day period and exited the river or was trapped along the shoreline in the beach-face debris and sediments.

b) Subsurface.

Some of the oil spilled from the MOBILOIL was of sufficiently high density that it was distributed throughout the water column and moved downstream as a subsurface pollutant. For the most part, the transport of this oil was dominated by the effects of river currents. Since the river flow is nearly vertically homogeneous in the upper part of the river, this

subsurface oil initially moved similarly to the floating oil. Significant reductions in flow occurred only in a relatively narrow boundary layer which is confined to within a meter of the river bottom. Such uniformity of flow is characteristic in the entire upper region of the river. This is not the case, however, for the lower part of the Columbia estuary where the intrusion of salt water leads to a two-layer system. It is expected, therefore, that oil in the lower part of the water column would be slowed in the last 20 miles of the river and would not exit the river system as quickly as oil floating on the surface.

c) River Bottom Concentrations.

During the initial release from the MOBILOIL, some cargo was dense enough to sink to the river bottom. In the lee of the ship, a large eddy system formed, allowing this dense oil to settle in a pool on the river bottom. Outside of the eddy, sinking oil was quickly washed away and progressed downstream either as droplets within the water column or as a slower flow along the river bottom. The bottom boundary layer moves downstream at a reduced speed compared to either the surface currents or the flow observed at mid-depths. Oil movement through this bottom boundary layer would depend to a large extent on the form of the oil droplets, their individual density, and whether they had agglomerated onto sediment or other detritus present in the river. Projections were that the bottom oil would wash from the river but at a significantly slower rate than oil in either surface waters or mid-water column.

d) Oil Along the River Banks.

During the MOBILOIL spill, a significant amount of oil was stranded along the river banks as a result of fluctuations in river height. These fluctuations were associated with the tidal wave progressing up the river or variations in river outflow either at Bonneville Dam or from the Willamette River. As the oil was stranded along the banks, its downriver progression was temporarily stopped. In some cases, these shore concentrations were cleaned up; in others, they were rewashed back into the river because of subsequent inundation from high water. The oil reintroduced to the river created a new, or secondary, source of surface oiling along the channel. The amount of rewashing depended on how firmly the oil was adhered to the

banks of the river. Sandy beaches, for example, rewash more quickly than the marshy areas associated with some of the sloughs. Rewashing is also affected by the amplitude of the tides. Since the spill occurred during a spring tide cycle, some rewashing may not have occurred until the following spring tide cycle, nearly a month later.

e) Potential Trapping of Oil Within the River.

For the most part, the oil spilled from the MOBILOIL moved rapidly down the Columbia River. There was, however, some potential for minor accumulations to be trapped along the river and thus remain present in the system for longer than projections based upon simple advective processes would indicate:

1) Potential pockets are associated with the banks of the river, and stranding occurred because of fluctuations in the river height.
2) Reversal of the current system caused by the tidal excursion overcoming net river flow, as happens around river mile 40, may have temporarily slowed down, or pocketed, the oil in this section of the Columbia River.
3) The estuarine flow in the lower ten miles of the river could have caused a net reversal in the bottom flow and bed load. Deep distributions of oil particles could have accumulated in the Tongue Point region or in the area of the turbidity maximum.

For any of these mechanisms having the potential to pocket or trap the oil, rewashing and mixing processes tend to reduce the concentrations over time; none of these traps are likely to hold oil for extended periods.

f) Flushing Rates.

During the MOBILOIL accident, the spilled products were seen to distribute themselves from the surface to the bottom of the river and to strand along the shorelines. For each of these areas, we can make rough estimates of residence time which indicate how long the oil is likely to remain a problem. Oil floating on the surface of the water transited the river within a few days. Oil within the water column moved somewhat more slowly and was present in the river for up to a week. Bottom concentrations transited the

river even more slowly and could have been present for periods of several weeks. To the extent that oil stranded along the shoreline is reintroduced as secondary sources, these estimated flushing times may be extended slightly by the rewashing process.

3. Long-Term Trajectory

The oil lost from the MOBILOIL transited the Columbia River in three distinct ways: on the surface, in the water column, and along the bottom. In the area of saltwater intrusion, the water density increases because of higher salinity, causing some of the oil in the water column to rise to the surface. Thus, the depth at which the oil traveled was not necessarily consistent.

Quantities of oil found on outer beaches diminished rapidly. During winter, ocean currents off the Columbia River mouth are predominantly northward. March and April are considered transitional months, after which the flow is predominantly to the south. With this consideration, it is not unreasonable to find some small (but widely scattered) tarballs to the south. The majority of the oil is expected to move northward. Although this northward movement could carry oil quite far because of the dilution factor, quantifiable amounts will not be found much north of Ocean Shores.

IV. CONCLUSIONS

The fate and effects study conducted by NOAA from 21 March to 9 May 1984 produced the following conclusions:

1. NOAA sampling on the river indicated that the Mobil estimate of 1,000 barrels of oil spilled was low. The estimate of spilled volume was later revised to 3,925 barrels by Mobil. This estimate may be further refined or expanded with additional data.
2. As of 2 April the majority of spilled oil had been either recovered or flushed out of the Columbia River.
3. Analysis of ten samples indicated that all contained oil from the MOBILOIL. The highly toxic, water-soluble fractions were not present in any of the water samples analyzed. However, heavy aromatics were found in the tissues of sturgeon, and data indicated that naphthalenes could be dissolved in the water.
4. An overall assessment of potential environmental damage will not be complete until the research conducted by DOI, National Marine Fisheries Service (NMFS), ODFW, ODEQ, WDF, and WDOE studies are completed. Following is a summary of these ongoing research efforts:
   - ° NMFS (Hammond Laboratory) is continuing benthic sampling, dungeness crab monitoring, and fish surveying by trawl studies.
   - ° ODFW will continue fish monitoring through short-term test fishing and annual monitoring of the spring chinook salmon run.
   - ° ODEQ will update their Columbia River oil spill contingency plan.
   - ° USFWS will continue monitoring impacts on birds, although bird cleanup has ceased for now.
   - ° The Washington Department of Game (WDG) is conducting a long-term monitoring program of fur-bearing animals inhabiting the oiled marsh.
   - ° WDOE will continue shoreline surveys and chemical monitoring of fish.
   - ° All agencies involved with the sampling effort will be contacted periodically by NOAA for impact updates.

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APPENDIX A

NOAA Response

APPENDIX A

NOAA RESPONSE

NOAA's involvement at the spill was divided into several phases: support of efforts by the USCG and Mobil to mitigate spill impacts; assessment of oil fate and effects; and coordination of other state and federal impact assessments. Following is a chronology of NOAA activities from 19 March through 2 April 1984.

19 March

At 0300, the USCG notified the SSC of the spill and requested oil trajectory information and an environmental sensitivity analysis.

Throughout the day, information relative to these two topics was relayed to the USCG via telephone from Seattle.

ODEQ, DOI, NMFS, and WDOE were contacted to coordinate evaluation of resources at risk and protective strategies.

The National Weather Service provided special forecasts for the spill area. The River Forecast Office provided information on river flows, cross-sectional areas, and velocity to support trajectory modeling efforts.

20 March

As trajectory forecasts by the modeling group continued, field observations of oil location and movement were hindered by poor visibility on the river.

A Regional Response Team meeting was held in Seattle, Washington. A major concern expressed at this meeting was the possibility that oil was sinking in the river. The USCG asked NOAA to determine a means of identifying sinking oil.

Coordinating efforts with resource agencies continued. Concern was expressed by an Oregon representative that little information was available on oil location and protection measures in place on the river.

After concurrence by the USCG OSC, five NOAA personnel were dispatched from Seattle to the spill scene. The group consisted of the SSC, a two-person bottom sampling crew, and a two-person aerial surveillance crew.

21 March

NOAA personnel were stationed at Kelso (Washington) for aerial surveillance; at St. Helens (Oregon) for sampling of the river bottom from the NOAA boat; and at Portland (Oregon) to coordinate scientific efforts.

State and federal agencies recommended to the USCG that side channels, sloughs, and tributary mouths downriver of the spill be protected to prevent potential impacts on waterfowl, marine mammals, fisheries, and shoreline habitats of the Lewis and Clark and Columbian White-Tailed Deer National Wildlife Refuges. Cleanup recommendations were made for shoreline areas under federal/state management.

The initial river-bottom samples taken by NOAA revealed oil on the river bottom near the vessel. Other observations indicated oil was suspended in the water column up to 50 miles downriver from the ship.

NOAA consulted the Corps of Engineers to determine how flow changes at the Bonneville Dam would affect river height and velocity at the ship.

22 March

The imminent release of hatchery salmon fingerlings upstream and downstream from the ship became a major concern.

NOAA requested that the USCG secure cargo samples from each damaged tank and that a careful accounting of oil transfers from the vessel be maintained. The volume of spill estimate was questioned.

Four NOAA personnel sampled the bottom near the vessel, and 100-ft by 1,300-ft oil patch on the bottom was identified. It was estimated that this patch contained 10,000-40,000 gallons of oil. Midwater trawls indicated the presence of in the water column. NMFS conducted trawl surveys and found submerged oil near Astoria, Oregon.

NOAA, DOI, and State of Oregon and Washington representatives discussed requirements for an initial assessment of natural resource impacts.

NOAA began daily briefings on information collected by resource agencies for the Mobil environmental affairs representative.

23 March

The NOAA sampling effort concentrated in the area of the Lewis and Clark National Wildlife Refuge to evaluate downriver migration of subsurface oil.

Current-velocity estimates at the vessel and downriver were made for the USCG at the request of Mobil. A NOAA representative was flown to the vessel by Mobil to make additional observations of river velocity.

NOAA, DOI, USCG, and State of Washington and Oregon representatives met to evaluate the need for an assessment of natural resource impacts as a result of the spill. NOAA agreed to determine transport and fate of oil at the surface, water column, and bottom of the river and to coordinate data management efforts of other agencies.

24 March

NOAA, DOI, and State of Oregon and Washington representatives met with Mobil and their insurance representative to discuss resources of concern on the river and plans to assess the impact of oil on those resources.

NOAA personnel met with Washington State and DOI representatives to begin specific planning for sampling on the river.

Removal of the oil mass on the bottom near the vessel was recommended after consultation with the states and DOI.

25 March

After consultation with various groups, specific information on Bonneville Dam flows, travel time to vessel, and river height was passed to Mobil through the USCG.

NOAA personnel and contractors on-scene increased from 5 to 13 in anticipation of an intensive 10-day sampling and data management effort. A NOAA field coordination center was established in Astoria, Oregon, to support field operations. The SSC remained in Portland to support the USCG efforts. The NOAA team consulted with National Wildlife Refuge managers on the most appropriate cleanup methods to be used in oiled wetland areas. This information was passed to the USCG and Mobil.

26 March

The vessel floated free.

A NOAA crew overflew the area to map oil locations and to look for additional oil release.

The NOAA crew sampled the water column and bottom downriver from the ship and at the location of ship grounding. The mass of oil on the bottom at the ship apparently had moved downriver.

Coordination of field sampling with Washington, Oregon, and DOI was undertaken by NOAA.

An intensive data management effort was initiated to obtain records of all oil observations made to date by each agency involved.

NOAA General Counsel was requested to provide guidance on NOAA actions during damage assessment activity.

27 March

The overall sampling plan design and coordination were finalized.

Two crews sampled Elochoman Slough and the Astoria Bridge area by boat to collect water-column and bottom samples.

An observer was sent on an NMFS vessel to record observations during bottom trawls in the lower river and Grays Bay area.

The SSC departed Portland for Astoria as requirements by the USCG for consultation on mitigation efforts were reduced.

28 March

NOAA sampling crews were deployed to various sites.

The area of vessel grounding was sampled by NOAA to determine the status of sunken oil.

Taylor Sands, Rice Island, and Miller Sands crews surveyed the bottom for oil contamination.

Oil samples from the vessel cargo tanks were obtained from the USCG.

An observer accompanied NMFS personnel during trawl sampling.

Trajectories for oil movement along the Washington coast were refined by NOAA.

29 March

Samples of oil from the vessel and various sites on the river were collected by NOAA and State of Washington personnel and taken to a local lab for analysis.

Two NOAA boat crews on the river sampled at Harrington Point, Rocky Point, and Grays Point from one platform, and Taylor Sands, Rice Island, Miller Sands, and Jim Crow Sands from a second platform.

The NOAA sampling rationale was reviewed with the states and revised to insure compatibility with biological sampling activities.

The sampling plan was to use integrated samples (otter trawls with sorbent pads) to check as much of the bottom water in the river as possible (Fig. 6).

30 March

Two NOAA boat crews sampled the water column using bottom trawls in the lower river and in the area of the Lewis and Clark National Wildlife Refuge.

Results of the chemical analyses from cargo, river, and ocean samples showed that oil coming ashore in the river and on the outer coast was from the MOBILOIL.

31 March

Ground surveys were made by NOAA on Oregon beaches near Seaside, and north of the river on the Washington coast. Fishing boat operators at Ilwaco and Chinook were interviewed. The north shore of the river near the mouth was also surveyed.

Additional samples were selected for chemical analysis.

Coordination with the state sampling effort continued.

1 April

An aerial beach survey of the Washington coast was conducted. The boat crew conducted trawl sampling in Ilwaco Channel.

Results of the previous week's sampling effort were reviewed and synthesized.

Requirements for future sampling efforts were determined.

The coordination center in Astoria was closed. Remaining field personnel were moved to Kelso, Washington.

2 April and Ongoing

NOAA and State of Oregon and Washington personnel met to review sampling efforts of the previous two weeks and to evaluate future requirements.

The data management group continued to obtain information from other agencies so that a complete history of activities, observations, and sampling would be available for later reference.

APPENDIX B

RESPONSE BY OTHER AGENCIES

APPENDIX B

RESPONSE BY OTHER AGENCIES

1. STATE OF WASHINGTON RESPONSE

The State of Washington's response to the MOBILOIL spill began on the day of the spill when the WDF surveyed the river from Vancouver to Longview. On 20 March, the Marine Resource Damage Assessment (MRDA) group was activated. MRDA is a group of state agencies whose activities are monitored and coordinated by WDOE in times of actual or potential environmental damage. The participants in MRDA are WDOE, WDF, Washington Department of Emergency Services (WDES), Washington Department of Natural Resources (WDNR), the Department of Social and Health Services, the Parks and Recreation Commission, and WDG. On 20 March, several field activities were initiated. A WDF crew was on the river between 0800 and 1530. From the ship to 2,600 ft downstream, a heavy slick was noted from bank to bank, and tarballs were found on the beaches and in the water downstream to Kalama. WDF took preoiling beach samples at Long Beach, Ocean Shores, nd Grayland beaches, and on 21 March, began ocean beach surveys from the North Jetty (Cape Disappointment) to Ocean Shores, Washington.

WDOE and WDF staff also deployed cages containing live fish at Elochoman and Bachelor (control) Sloughs on 27 March. No mortality was noted when the fish cages were removed on 2 April. Water samples were taken and water chemistry parameters were recorded during the period at the fish-cage sites.

Throughout the spill, WDF conducted angler surveys and examined commercial fish buy-tickets for reports of oiling. The sample-tracking effort for the state is given in Appendix C. The State of Washington remains concerned about long-term effects of the spill and will continue to monitor the situation for some time.

2. STATE OF OREGON RESPONSE

The State of Oregon was notified of the accident by the USCG at 0200 on 19 March and had staff on-site at the USCG command post at 0530 that norning. ODFW had crews on the river by 0930 that morning, examining effects and possible mitigation measures that could be taken. ODEQ also had

personnel on-scene that morning and, along with ODFW, overflew the spill site and the impacted areas of the river. Both of these agencies continued to work with the USCG on cleanup efforts, while also monitoring oil impacts on the Oregon side of the river. ODFW personnel continued conducting the angler fishing surveys by air and boat, which they had begun prior to the spill. Notes on extent of oiling and oiled fish or gear were taken. The Oregon agencies were also in touch with various industries along the river and were receiving regular reports of any oil-related problems. ODFW had a large number of hatchery-raised coho salmon fingerlings in river-fed ponds at the Trojan Nuclear Power Plant, 10 miles downriver from the spill site. By coincidence, these salmon were put into the ponds the morning of the incident and, consequently, were closely monitored for mortality and sublethal impacts. ODEQ and ODFW personnel also conducted a boat survey of the river bottom and shoreline from the spill site to Astoria on the 28-30 March. The sample tracking for various Oregon state personnel is listed in Appendix C of this report.

3. NOAA'S NATIONAL MARINE FISHERIES SERVICE RESPONSE

The NMFS Biological Field Station at Hammond, Oregon, provided historical prespill field information and specific postspill support during the MOBILOIL response effort. The director of the facility and his staff occupied a number of historic trawl sites and bottom sampling stations beginning on the morning of 21 March. Additional sediment samples were taken on the beach, as well as bird and fish specimens. Visual surveys documented with narrative text and photographs were made when sampling was not possible. Subtidal bottom trawls and beach sampling efforts on 22 March documented oiling on both sides of the river, near the Astoria Bridge, off McGregor Island, and in other areas. Oil globs on the beach and oiled birds, dead and alive, were documented near the Hammond Station on 27 March. The Hammond Field Station is maintaining on-site custody of the samples, photographs, and supporting documentation. Historic trawl sites and other stations are still being sampled by Hammond, to monitor any reappearance of oil.

4. EPA RESPONSE

EPA personnel were on-scene at the USCG command post for the first two days of the spill response and returned on 28 March to conduct further examinations of the oil in the river. On 29 March, EPA personnel conducted a river-bottom sampling program to determine the presence or absence of oil in the Columbia River. The sampling method consisted of lowering a 10-pound lead ball wrapped in sorbent material to the bottom and examining the material for oil upon retrieval. The sampling sites were selected from information given by a local commercial sturgeon fisherman. These sturgeon fishery "holes" were sampled between Martin Island, downstream to Stella, Washington. Additional midchannel, backwater, and transect stations were also sampled in this area. Two stations at Cottonwood Island at 40- to 50-ft depths showed even light oiling. All other stations showed only flecks of oil on the absorbent material.

APPENDIX C

SAMPLE TRACKING

NOAA/HAZMAT SAMPLE TRACKING — THE MOBILOIL SPILL (BY SEQ. #) — HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
21 MAR 1450	001	NOAA/KUMMERLOWE B-7 (BUOY 7)	1	BOTTOM SEDIMENT/SAND	GRAB
21 MAR 1530	002	NOAA/KUMMERLOWE BUOY 7	2	BOTTOM SEDIMENT, DETRITUS, SAND (OILING?)	TOW
21 MAR 1550	003	NOAA/KUMMERLOWE MID-SHIP, DOWN RIVER	3	BOTTOM ROCK AND SEDIMENT (OILED?)	GRAB
21 MAR 1545	004	NOAA/KUMMERLOWE MID-SHIP,DOWN RIVER	4	GRAB, ROCK ROCK WITH SEDIMENT, SOME OILING	GRAB
21 MAR 1600	005	NOAA/KUMMERLOWE MID-SHIP, DOWN RIVER HEAVY OILING	5	BOTTOM SEDIMENT WITH OIL IN SAND	GRAB
21 MAR 1640	006	NOAA/KUMMERLOWE ABEAM WARRIOR ROCK	6	BOTTOM SEDIMENT/SAND	GRAB
21 MAR 1700	007	NOAA/KUMMERLOWE TRANSECT 1,STATION A	7	BOTTOM SEDIMENT/AND	GRAB
21 MAR 1720	008	NOAA/KUMMERLOWE TRANSECT 1, STATION C	8	BOTTOM SEDIMENT/SAND	GRAB
21 MAR 1729	009	NOAA/KUMMERLOWE 100 YDS EAST OF WARRIOR ROCK	9	BOTTOM SEDIMENT/SAND	GRAB
21 MAR 1740	010	NOAA/KUMMERLOWE 25 YDS NE WARRIOR ROCK LIGHT	10	BOTTOM SEDIMENT/SAND	GRAB
22 MAR 1339	011	NOAA/KUMMERLOWE LINE BETWEEN WARRIOR ROCK AND DM 80 OILING ON DIAPER	1	BOTTOM OIL AND SEDIMENT	CANNONBALL
22 MAR 1346	012	NOAA/KUMMERLOWE WARRIOR ROCK BETWEEN DM 80 AND 79	2	BOTTOM HEAVY OILING, LIGHT SEDIMENT	CANNONBALL
22 MAR 1402	013	NOAA/KENNEDY RIGHT SIDE OF WARRIOR ROCK* *TANGENT TO BEACH, 150 YARDS NORTH OF PREVIOUS LINE	3	BOTTOM HEAVY OILING	CANNONBALL
22 MAR 1413	014	NOAA/KENNEDY LINE BETWEEN WARRIOR ROCK, STACK 25 YDS FROM LIGHT	4	BOTTOM HEAVY OILING	CANNONBALL
22 MAR 1522	015	NOAA/KUMMERLOWE BETWEEN DAYMARKS 73 & 72	5	WATER COLUMN DETRITUS, SEDIMENT, OIL (ABOUT 1/8 CUP)	PLANKTON NET
26 MAR 1120	016	NOAA/MCGEE SHIP SITE SAMPLE DISPOSED, SEE PHOTOGRAPH	101	BOTTOM LIGHT OILING	CANNONBALL
26 MAR 1132	017	NOAA/MCGEE SHIP SITE SAMPLE DISPOSED, SEE PHOTOGRAPH	102	BOTTOM VERY LIGHT OILING	CANNONBALL
26 MAR 1142	018	NOAA/KUMMERLOWE SHIP SITE SAMPLE DISPOSED, SEE PHOTOGRAPH	103	BOTTOM LIGHT OILING	CANNONBALL

EX5063-000109-TRB

NOAA/HAZMAT SAMPLE TRACKING ... THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
26 MAR 1206	019	NOAA/MCGEE SHIP SITE	104	BOTTOM LIGHT OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1214	020	NOAA/CARLSON SHIP SITE	105	SURFACE WATER OIL SHEEN AND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1216	021	NOAA/CARLSON SHIP SITE	106	SURFACE WATER OIL SHEEN AND TARBALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1220	022	NOAA/CARLSON SHIP SITE	107	SURFACE WATER OIL SHEEN AND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1224	023	NOAA/CARLSON SHIP SITE	108	SURFACE WATER OIL SHEEN AND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1227	024	NOAA/CARLSON SHIP SITE	109	SURFACE WATER OIL SHEEN AND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1228	025	NOAA/CARLSON. SHIP SITE	110	SURFACE WATER OILSHEEN AND TAR BALLS COLLECTED	JAR (SURFACEWATER)
26 MAR 1238	026	NOAA/CARLSON SHIP SITE	111	SURFACE WATER OIL SHEEN AND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1239	027	NOAA/CARLSON SHIP SITE	112	SURFACE WATER OIL SHEENAND TAR BALLS COLLECTED	JAR (SURFACE WATER)
26 MAR 1248	028	NOAA/MCGEE SHIP SITE	113	BOTTOM LIGHT TO MODERATE OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1256	029	NOAA/MCGEE SHIP SITE	114	BOTTOM LIGHT OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1302	030	NOAA/MCGEE SHIP SITE	115	BOTTOM LIGHT TO MODERATE OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1310	031	NOAA/MCGEE SHIP SITE	116	BOTTOM LIGHT TO MODERATE OILING	CANNONBALL
		SAMPLE DISPOSED,NO PHOTOGRAPH			
26 MAR 1315	032	NOAA/MCGEE SHIP SITE	117	BOTTOM LIGHT OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1320	033	NOAA/MCGEE SHIP SITE	118	BOTTOM LIGHT OILING	CANNONBALL
		SAMPLE DISPOSED, SEE PHOTOGRAPH			
26 MAR 1503	034	NOAA/CARLSON BUOY "7"	119	BOTTOM CLEAN SEDIMENT/SAND	CLAM SHELL GRAB
26 MAR 1524	035	NOAA/CARLSON SHIP SITE	120	BOTTOM SEDIMENT/SAND SAMPLE	CLAM SHELL GRAB
		NO APPARENT OILING NOTICED			
26 MAR 1600	036	NOAA/KUMMERLOWE TRANSECT BETWEEN DAY MARKERS 72 AND 73	121	BOTTOM NET AND SEDIMENT HEAVILY OILED	PLANKTON NET
		1600-1635 TRANSECT PERIOD			

EX5063-000111-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
26 MAR 1210	055	NOAA/KUMMERLOWE SHIP SITE	140	SURFACE WATER SILVER TO RAINBOW, TARBALLS AVERAGE SIZE .5 CM, SHEENS 20%	VISUAL SURVEY
		COVERAGE OF RIVER, SHORE TO SHORE, TARBALL DENSITY, 1 PER 10SQ. FEET			
26 MAR 1310	056	NOAA/KUMMERLOWE SHIP SITE	141	SURFACE WATER SILVER TO RAINBOW, TARBALLS AVERAGE SIZE .5 CM, SHEEN 20%	VISUAL SURVEY
		COVERAGE OF RIVER, SHORE TO SHORE, TARBALL DENSITY, 1 PER 10 SQ. FEET			
26 MAR 1250	057	NOAA/KAISER NE OF MILLER SANDS AT BUOY #12	A-86-1	BEACH SURVEY NO OIL - DARK SANDS	SCOOP BEACH SAMPLE - HOTO
26 MAR 1352	058	NOAA/KAISER ENTRANCE TO ELOCHOMAN SLOUGH	A-86-2	BOTTOM NO OIL	CANNONBALL
		20' WATER DEPTH			
26 MAR 1353	059	NOAA/KAISER ENTRANCE TO ELOCHOMAN SLOUGH	A-86-3	BOTTOM NO OIL	CANNONBALL
		WATER DEPTH 5'			
26 MAR 1355	060	NOAA/KAISER MID-CHANNEL OF ELOCHOMAN SLOUGH	A-86-4	BOTTOM NO OIL	CANNONBALL
		60' WATER DEPTH			
26 MAR 1400	061	NOAA/KAISER ENTRANCE SOUTH OF ELOCHOMAN SLOUGH (RANGE MARKS)	A-86-5	BOTTOM NO OIL	CANNONBALL
		WATER DEPTH UNKNOWN			
26 MAR 1403	062	NOAA/KAISER ENTRANCE SOUTH OF ELOCHOMAN SLOUGH (RANGE MARKS)	A-86-6	WATER	WHEATON SAMPLER
		SAMPLE TAKEN AT 3' DEPTH			
26 MAR 1410	063	NOAA/KAISER 200 YDS SOUTH OF DAY MARKER 39	A-86-7	BOTTOM NO OIL	CANNONBALL
26 MAR 1411	064	NOAA/KAISER ENTRANCE TO HUNTING ISLAND SLOUGH	A-86-8	WATER	WHEATON SAMPLER
		5' WATER DEPTH			
26 MAR 1413	065	NOAA/KAISER ENTRANCE TO HUNTING ISLAND SLOUGH	A-86-9	BOTTOM NO OIL	CANNONBALL
		5' WATER DEPTH			
26 MAR 1415	066	NOAA/KAISER WESTSHORE NEAR ENTRANCE TO HUNTING ISLAND SLOUGH	A-86-10	SHORELINE RANDOM SILVER DOLLAR-SIZEDSMEARS, SOME OILING OF GRASSES	SCOOP/PHOTOS
		NEAR WATER'S EDGE. BARELY COLLECTIBLE AMOUNTS. (5 PHOTOS)			
26 MAR 1442	067	NOAA/KAISER MID-CHANNEL OF CATHLAMET CHANNEL	A-86-11	BOTTOM NO OIL	CANNONBALL
		60' WATER DEPTH			
26 MAR 1447	068	NOAA/KAISER DAY MARKER 42 OFF SOUTHERN END TENASILLAHE ISLAND	A-86-12	BOTTOM NO OIL	CANNONBALL
26 MAR 1449	069	NOAA/KAISER DAY MARKER 42,SOUTH END OF TENASILLAHE ISLAND	A-86-13	WATER	WHEATON SAMPLER
		3'SAMPLER DEPTH			
26 MAR 1513	070	NOAA/KAISER MID-CHANNEL SW OF SOUTH TIP OF TENASILLAHE ISLAND	A-86-14	BOTTOM NO OIL	CANNONBALL
		SHALLOW			
26 MAR 1520	071	NOAA/KAISER 400 YD EAST OF JIM CROW PT TO SKAMOKAWAY -DAYMK 31	A-86-15	SHORELINE NO VISIBLE OIL	VISUAL SURVEY
		LESS THAN 100' OFFSHORE			
26 MAR 1525	072	NOAA/KAISER NW TIP OF PRICE ISLAND	A-86-16	SHORELINE 1 OILED BIRD (MOBILE), SPECIES UNKNOWN	VISUAL/PHOTO
		1 3" PATCH OF OIL			

EX5063-000115-TRB

NOAA/HAZMAT SAMPLE TRACKING [illegible]HE MOBILOIL SPILL (BY SEQ. #) HSTR07

REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
26 MAR 1525	073	NOAA/KAISER 1/2 MILE NW OF CATHLAMET BRIDGE, MID-CHANNEL	A-86-17	PUBLIC CONTACT BOTTOM. (RESULTS): NO OIL	SMELT NET-BOTTOM TO 10' ABOVE
		CONVERSTION WITH FISHING VESSEL			
26 MAR 1530	074	NOAA/KAISER LIVESTOCK DOCK ON SW SHORE OF TENASILLAHE ISLAND	A-86-18	BEACH SURVEY SMALLCLEANABLE AMOUNT OF OIL TRAPPED BEHIND DOCK, MINOR	VISUAL/PHOTO
		SMALL PATCHES ONSHORE (2 PHOTOS)			
26 MAR 1545	075	NOAA/KAISER ALDRICH POINT BOAT RAMP	A-86-19	SHORELINE NO OIL OBSERVED IN AN AREA CONDUCIVE TO IT. BRINE TRAPPED.	VISUAL SURVEY
26 MAR 1550	076	NOAA/KAISER HORSESHOE ISLAND,WOODY ISLAND CHANNEL	A-86-20	SHORELINE NO OIL SIGHTED IN AREA CONDUCIVE TO IT BEING TRAPPED.	VISUAL SURVEY
26 MAR 1600	077	NOAA/KAISER JIM CROW SANDS	A-86-21	SHORELINE WEST POINTOF ISLAND,CLOCKWISE TO MIDDLE OF SOUTH SHORE OIL	WALKED SHORELINE
		FREE.			
27 MAR 1400	078	NOAA/KUMMERLOWE BETWEEN N. BRIDGE PILING & BUOY 35A, N. OF SHIP*	B-87-1	BOTTOM NO OIL - ALL REPLICATES CLEAN	CANNONBALL
		90' WATER DEPTH, 2 KNOT CURRENT		*CHANNEL OFF W. MOORING BASIN	
27 MAR 1430	079	NOAA/KUMMERLOWE BETWEEN N. BRIDGE PILING & BUOY 35A N. OF SHIP*	B-87-2	BOTTOM	CLAMSHELL GRAB
		DEPTH 50', CURRENT 2-3 KNOTS. SLIGHT SHEEN NOTED IN WATER OFSAMPLE. *CHANNEL OFF W. MOORING BASIN			
27 MAR 1442	080	NOAA/KUMMERLOWE N. OF SHIP CHANNEL BETWEEN N. BRIDGE & BUOY 35A	B-87-3	WATER	WHEATON WATER SAMPLER
		.5 METER DEPTH			
27 MAR 1445	081	NOAA/KUMMERLOWE N OF SHIP CHANNEL BETWEEN N. BRIDGE & BUOY 35A	B-87-4	WATER	WHEATON WATER SAMPLER
		DEPTH .5 METERS			
27 MAR 1447	082	NOAA/KUMMERLOWE N. SHIP CHANNEL BETWEEN N. BRIDGE & BUOY 35A	B-87-5	SURFACE WATER	JAR (SURFACE WATER)
		SURFACE SAMPLE			
27 MAR 1448	083	NOAA/KUMMERLOWE N. SHIP CHANNEL BETWEEN N. BRIDGE & BUOY 35A	B-87-6	SURFACE WATER	JAR (SURFACE WATER)
		SURFACE			
27 MAR 1448	084	NOAA/KUMMERLOWE N. OF SHIP CHANNEL BETWEEN N. BRIDGE & BUOY 35A	B-87-7	SURFACE WATER	VISUAL SURVEY
		NO VISUAL SIGN OF SHEEN OR TARBALLS			
27 MAR 1520	085	NOAA/KUMMERLOWE DESDEMONA SANDS LIGHT	B-87-8	BOTTOM CLEAN	CANNONBALL
		24'DEPTH			
27 MAR 1523	086	NOAA/KUMMERLOWE DESDEMONA SANDS LIGHT	B-87-9	BOTTOM	CLAM SHELL GRAB
		DEPTH 24'			
27 MAR 1529	087	NOAA/KUMMERLOWE DESDEMONA SANDS	B-87-10	WATER	WHEATON WATER SAMPLER
		.5 METER DEPTH			
27 MAR 1531	088	NOAA/KUMMERLOWE DESDEMONA SANDS LIGHT	B-87-11	WATER	WHEATON WATER SAMPLER
		.5 METER DEPTH			
27 MAR 1532	089	NOAA/KUMMERLOWE DESDEMONA SANDS LIGHT	B-87-12	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1533	090	NOAA/KUMMERLOWE DESDEMONA SANDS LIGHT	B-87-13	SURFACE WATER	JAR (SURFACE WATER)

EX5063-000117-TRB

NOAA/HAZMAT SAMPLE TRACKING F HE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 DEC 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
27 MAR 1552	091	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-14	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1557	092	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-15	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1605	093	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-16	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1607	094	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-17	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1609	095	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-18	SURFACE WATER	JAR (SURFACE WATER)
		TARBALL			
27 MAR 1615	096	NOAA/KUMMERLOWE ENTRANCE TO HAMMOND MARINA	B-87-19	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1620	097	NOAA/KUMMERLOWE INSIDE HAMMOND MARINA	B-87-20	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1625	098	NOAA/KUMMERLOWE INSIDE HAMMOND MARINA	B-87-21	SURFACE WATER	JAR (SURFACE WATER)
		3 PHOTOS TAKEN			
27 MAR 1628	099	NOAA/KUMMERLOWE INSIDE HAMMOND MARINA	B-87-22	SURFACE WATER	JAR (SURFACE WATER)
27 MAR 1632	100	NOAA/KUMMERLOWE INSIDE HAMMOND MARINA	B-87-23	BOTTOM CLEAN	CANNONBALL
		15' DEPTH			
27 MAR 1634	101	NOAA/KUMMERLOWE INSIDE HAMMOND MARINA	B-87-24	BOTTOM	CLAM SHELL GRAB
		15' DEPTH - ENOUGH SEDIMENT WAS COLLECTED TO FILL 2 SAMPLE JARS - 1 PHOTO			
27 MAR 1105	102	NOAA/CARLSON MOUTH OF ELOCHOMAN SLOUGH	A-87-1	BOTTOM NO OIL, NO SAMPLE	CANNONBALL
		WATER DEPTH 10', MOUTH OF ELOCHOMAN SLOUGH			
27 MAR 1107	103	NOAA/CARLSON NORTH EDGE OF CHANNEL-ELOCHOMAN SLOUGH	A-87-2	BOTTOM NO OIL, NO SAMPLE	CANNONBALL
		50' WATER DEPTH			
27 MAR 1110	104	NOAA/CARLSON MID-CHANNEL, OFF ELOCHOMAN SLOUGH ON RANGE MARKS	A-87-3	BOTTOM NO OIL, NO SAMPLE	CANNONBALL
		60' DEPTH			
27 MAR 1113	105	NOAA/CARLSON SOUTH SIDE OF CHANNEL OFF ELOCHOMAN SLOUGH	A-87-4	BOTTOM NO OIL, NO SAMPLE	CANNONBALL
		40' DEPTH			
27 MAR 1117	106	NOAA/CARLSON NEAR SOUTH SHORE OF CHANNEL, ELOCHOMAN SLOUGH	A-87-5	BOTTOM NO OIL, NO SAMPLE	CANNONBALL
		18' DEPTH		*200' FROM SHORE	
27 MAR 1120	107	NOAA/CARLSON NE SHORE TENASILLAHE ISLAND	A-87-6	SHORE SHORE CLEAN	VISUAL SURVEY
27 MAR 1120	108	NOAA/CARLSON 100 YDS OFFSHORE TENASILLAHE ISLAND	A-87-7	SURFACE WATER OCCASIONAL SMALL OIL STREAKS ON WATER SURFACE	VISUAL SURVEY

EX5063-000119-TRB

NOAA/HAZMAT SAMPLE TRACKING ... THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
27 MAR 1125	109	NOAA/CARLSON CROSS-CHANNEL TENASILLAHE ISLAND TO ELOCHOMAN SL. OIL FOUND - NET APPEARED TO REMAIN OFF BOTTOM DURING TOW.	A-87-8	WATER COLUMN	PLANKTON TOW
		DROPLET-SIZED OILPARTICLES FOUND SCATTERED THROUGHOUT NET			
27 MAR 1150	110	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-9	SURFACE WATER	JAR (WATER SAMPLE)
		BROWN SCUM COLLECTED IN JAR, 3 PHOTOS TAKEN			
27 MAR 1240	111	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-10	SURFACE WATER	WHEATON WATER SAMPLER
		WATER DEPTH 40'			
27 MAR 1208	112	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-11	SURFACE WATER	WHEATON WATER SAMPLER
		WTER DEPTH 40'			
27 MAR 1210	113	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-12	SURFACE WATER	WHEATON WATER SAMPLER
				WATER DEPTH 40'	
27 MAR 1216	114	NOAA/CARLSON OFF ELOCHOMAN LOUGH	A-87-13	WATER	WHEATON WATER SAMPLER
		SAMPLE DEPTH 3'		WATER DEPTH 40'	
27 MAR 1219	115	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-14	WATER	WHEATON WATER SAMPLER
		3' SAMPLE DEPTH		WATER DEPTH 40'	
27 MAR 1221	116	NOAA/CARLSON OFF ELOCHOMAN SLOUGH	A-87-15	WATER	WHEATON WATER SAMPLER
		3' SAMPLE DEPTH			
27 MAR 1235	117	NOAA/CARLSON MOUTH OF STEAMBOAT SLOUGH	A-87-16	BOTTOM NO OIL	CANNONBALL
		6' WATER DEPTH			
27 MAR 1239	118	NOAA/CARLSON 200 YDS TOWARD CHANNEL OFF STEAMBOAT SLOUGH	A-87-17	BOTTOM NO OIL	CANNONBALL
		55' WATER DEPTH			
27 MAR 1241	119	NOAA/CARLSON MID-CHANNEL OF STEAMBOAT SLOUGH, 100 YDS NORTH*	A-87-18	BOTTOM NO OIL	CANNONBALL
		WATER DEPTH 62'		*OF BUOY #36	
27 MAR 1247	120	NOAA/CARLSON 3/4 ACROSS CHANNEL OF STEAMBOAT SLOUGH	A-87-19	BOTTOM NO OIL	CANNONBALL
				WATER DEPTH 16'	
27 MAR 1300	121	NOAA/CARLSON MOUTH OF STEAMBOAT SLOUGH AT RANGE MARK	A-87-20	SURFACE WATER	WHEATON WATER SAMPLER
		WATER DEPTH 25'			
27 MAR 1307	122	NOAA/CARLSON MOUTH OF STEAMBOAT SLOUGH AT RANGE MARK	A-87-21	WATER	WHEATON WATER SAMPLER
		SURFACE SAMPLE		WATERDEPTH 25'	
27 MAR 1302	123	NOAA/CARLSON MOUTH OF STEAMBOAT SLOUGH AT RANGE MARK	A-87-22	WATER	WHEATON WATER SAMPLER
		SUBSURFACE DEPTH 3'		WATER DEPTH 25'	
27 MAR 1303	124	NOAA/CARLSON MOUTH OF STEAMBOAT SLOUGH AT RANGE MARK	A-87-23	WATER	WHEATON WATER SAMPLER
		SUBSURFCE DEPTH 3'		WATER DEPTH 25'	
27 MAR 1428	125	NOAA/CARLSON NORTH EDGE OF CHANNEL - OFF ELOCHOMAN SLOUGH	A-87-24	BOTTOM NO OIL	CANNONBALL
		WATER DEPTH 50'			
27 MAR 1427	126	NOAA/CARLSON NORTH-MID CHANNEL OFF ELOCHOMAN SLOUGH	A-87-25	BOTTOM NO OIL	CANNONBALL
		WATER DEPTH 60'			

EX5063-000121-TRB

NOAA/HAZMAT SAMPLE TRACK... FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE	SEQ. #	AGENCY / NAME	FIELD TAG#	WHAT WAS SAMPLED	METHOD USED
TIME		LOCATION(S)		RESULTS	
		NOTES			
27 MAR	127	NOAA/CARLSON	A-87-26	BOTTOM	CANNONBALL
1430		MID-CHANNEL OFF ELOCHOMAN SLOUGH		NO OIL	
		WATER DEPTH 62'			
27 MAR	128	NOAA/CARLSON	A-87-27	BOTTOM	CANNONBALL
1435		SOUTH SIDE OF CHANNEL OF ELOCHOMAN SLOUGH		NO OIL	
		WATER DEPTH		*100 YARDS FROM TENASILLAHE ISLAND	
27 MAR	129	NOAA/CARLSON	A-87-28	WATER COLUMN	PLANKTON TOW
1455		ACROSS ENTIRE CHANNEL OF ELOCHOMAN SLOUGH		OIL FOUND. CONTENTSWERE SMALL DROPLETS OF OIL SIMILAR TO	
		THAT FOUND EARLIER IN THE DAY. PHOTO OF NET TAKEN.			
27 MAR	130	NOAA/CARLSON	A-87-29	BOTTOM	CLAMSHELL GRAB
1510		OFF MOUTH OF ELOCHOMAN SLOUGH		3 TRIES, VERY LITTLE SEDIMENT PICKET UP. NO EVIDENCE OF OIL	
		IN WATER, ON SMALL AMOUNT OF SEDIMENT OR ON GRAB.			
27 MAR	131	NOAA/CARLSON	A-87-30	SHORE AND WATER PHOTOS	VISUAL SURVEY
1526		DAYMARK 37 TO STEAMBOAT SLOUGH		SCATTERED OILING AT HIGH WATER MARK. SCUM ON WATER WITH OIL	
		GLOBLET.			
27 MAR	132	NOAA/SIGRIST	C-87-1	SURFACE WATER	JAR (SURFACE WATER)/PHOTO
1645		HAMMOND MOORING BASIN, FLOAT D, EAST EXTENSION		WATER, OIL,DEBRIS,MODERATE OIL. OIL IS OF LIGHT CONSISTENCY.	
		5 PHOTOS (MARKED C-87-001)			
27 MAR	133	NOAA/SIGRIST	C-87-2	ROCK, FROM RIPRAP	HAND SPECIMEN/PHOTO
1700		SW CORNER, HAMMOND MOORING BASIN		SMALL ROCK WITHOIL GLOB	
		NOT REPRESENTATIVE OF OILING ON RIPRAP - ISOLATED.		2 PHOTOGRAPHS, (MARKED C-87-002)	
27 MAR	134	NOAA/SIGRIST	C-87-3	OIL GLOB OFF RAMP	HAND SPECIMEN IN JAR/PHOTO
1650		LAUNCHING RAMP - HAMMOND MOORING BASIN		OIL SAMPLE (GLOB) IN JAR	
		HEAVY OIL		1 PHOTO (MARKED C-87-003)	
27 MAR	135	NOAA/SIGRIST	C-87-4	OIL ON BEACH	PHOTOGRAPH
1730		HAMMOND MOORING BASIN, SOUTH SIDE		6 PHOTOGRAPHS, OIL GLOBS ON BEACH.	
		OIL GLOBS 12-15" (MAX DIAMETER), HEAVY IN 30 SQ. FT. AREA		OILING ON LOG	
27 MAR	136	NOAA/SIGRIST	C-87-5	PHOTOS OF AREA	PHOTOGRAPH
1540		HAMMOND MOORING BASIN, NORTHWARD VIEW		2 PHOTOGRAPHS,SHOWING AREA	
		DISTRESSED BIRDS NOTED NEAR SAND FLATS. REPORT PROVIDED BY HARBORMASTER, JACK ZIMMERMAN.			
28 MAR	137	NOAA/KUMMERLOWE	B-88-1	BOTTOM	CANNONBALL
0929		TAYLOR SANDS SEINE HOUSE		CLEAN - THREE DROPS	
		DEPTH 20 FT.			
28 MAR	138	NOAA/KUMMERLOWE	B-88-2	SURFACE WATER	WHEATON WATER SAMPLER
0942		TAYLOR SANDS SEINE HOUSE			
		20 FT. DEPTH - SURFACE SAMPLE			
28 MAR	139	NOAA/KUMMERLOWE	B-88-3	SURFACE WATER	WHEATON WATER SAMPLER
0943		TAYLOR SANDS SEINE HOUSE			
		50 FT. DEPTH - SURFACE SAMPLE			
28 MAR	140	NOAA/KUMMERLOWE	B-88-4	SURFACE WATER	WHEATON WATER SAMPLER
0944		TAYLOR SANDS SEINE HOUSE			
		WATER DEPTH 20 FT. - SURFACE SAMPLE-			
28 MAR	141	NOAA/KUMMERLOWE	B-88-5	5 FT FROM BOTTOM	PLANKTON TOW
0952		TAYLOR SANDS SEINE HOUSE		LIGHT AMOUNT DETRITUS - NO OIL	
		60 FT. WATER DEPTH			
28 MAR	142	NOAA/KUMMERLOWE	B-88-6	BOTTOM	CANNONBALL
1027		RICE ISLAND - SW TIP		CLEAN	
		WATER DEPTH 10 FT. 1 SMALL TR BALL OBSERVED			
28 MAR	143	NOAA/KUMMERLOWE	B-88-7	SURFACE WATER	WHEATON WATER SAMPLER
1029		RICE ISLAND - SW TIP			
		WATER DEPTH 10 FT.			
28 MAR	144	NOAA/KUMMERLOWE	B-88-8	SURFACE WATER	WHEATON WATER SAMPLER
1031		RICE ISLAND - SW TIP			
		WATER DEPTH 10 FT.			

EX5063-000123-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
NOTES					
28 MAR 1052	145	NOAA/KUMMERLOWE RICE ISLAND - SW TIP WATER DEPTH 10 FT.	B-88-9	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1038	146	NOAA/KUMMERLOWE RICE ISLAND - SW TIP WATER DEPTH 10 FT.	B-88-10	5 FT. FROM BOTTOM SAND - ABOUT 1 DOZ. 1-MM SIZED TAR BALLS ABOUT 1 DOZ. 1-MM SIZED TAR BALLS	PLANKTON TOW
28 MAR 1044	147	NOAA/KUMMERLOWE MILLER SANDS - WEST TIP WATER DEPTH 14 FT.	B-88-11	BOTTOM CLEAN 3-DROPS	CANNONBALL/DIAPER
28 MAR 1046	148	NOAA/KUMMERLOWE MILLER SANDS - WESTERN TIP WATER DEPTH 14 FT.	B-88-12	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1048	149	NOAA/KUMMERLOWE MILLER SANDS - WESTERN TIP WATER DEPTH 14 FT.	B-88-13	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1050	150	NOAA/KUMMERLOWE MILLER SANDS - WESTERN TIP WATER DEPTH 14 FT.	B-88-14	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1056	151	NOAA/KUMMERLOWE MILLER SANDS - WESTERN TIP AVERAGE. WATER DEPTH 14 FT.	B-88-15	5 FT. FROM BOTTOM ONE SMALL TARBALL EVERY SQUARE INCH. TAR BALL SIZE 1 MM 2 PHOTOS TAKEN.	PLANKTON TOW
28 MAR 1114	152	NOAA/KUMMERLOWE JIM CROW SANDS - WESTERN TIP WATER DEPTH 20 FT. 3 DROPS	B-88-16	BOTTOM 10 MM SIZED TARBALLS	CANNONBALL
28 MAR 1120	153	NOAA/KUMMERLOWE JIM CROW SANDS - WESTERN TIP WATER DEPTH 20 FT.	B-88-17	BOTTOM	CLAM SHELL GRAB
28 MAR 1123	154	NOAA/KUMMERLOWE JIM CROW SANDS WATER DEPTH 20 FT.	B-88-18	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1124	155	NOAA/KUMMERLOWE JIM CROW SANDS - WESTERN TIP WATER DEPTH 20 FT.	B-88-19	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1125	156	NOAA/KUMMERLOWE JIM CROW SANDS - WESTERN TIP WATER DEPTH 20'	B-88-20	SURFACE WATER	WHEATON WATER SAMPLER
28 MAR 1131	157	NOAA/KUMMERLOWE JIM CROW SANDS - WESTERN TIP WATER DEPTH 20 FT. 1 SMALL TARBALL	B-88-21	5 FT. FROM BOTTOM TARBALL SIZE AVERAGE 1MM - DISTRIBUTED EVERY 50. CENTIMETER 2 PHOTOS TAKEN.	PLANKTON TOW
28 MAR 1155	158	NOAA/KUMMERLOWE NORTHERN TIP OF FITZPATRICK ISLAND PICKED UPT ARBALL AT HIGH WATER MARK-BLACK SAND BEACH-	B-88-22	BEACH SURVEY NO SHEEN OBSERVED ON SHORELINE	HAND SCOOP
28 MAR 1246	159	NOAA/KUMMERLOWE NORTHERN ENTRANCE TO ELOCHOMAN SLOUGH-MID-CHANNEL NET WAS LOST WHILE BRING IT IN - WAS ABLE TO SEE 3/4 OF NET BEFORE LOST	B-88-23	5 FT. FROM BOTTOM SMALL TARBALLS AVERAGE SIZE 1 MM - DISTRIBUTED EVERY 50. CM	PLANKTON TOW
28 MAR 1051	160	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (NEARSHORE)	A-88-1	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1054	161	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (50 YDS. OUT AND ABEAM)	A-88-2	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1055	162	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (MID-CHANNEL, ABEAM)	A-88-3	SURFACE WATER	JAR (WATER SURFACE)

EX5063-000125-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
28 MAR 1056	163	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (MID-CHANNEL, ABEAM)	A-88-4	SURFACE WATER	JAR (WATER SURFACE)
28 MAR 1056	164	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (MID-CHANNEL, ABEAM)	A-88-5	SURFACE WATER	JAR (WATER SURFACE)
28 MAR 1058	165	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (ABEAM, DUE WEST OF BUOY 4	A-88-6	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1103	166	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (ABOUT 200 YDS ENE OF)	A-88-7	BOTTOM SMALL OIL DROPLETS WERE NOTED	CANNONBALL ON DIAPER
28 MAR 1108	167	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (200 YDS ENE OF)	A-88-8	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1114	168	NOAA/CARLSON BUOY #4, ST. HELENS, MID-CHANNEL BETWEEN BUOY AND* *SOUTH SHORE	A-88-9	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1118	169	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (ABOUT 200 YDS ENE OF)	A-88-10	BOTTOM SMALL OIL DROPLETS WERE NOTED	CANNONBALL ON CLOTH
28 MAR 1130	170	NOAA/CARLSON WARRIOR ROCK, ST. HELENS (ABOUT 200 YDS ENE OF)	A-88-11	BOTTOM NO OIL WAS VISIBLE	CLAMSHELL GRAB
28 MAR 1201	171	NOAA/CARLSON CHANNEL BETWEEN DM 73 AND 72, ST. HELENS	A-88-12	2' TO 6' ABOVE BOTTOM SMALL OIL DROPLETS WERE ONSERVED ON THE NET.	PLANKTON FISH TOW, CANNONBALL
28 MAR 1218	172	NOAA/CARLSON CHANNEL BETWEEN DM 73 AND 72, ST. HELENS	A-88-13	2' TO 6' ABOVE BOTTOM SMALL OIL DROPLETS WERE OBSERVED ON NET SURFACE. PHOTO TAKEN	PLANKTON TOW AND CANNONBALL
28 MAR 1247	173	NOAA/CARLSON NEAR OR. SHORE ACROSS FROM W . TIP OF ST. HELENS* *BAR	A-88-14	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1251	174	NOAA/CARLSON MID-CHANNEL BETWEEN W. TIP OF ST. HELENS BAR AND* *OREGON SHORE	A-88-15	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1300	175	NOAA/CARLSON SOUTHERN SHORE OF ST, HELENS BAR, ABOUT 100 YDS*	A-88-16	SHORELINE POSITIVE OILING OBSERVED. PHOTO TAKEN *FROM WEST TIP	VISUAL SURVEY
28 MAR 1301	176	NOAA/CARLSON SO, SHORE OF ST. HELENS BAR ABOUT 100 YDS FROM *	A-88-17	SHORELINE POSITIVE OILING OBSERVED. PHOTO TAKEN *WEST TIP	VISUAL SURVEY
28 MAR 1304	177	NOAA/CARLSON SO. SHORE OF ST. HELENS BAR ABOUT 100 YDS FROM* *WEST TIP	A-88-18	SHORELINE POSITIVE OILING OBSERVED	KNIFE
28 MAR 1329	178	NOAA/CARLSON CHANNEL BETWEEN ST. HELENS BAR AND OR SHORELINE	A-88-19	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1330	179	NOAA/CARLSON CHANNEL BETWEEN ST. HELENS BAR AND OR SHORELINE	A-88-20	BOTTOM SMALL OIL DROPLETS OBSERVED ON CLOTH	CANNONBALL
28 MAR 1332	180	NOAA/CARLSON CHANNEL BETWEEN ST. HELENS BAR AND OR SHORELINE	A-88-21	BOTTOM NEGATIVE	CANNONBALL

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NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
28 MAR 1335	181	NOAA/CARLSON CHANNEL BETWEEN ST. HELENS BAR AND OR SHORELINE	A-88-22	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1337	182	NOAA/CARLSON CHANNEL BETWEEN ST.HELENS BAR AND OR SHORELINE	A-88-23	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1340	183	NOAA/CARLSON W. END OF BOAT DOCK ON SO. SIDE OF ST. HELENS BAR	A-88-24	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1345	184	NOAA/CARLSON EAST TIP OF ST. HELENS BAR	A-88-25	BOTTOM NEGATIVE	CANNONBALL
28 MAR 1357	185	NOAA/CARLSON COVE AREA WSW OF WARRIOR ROCK, ST. HELENS	A-88-26	BOTTOM NEGATIVE	CANNONBALL
21 MAR 1100	186	NOAA/EMMETT GRAYS BAY,OFF HARRINGTON PT. QUALITATIVE SAMPLE, PHOTO	HM-321-1	BEACH OIL GRAB	BY HAND
21 MAR 1100	187	NOAA/EMMETT GRAYS BAY, OFF HARRINGTON PT. QUANTITATIVE SEDIMENT CORE, PHOTO	HM-321-2	BEACH SEDIMENT	STAINLESS STEEL CORER
21 MAR 1100	188	NOAA/EMMETT GRAYS BAY, OFF HARRINGTON PT. QUANTITATIVE SEDIMENT CORE	HM-321-3	BEACH SEDIMENT	STAINLESS STEEL CORER
21 MAR 1100	189	NOAA/EMMETT GRAYS BAY, OFF HARRINGTON PT. QUANTITATIVE SEDIMENT CORE	HM-321-4	BEACH SEDIMENT	STAINLESS STEEL CORER
21 MAR 1100	190	NOAA/EMMETT GRAYS BAY, OFF HARRINGTON PT. QUANTITATIVE SEDIMENT CORE	HM-321-5	BEACH SEDIMENT	STAINLESS STEEL CORER
21 MAR 1100	191	NOAA/EMMETT GRAYS BAY, OFF HARRINGTON PT. QUANTITATIVE SEDIMENT CORE	HM-321-6	BEACH SEDIMENT	STAINLESS STEEL CORER
22 MAR 1330	192	NOAA/MUIR, EMMETT TIDAL FLAT W. OF WALLACUT RIVER IN BAKER BAY BLOBS OF OIL IN GRASS AND AT HIGH TIDE LINE	HM-322-40	OIL ON BEACH	BY HAND - PHOTOS ALSO TAKEN
22 MAR 1345	193	NOAA/MUIR, EMMETT BEACH EAST OF JETTY A IN BAKER BAY BLOBS OF OIL AT HIGH TIDE LINE	HM-322-41	OIL ON BEACH	BY HAND - PHOTOS ALSO TAKEN
22 MAR 1400	194	NOAA/MUIR, EMMETT LONG BEACH NEAR SEAVIEW, WASH. BLOBS OF OIL IN SURF LINE AND AT HIGH TIDE LINE	HM-322-42	OIL ON BEACH	BY HAND-PHOTOS ALSO TAKEN
22 MAR 1254	195	NOAA/COLEY BEACH AT NMFS FACILITY, HAMMOND, OR A NUMBER OF GLOBS ON BEACH	HM-322-50	OIL ON BEACH	BY HAND - PHOTO TAKEN
22 MAR 1403	196	NOAA/COLEY SE OF DESDEMONA SANDS MARKER (FI 4SEC 23 FT.) COLLECTED SOME FISH AND A DUNGENESS CRAB	HM-322-30	SUBTIDAL BOTTOM - OIL SAMPLE 5-M SEMI-BALLON SHRIMP TRAWL COLLECTED SOME OIL IN NET DURING A FIVE MINUTE TRAWL,	
22 MAR 1512	197	NOAA/COLEY NE OF BUOY "33" (ASTORIA, OR) COLLECTED SOME FISH	HM-322-31	SUBTIDAL BOITOM - OIL SAMPLE 5-M SEMI-BALLON SHRIMP TRAWL COLLECTED SOME OIL IN NET DURING A FIVE-MINUTE TRAWL,	
22 MAR 1403	198	NOAA/COLEY SE OF DESDEMONA SANDS MARKER (FI 4SEC 23 FT.) COLLECTED SOME FISH AND A DUNGENESS CRAB	HM-322-32	SUBTIDAL BOTTOM - FISH, CRAB 5-M SEMI-BALLON SHRIMP TRAWL COLLECTED SOME OIL IN NET DURING FIVE-MINUTE TRAWL,	

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NOAA/HAZMAT SAMPLE TRACK FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE / TIME	SEQ. #	AGENCY / NAME / LOCATION(S) / NOTES	FIELD TAG#	WHAT WAS SAMPLED / RESULTS	METHOD USED
22 MAR 1435	199	NOAA/COLEY UPSTREAMOF ASTORIA-MEGLER BRIDGE,WASH. SIDE TRAWL, COLLECTED SOME FISH	HM-322-33	SUBTIDAL BOTTOM - FISH COLLECTED SMALLAMOUNT OF OIL IN NET DURING A FIVE-MINUTE	5-M SEMI-BALLON SHRIMP TRAWL
22 MAR 1512	200	NOAA/COLEY NE OF BUOY "33" (ASTORIA, OR) COLLECTED SOME FISH	HM-322-34	SUBTIDAL BOTTOM - FISH COLLECTED SOME OIL IN NET DURING A FIVE-MINUTE TRAWL,	5-M SEMI-BALLON SHRIMP TRAWL
22 MAR 1543	201	NOAA/COLEY SHIP CHANNEL NEAR BUOY "27" (TANSY PT.) TRAWL, COLLECTED SOME FISH	HM-322-35	SUBTIDAL BOTTOM - FISH COLLECTED SMALL AMOUNT OF OIL IN NET DURING A FIVE-MINUTE	5-M SEMI-BALLON SHRIMP TRAWL
22 MAR 1536	202	NOAA/DAVIS LOWER END OF MILLER SANDS *POSSIBLY NOT OIL, COLLECTED ON BEACH	HM-322-20	BLACK-COLORED SAND*	COLLECTED BY HAND W/SMALL BOAT
22 MAR 1455	203	NOAA/DAVIS SE PART OF MCCGREGOR ISLAND	HM-322-21	OIL ON BEACH OILGLOBS ON MCGREGORISLAND, OIL GLOBS AND SLICK ON WATER	COLLECTED BY HAND W/SMALL BOAT
22 MAR 1431	204	NOAA/DAVIS SOUTH CHANNEL,DOLHIN "10" (FI 4 SEC 16 FT)	HM-322-22	OIL ON BEACH OIL GLOBS ON BEACH, OIL SLICK ON WATER AROUND DOLPHIN "10"	COLLECTED BY HAND W/SMALL BOAT
23 MAR 1130	205	NOAA/COLEY CLATSOP SPIT 5-6 CM SQ. GLOBS ON BEACH FROM WATER LINE TO HIGH WATER LINE	HM-323-1	OIL ON BEACH	BY HAND - PHOTO TAKEN
26 MAR 1432	206	NOAA/COLEY HAMMOND BEACH NEAR NAV. MARKER NO. 26 GLOBS ON BEACH AT HIGH TIDE LINE	HM-326-1	OIL ON BEACH	BY HAND - PHOTO TAKEN
27 MAR 0730	207	NOAA/COLEY END OF WALKWAY, NMFS FIELD STATION, HAMMOND, OR 0730 (27 MARCH)	HM-327-10	SUBTIDAL BOTTOM - DUNG. CRABS MODIFIED COMM. DUNG. CRAB POT CAPTURED TWO DUNGENESS CRABS BETWEEN 1700 (26 MARCH) AND	
27 MAR 1230	208	NOAA/COLEY WALKWAY (BEACH), NMFS-HAMMOND	HM-87-20	BIRD - SEAGULL DEAD SEAGULLHAD SMALL AMOUNT OF OIL ON FEATHERS	COLLECTED BY HAND
27 MAR 1200	209	NOAA/EMMETT HAMMOND MOORING BASIN WERE ACTING TROUBLED (I.E., THEY WERE ON BEACH). LARGE OIL SLICK IN BASIN, NO COLL'NS.BIRDS:CANVASBACK,M	HM-87-21	BIRDS APPROXIMATELY 38 BIRDS WITH MINIMAL OIL CONTAMINATION, ALL	VISUAL SURVEY
27 MAR 1220	210	NOAA/COLEY WALKWAY, NMFS - HAMMOND THEY WERE CAPABLE OF FLYING.	HM-87-22	BIRD - SEAGULL SAW THREE SEAGULLS THAT APPEARED TO BE STAINED WITH OIL.	VISUAL SURVEY
27 MAR 0800	211	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS, STA. X NO SAMPLE FOR HAZMAT,SAMPLE UNDER CONTRACT (ENVIROSCIENCE)	HM-87-30	BOTTOM SEDIMENT W/WTER AND TARBALLS, 1 CM. MODERATE.	VAN VEEN GRAB, 1 M.
27 MAR 0830	212	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS, STA. ZZ RETAINED FOR HAZMAT,SAMPLE UNDER CONTRACT (ENVIROSCIENCE)	HM-87-31	BOTTOM SEDIMENT WITH WATER, LIGHT OILING ON SAMPLE. NO SAMPLE	VAN VEEN GRAB, 1M
27 MAR 0900	213	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS, STA. A NO OILING	HM-87-32	BOTTOM SEDIMENT WITH WATER	VAN VEEN GRAB 1M
27 MAR 0930	214	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS, STA. B NO OILING	HM-87-33	BOTTOM SEDIMENT WITH WATER	VAN VEEN GRAB 1M
27 MAR 1000	215	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS, STA. C NO OILING	HM-87-34	BOTTOM SEDIMENT WITH WATER	VAN VEEN GRAB 1M
27 MAR 1030	216	NOAA/EMMETT OFF ASTORIA COMMERCIAL PIERS NO SAMPLE RETAINED FOR HAZMAT, SAMPLE UNDER CONTRACT	HM-87-35	BOTTOM SEDIMENT WITH WATER AND OIL GLOB ON SEDIMENT. (ENVIROSCIENCE)	VAN VEEN GRAB, 1M

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NOAA/HAZMAT SAMPLE TRACKING F(E MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
28 MAR 0925	217	NOAA/KAISER TRAWL ST. #7, 300 YDS E OF DESDEMONA SANDS LIGHT	HM-88-1	BOTTOM NO OIL	BOTTOM TRAWL
		FISH SAMPLE HELD BY NMFS, HAMMOND		SEE SEQ# 00196 & 00198 (6 PHOTOS OF TRAWL OPE	
28 MAR 0950	218	NOAA/KAISER TRAWL ST. #12, OFF PT. ELLICE, E OF 3RD SPAN OF BR	HM-88-2	BOTTOM NO OIL	BOTTOM TRAWL
		FISH SAMPLE HELD BY NMFS-HAMMOND. SEE SEQ #00199			
28 MAR 1030	219	NOAA/KAISER TRAWL ST. #10, OFF ASTORIA, 1/4 MI NE BUOY #33	HM-88-3	BOTTOM NO OIL	BOTTOM TRAWL
		FISH SAMPLE HELD BY NMFS-HAMMOND. SEE SEQ #'S 00197 & 00200			
28 MAR 1100	220	NOAA/KAISER TRAWL ST. #8, OFF HAMMOND, 1/2 MI W BUOY #27	HM-88-4	BOTTOM NO OIL	BOTTOM TRAWL
		FISH SAMPLE HELD BY NMFS-HAMMOND, SEE SEQ #00201			
28 MAR 1100	221	NOAA/KAISER TRAWL STATIONS #7 TO #12, TO 10, TO 8, AND MARINA	HM-88-5	SURFACE WATER NO OIL	VISUAL SURVEY
		VISUAL TRANSIT			
28 MAR 0915	222	NOAA/KAISER HAMMOND MARINA BREAKWATER	HM-88-6	BIRD - SEAGULL ONE OILED SEAGULL	VISUAL SURVEY
28 MAR 0915	223	NOAA/KAISER HAMMOND MARINA	HM-88-7	SURFACE WATER SILVER SHEEN COVERING PORTIONS OF HAMMOND MARINA	VISUAL SURVEY
26 MAR 1600	224	NOAA/KAISER PIGEON BLUFF	HM-88-8	SHORELINE OIL CONTAMINATION (VARYING AMOUNTS) OF SHORELINE	PHOTOGRAPHS
		ELEVEN (11) PHOTOS			
28 MAR 1600	225	NOAA/KAISER PIGEON BLUFF	HM-88-9	SHORE	JAR (HAND SPECIMEN)
		OIL GLOB SAMPLE IN JAR			
28 MAR 1630	226	NOAA/EMMETT MUDFLAT WAS OF HARRINGTON PTL	HM-88-10	MUDFLAT SEDIMENT CORE TAKEN, QUANTITATIVE	STAINLESS CORER
		NO VISIBLE OIL			
28 MAR 1630	227	NOAA/EMMETT MUDFLAT WEST OF HARRINGTON PT.	HM-88-11	MUDFLAT SEDIMENT CORE TAKEN QUANTITATIVE	STAINLESS STEEL CORER
		NO OIL VISIBLE ON MAT			
28 MAR 1630	228	NOAA/EMMETT MUD FLAT WEST OF HARRINGTON PT	HM-88-12	MUDFLAT SEDIMENT SEDIMENT TAKEN, QUANTITATIVE	STAINLESS CORER
		NO OIL VISIBLE ON FLAT			
28 MAR 1630	229	NOAA/EMMETT MUD FLAT WEST OF HARRINGTON PT.	HM-88-13	CORBICULA MANILENSIS PICKED UP LARGE CORBICULA (ALIVE) ON SEDIMENT SURFACE	HAND
		NO OIL ON MUD FLAT			
29 MAR 0815	230	NOAA/COLEY EAST OF WALKWAY, NMFS FIELD STATION, HAMMOND, ORE.	HM-89-1	BIRD - WESTERN GREBE OIL ON THE FEATHER OF THE DEAD GREBE	HAND
20 MAR	231	USCG/MOTT MOBILOIL TANK 1	1	CARGO	HAND SPECIMEN
20 MAR	232	USCG/MOTT MOBILOIL TANK 3	2	CARGO	HAND SPECIMEN
20 MAR	233	USCG/MOTT MOBILOIL TANK 4	3	CARGO	HAND SPECIMEN
28 MAR 1345	234	WDF/MOORE 1/4 MILE N. OF OCEAN PARK BEACH ACCESS	OP-28-3/84	BEACH TARBALL	
		CALL JAN MOORE (206)753-3219 FOR DETAILS			

EX5063-000133-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE / TIME	SEQ. #	AGENCY / NAME / LOCATION(S) / NOTES	FIELD TAG#	WHAT WAS SAMPLED / RESULTS	METHOD USED
29 MAR 1300	235	NOAA/KAISER 1/4 MILE NORTH RICE ISLAND TO HARRINGTON POINT NET TWISTED	A-89-1	BOTTOM NO OIL, NO SAMPLES	BOTTOM TRAWL
29 MAR 1320	236	NOAA/KAISER BEACH NORTH OF RICE ISLAND TO 1/4 MILE OFF * *HARRINGTON POINT	A-89-2	BOTTOM NO OIL, NO SAMPLE	BOTTOM TRAWL
29 MAR 1405	237	NOAA/KAISER MID-CHANNEL ROCKY POINT TO	A-89-3	BOTTOM NO OIL, NO SAMPLE	BOTTOM TRAWL
29 MAR 1438	238	NOAA/KAISER CROSS-CHANNEL, GRAYS POINT	A-89-4	BOTTOM NO OIL, NO SAMPLE	BOTTOM TRAWL
29 MAR 1520	239	NOAA/KAISER BLIND CHANNEL, 1 MILE SE OF HUNGRY HARBOR TOW LENGTH 1.5 MILES	A-89-5	BOTTOM NO OIL, NO SAMPLE	BOTTOM TRAWL
29 MAR 0844	240	NOAA/KAISER START 100 YDS SW BRIDGE, NO. SIDE CHANNEL END* 1 PHOTO, 1 FISH SAMPLE	B-89-1	BOTTOM 6" DIAMETER OIL STAIN ON NET *BUOY 37	5 M BALLOON BOTTOM TRAWL
29 MAR 0917	241	NOAA/KAISER 1/4 MILE NE BUOY 39 TO N. SIDE MAIN CHANNEL OFF* 1 PHOTO, 3 SAMPLES	B-89-2	BOTTOM 1 SMALL TARBALL, MINOR STAINS *EAST END MOORING BASIN	BOTTOM TRAWL
29 MAR 0930	242	NOAA/KAISER NO. SIDE CHANNEL OFF EAST END MOORING BASIN	B-89-3	SURFACE WATER 1 EA. 50 CENT-SIZED TARBALL	VISUAL SURVEY
29 MAR 0917	243	NOAA/KAISER 1/4 MILE NE BUOY 34 TO NO. SIDE OF CHANNEL OFF E.* FISH SAMPLE	B-89-4	BOTTOM BOTTOM TRAWL *END OF MOORING BASIN	BOTTOM TRAWL
29 MAR 0917	244	NOAA/KAISER 1/4 MILE NE BUOY 39 TO N. SIDE OF MAIN CHANNEL*	B-89-5	BOTTOM 1 TARBALL SAMPLE *OFF EAST END OF MOORING BASIN	BOTTOM TRAWL
29 MAR 0917	245	NOAA/KAISER 1/4 MILE NE BUOY 39 TO N. SIDE CHANNEL OFF EAST* *END OF MOORING BASIN	B-89-6	BOTTOM 1 ABSORBENT PAD, SMALL OIL STAIN	BOTTOM TRAWL
29 MAR 0950	246	NOAA/KAISER 1/4 MILE OFF COAST GUARD MUSEUM	B-89-7	SURFACE WATER SIGHTED 4 CM TARBALL WITH SHEEN	VISUAL SURVEY
29 MAR 0955	247	NOAA/KAISER FROM ASTORIA BRIDGE TO BUOY 2-5 CM	B-89-8	SURFACE WATER SAW 24 FLOATING TARBALLS WITH SILVER SHEEN SIZE OF BALLS	VISUAL SURVEY
29 MAR 1242	248	NOAA/KUMMERLOWE SO. SIDE MAIN CHANNEL NEAR BUOY #54, W. TIP OF * SLIGHT FLOOD	C-89-1	BOTTOM SAVED 1 SMELT AND 1 FLOUNDER, NO OIL *RICE ISLAND	BOTTOM TRAWL, 5 M.
29 MAR 1310	249	NOAA/KUMMERLOWE WEST TIP MILLER SANDS, SO. OF CHANNEL	C-89-2	BOTTOM NO OIL, 12 FISH, SAVED SMALL, SHRIMP-LIKE ANIMALS	BOTTOM TRAWL, 5 M.
29 MAR 1431	250	NOAA/KUMMERLOWE NW TIP OF JIM CROW SANDS 2 PHOTOS	C-89-3	BOTTOM APPROX. 2 LITERS OF LEAVES WITH OIL GLOBS 1 KNOT EBB	BOTTOM TRAWL, 5 M.
29 MAR 1430	251	NOAA/KUMMERLOWE ASTORIA BRIDGE TO JIM CROW SANDS, MAIN CHANNEL	C-89-4	BEACH SURVEY VERY SCATTERED TARBALLS LESS THAN 5/MILE	VISUAL SURVEY
29 MAR 1122	252	NOAA/KUMMERLOWE OLD SEINE HOUSE AT TAYLOR SANDS CAUGHT STICKS, NO FISH	C-89-5	BOTTOM NO OIING ON NET, 1/4 KNOT EBB	BOTTOM TRAWL, 5 M

EX5063-000135-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
29 MAR 1205	253	NOAA/KUMMERLOWE SW TIP OF RICE ISLAND	C-89-6	BOTTOM NO OIL. SAND ONLY	BOTTOM TRAWL
		SLIGHT FLOOD			
29 MAR 1320	254	NOAA/KUMMERLOWE BUOY #2	C-89-7	BOTTOM NO OIL, 2 FISH (1 FLOUNDER), 3 PEBBLES, LEAVES (SEE PHOTO OF	BOTTOM TRAWL
		SORBENT PAD) -1 PHOTO-		1/2 KNOT EBB	
29 MAR 1230	255	EPA/SAINSBURY WASHINGTON SIDE, DOWNSTREAM, FIG "41"	D-89-1*	BOTTOM SLIGHT CONTAMINATION	CANNONBALL
		*EPA SYSTEM NO. D-89-28 (D-89-1 THRU 27 NOT CHAIN OF CUSTODYSAMPLES)			
29 MAR 1235	256	EPA/SAINSBURY UPSTREAM END COTTONWOOD, 45 FT. DEEP	D-89-2*	BOTTOM SLIGHT CONTAMINATION	CANNONBALL
		*EPA SYSTEM NO. D-89-29 (D-89-1 THRU 27 NOT CHAIN OF CUSTODYSAMPLES)			
29 MAR 1235	257	NOAA/KAISER 1 NM EAST OF TONGUE POINT	B-89-9	SOOT SPILL, ABOUT 3/4 NM LONG	PHOTOGRAPH
		THREE (3) PHOTOS TAKEN			
30 MAR 0846	258	NOAA/KUMMERLOWE COE PIER THRU PRAIRIE CHANNEL (UPRIVER)	B-90-1	SURFACE WATER NO OIL OBSERVED	VISUAL SURVEY
30 MAR 0942	259	NOAA/KUMMERLOWE DM 12A, SVENSEN ISLAND, PRAIRE CHANNEL	B-90-2	BOTTOM NO OIL, SAMPLE DISPOSED (24' DEPTH)	BOTTOM TRAWL
		ABOUT 3 DOZ. SMALL FISH, ISOPODS, STICKS, CUPS			
30 MAR 0942	260	NOAA/KUMMERLOWE DM 12A (UPRIVER)	B-90-3	ABOUT 2 FT. ABOVE BOTTOM 100 1-MM-SIZED TARBALLS IN NET	PLANKTON TOW
30 MAR 1010	261	NOAA/KUMMERLOWE DM 15, PRAIRIE CHANNEL (DOWNRIVER)	B-90-4	ABOUT 2 FT. ABOVE BOTTOM ABOUT 100 1-MM-SIZED TARBALLS IN NET	PLANKTON NET
		30 FT. DEPTH			
30 MAR 1010	262	NOAA/KUMMERLOWE DM 15 (DOWNRIVER, PRAIRIE CHANNEL)	B-90-5	BOTTOM NO OIL	BOTTOM TRAWL
		ABOUT 15 SMALL FISH (UNOILED) IN NET (SAMPLE DISPOSED) 30 FT. DEPTH			
30 MAR 1050	263	NOAA/KUMMERLOWE NE TIP OF MARSH ISLAND, PRAIRIE CHANNEL	B-90-6	BOTTOM NO SAMPLE	BOTTOM TRAWL
		TRAWL HUNG UP ON SNAG IN RIVER			
30 MAR 1113	264	NOAA/KUMMERLOWE SO. SIDE OF MARSH ISLAND	B-90-7	10 FT. BELOW WATER SURFACE NO OIL, ONLY DETRITUS IN NET	PLANKTON NET
30 MAR 1140	265	NOAA/KUMMERLOWE SW FROM BUOY 19 TO SVENSEN ISLAND, ABOUT 1/2 MILE	B-90-8	BOTTOM NO OIL	BOTTOM TRAWL
		ABOUT 12 SMALLFISH IN NET (SMELT, STICKLEBACK, ETC.) 30 FT. WATER DEPTH			
30 MAR 1303	266	NOAA/KUMMERLOWE NO. FROM MINAKER ISLAND TO BIG CREEK SLOUGH	B-90-9	BOTTOM NO OIL	BOTTOM TRAWL
		4 SMALL STICKLEBACK FISH		24 FT. WATER DEPTH *WEST TOWARDS DM 15	
30 MAR 1330	267	NOAA/KUMMERLOWE DM 12A, PRAIRIE CHANNEL (DOWNRIVER)	B-90-10	BOTTOM NO OIL	BOTTOM TRAWL
		ABOUT 4 DOZ. SMALL STICKLEBACK, SMELTS (UNOILED)		30 FT. WATER DEPTH	
30 MAR 1328	268	NOAA/KUMMERLOWE DM 12A, PRAIRIE CHANNEL	B-90-11	ABOUT 10 FT. ABOVE BOTTOM 100 1-MM-SIZED TARBALLS IN NET	PLANKTON NET
30 MAR 0940	269	NOAA/KAISER WOODY ISLAND CHANNEL	A-90-1	BOTTOM SEVERAL BLOBS OF OIL ON NET--NONE ON SORBENT	BOTTOM TRAWL
		SAMPLE DISPOSED			
30 MAR 1000	270	NOAA/KAISER WOODY ISLAND CHANNEL, WOODY ISLAND ABEAM	A-90-2	BOTTOM BLOB OF OIL ON NET. SIGN OF OIL ON GROUND CHAIN	BOTTOM TRAWL

EX5063-000137-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
30 MAR 0930	271	VESSEL VALISA/GILLNETTER WOODY ISLAND AND HORSESHOE ISLAND	A-90-3	BOTTOM SOME OIL ABOUT EVERY EIGHT FEET ON GEAR	LONG LINE
		CONCERN THAT TEST GILL NET FISHING ON MONDAY WILL BE		AFFECTED. SOME OILING OF HIS GEAR	
30 MAR 1000	272	NOAA/KAISER PRAIRIE CHANNEL NEAR "23" FL-4 SEC	A-90-4	BOTTOM 11-12 SMALL FLATFISH (3-4"; 1 SCULPIN; NO OIL	BOTTOM TRAWL
		1108 FL 4-SEC. 23 ABEAM 12' DEEP (40 YDS OFF)		SOME DEBRIS IN NET	
30 MAR 1135	273	NOAA/KAISER CLIFTON/PRAIRIE CHANNEL - 1/4 MILE WEST ALDRICH PT	A-90-5	BOTTOM 1-12" SUCKER SEVERAL SMALLER FISH. NO OIL - SAMPLE DISPOSED	BOTTOM TRAWL
		DEPTH 20 FT		TORN NET	
30 MAR 1215	274	NOAA/KAISER CLIFTON CHANNEL	A-90-6	BOTTOM 1 SUCKER - CLEAN; SEVERAL SMALL FISH. NO OIL	BOTTOM TRAWL
30 MAR 1250	275	NOAA/KAISER TENASILLAHE ISLAND LIVESTOCK DECK	A-90-7	SHORELINE 100 SQ. FEET OF OILED DEBRIS AS PREVIOUSLY OBSERVED	VISUAL SURVEY
30 MAR 1255	276	NOAA/KAISER MOUTH OF CLIFTON CHANNEL TO PUGET ISLAND	A-90-8	BOTTOM NO OIL - 3 OR 4 SMALL SCUPLIN AND SUCKERS - HEALTHY	BOTTOM TRAWL
30 MAR 1325	277	NOAA/KAISER CATHLAMET CHANNEL	A-90-9	BOTTOM NO OIL - SMALL HEALTHY STURGEON. 1 PHOTO	BOTTOM TRAWL
30 MAR 1400	278	NOAA/KAISER HUNTING ISLANDS 1/4 MILE SOUTH "39"	A-90-10	BOTTOM NO OIL. DEBRIS AND 4-5 SMALL FISH	BOTTOM TRAWL
		MAY HAVE BEEN A LIGHT SHEEN WHEN DEBRIS WAS THROWN		BACK IN	
30 MAR 1435	279	NOAA/KAISER WHITETAIL DEER REFUGE - MID-CHANNEL	A-90-11	BOTTOM NO OIL - NET MAY NOT HAVE BEEN ON BOTTOM	BOTTOM TRAWL
30 MAR 1100	280	NOAA/BACA WILLAPA BAY	C-90-1	BEACH SURVEY FOUND BEACH OIL IN LIGHT QUANTITIES; OILED BIRDS	VISUAL SURVEY
		15 PHOTOS TAKEN; MEASURED OIL			
30 MAR 1530	281	NOAA/BACA LONG BEACH	C-90-2	BEACH SURVEY LIGHT OILING; AVERAGE OF 2 OILED BIRDS/MILE; OILED BIRDS ON	VISUAL SURVEY
		ROADS. 10 PHOTOS TAKEN			
30 MAR 1600	282	NOAA/BACA OCEAN PARK	C-90-3	BEACH SURVEY LIGHT OILING; PANCAKES UP TO 60CM. AVERAGE 2 OILED BIRDS/	VISUAL SURVEY
		MILE. 10 PHOTOS TAKEN			
30 MAR	283	NOAA/BACA NO. END ASTORIA BRIDGE	C-90-4	BEACH SURVEY VERY LIGHT OIL FOUND	VISUAL SURVEY
		4 PHOTOS TAKEN			
21 MAR	284	NOAA/KUMMERLOWE BUOY #7	A-81-1	BOTTOM	GRAB
21 MAR	285	NOAA/KUMMERLOWE BUOY #7	A-81-2	WATER COLUMN	PLANKTON NET - TOW
21 MAR	286	NOAA/KUMMERLOWE MID SHIP OF MOBILOIL STBD SIDE DWNRIVER 100 FT	A-81-3	BOTTOM	SEDIMENT GRAB
		VISUAL OBS- LIGHT SHEEN ON WATER SURFACE			
31 MAR 1130	287	NOAA/KAISER INSIDE CLATSOP SPIT	A-91-1	BEACH SURVEY 1 EA. 5" TARBALL EVERY 50-100 FT.	VISUAL SURVEY
31 MAR 1300	288	NOAA/KAISER SEASIDE BEACH	A-91-2	BEACH SURVEY 1 DIFFICULT-TO-FIND TARBALL EVERY 50 YDS. OCCASIONAL OIL	VISUAL & SCOOP (JAR)
		SPECK AND 50-CENT-SIZED SHEEN; TARBALL SAMPLE TAKEN			

EX5063-000139-TRB

NOAA/HAZMAT SAMPLE TRACKING ... THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
31 MAR 1330	289	NOAA/KAISER FIVE MILES NORTH OF SEASIDE	A-91-3	BEACH SURVEY NO OIL	VISUAL SURVEY
31 MAR 1205	290	NOAA/KUMMERLOWE FIRST BEACH NO. OF CAPE DISAPPOINTMENT LIGHT	B-91-1	OIL FROM KAYAK FOUND TAR, OIL	STICK, PLASTIC BAG
31 MAR 1210	291	NOAA/KUMMERLOWE FIRST BEACH NO. OF CAPE DISAPPOINTMENT LIGHT	B-91-2	TARRY STICK	STICK, JAR
31 MAR 1300	292	NOAA/KUMMERLOWE BEACH, 100 YDS. NO. OF NORTH JETTY	B-91-3	BEACH TARBALL	STICK
31 MAR 1140	293	VESSEL CAROLINE/CREW OFFSHORE NORTH HEAD, 2-3 MILES	B-91-4	BOTTOM NO OIL	BOTTOM TRAWL - VISUAL
31 MAR 1150	294	NOAA/KUMMERLOWE BEACH WEST OF JETTY (OCEAN SIDE)	B-91-5	BEACH - FLOTSAM NO OIL SPOTTED	VISUAL SURVEY
31 MAR 1210	295	NOAA/KUMMERLOWE FT. CANBY BEACH, NO. OF CAPE DISAPPOINTMENT LIGHT PHOTOS TAKEN	B-91-6	BEACH SURVEY VERY LIGHTLY SCATTERED SMALL TARBALLS	VISUAL SURVEY
31 MAR 1300	296	NOAA/KUMMERLOWE BEACH NORTH OF NORTH JETTY	B-91-7	BEACH SURVEY VERY LIGHTLY SCATTERED, SMALL TARBALLS	VISUAL SURVEY
31 MAR 1320	297	NOAA/KUMMERLOWE NORTH HEAD	B-91-8	BEACH SURVEY SEA FOAM WAS BROWN--DIATOMACEOUS	VISUAL SURVEY
31 MAR 1340	298	NOAA/KUMMERLOWE ILWACO FISH DOCKS	B-91-9	DOCKMASTERS, SKIPPERS, CREW NO SIGNIFICANT OIL OBSERVED ON ANYONE'S GEAR	VERBAL (CONVERSATIONS)
31 MAR 1400	299	NOAA/KUMMERLOWE CHINOOK CANNERY	B-91-10	DOCKMASTER, TERRY KRAGER NOSIGNIFICANT OIL OBSERVED ON ANYONE'S GEAR	VERBAL (CONVERSATION)
31 MAR 0600	300	NOAA/PAYTON BAKER BAY (NORTH END, WEST SIDE) ILWACO HARBOR DRYDOCK-HAVEN'T NOTICED ANY SIGNIFICANT OIL. LIGHT WIND. 3 OILED BIRDS (ALIVE), SPECIES	C-91-1	BEACH SURVEY NO VISIBLE OIL, NO TARBALLS.LOW TIDE. TALKED TO FISHERMAN AT	15-MIN. WALKING, REST FROM CAR
31 MAR 0630	301	NOAA/PAYTON ILWACO TO OCEAN PARK LIKE ANIMALS, NEAR OCEAN PARK. LOW TIDE, LIGHT NW WIND	C-91-2	BEACH SURVEY LITTLE TO NO OIL SOME SMALL OIL INCORPORATED INTO JELLYFISH- 1 DEAD BIRD - WESTERN GREBE	ACCESS ROADS, WALK EACH WAY.
31 MAR 0820	302	NOAA/PAYTON WILLAPA BAY, 11 ACCESS PLACES LOW TIDE. NO WIND	C-91-3	BEACH SURVEY BEACH ON 5 OF THEM,JUST LOOKED AT OTHERS. NO OIL FOUND. VERY 2 OILED (ALIVE) BIRDS	11 ACCESS PLACES. WALKED ON
31 MAR 1100	303	NOAA/PAYTON NORTH COVE TO WESTPORT SOUTHERNMOST. GRAYLAND STATE PARK BEACH ACCESS, LIGHT COVER-AGE FOR ABOUT 1/2 MILE (LESS THAN 3 TARBALLS/	C-91-4	BEACH SURVEY AT (5 WALKED). NO OIL UNTIL ABOUT 1/4 MILE SOUTH OF THE	8 ACCESS ROADS, 3 ONLY LOOKED
31 MAR 1230	304	NOAA/PAYTON LONG BEACH TO OYSTERVILLE (SEAVIEW ESTATES)	C-91-5	BEACH SURVEY STILLNEAR OCEAN PARK. NONE FOUND UP NORTH	5 ACCESS ROADS. SMALL AMOUNT
31 MAR 1150	305	NOAA/PAYTON SWASH LINE NEAR S. GRAYLAND STATE PARK BEACH ACCES	C-91-6	BIRD - WESTERN GREBE 1 DEAD, OILED BIRD (2 SAMPLES: BIRD, FEATHERS)	BY HAND
1 APR 0900	306	NOAA/KUMMERLOWE HAMMOND MARINA	A-92-1	BEACH SURVEY NO SHEEN - ONE DEAD GREBE (OILED)	VISUAL/WALK

EX5063-000141-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
1 APR 0905	307	NOAA/KUMMERLOWE 300 YDS S. OF ENTRANCE TO ILWACO CHANNEL, HDG ESE	A-92-2	BOTTOM NO OIL	BOTTOM TRAWL
		WATER DEPTH, 30 FEET 4-5 DOZEN FISH		END SURVEY 0920	
1 APR 0933	308	NOAA/KUMMERLOWE 2000 YDS S. OF SAND ISLAND, END D.M. 11	A-92-3	BOTTOM NO OIL	BOTTOM TRAWL
		72 FEET WATER DEPTH		KELP & LEAVES, ABOUT 1 DOZEN FISH	
1 APR 1000	309	NOAA/KUMMERLOWE BUOY 14, 400 YDS OFFSHORE -END BUOY 19	A-92-4	BOTTOM NO OIL	BOTTOM TRAWL
		DEPTH 48 FEET, 1 DOZEN FISH		END SURVEY AT 1015	
1 APR 1020	310	NOAA/KUMMERLOWE 1/2 MILE E. OF CLATSOP SPIT (BUOY 19), 100 YDS OS	A-92-5	BOTTOM NO OIL	BOTTOM TRAWL
		WATER DEPTH 30 FEET, ONE CRAB		END SURVEY 1035	
1 APR 1230	311	NOAA/KUMMERLOWE FORT CANBY STATE PARK	A-92-6	BEACH SURVEY VERY LIGHT SCATTERING OF TAR BALLS, NO CHANGE FROM 3/31/1984	VISUAL SURVEY
		BEACH SURVEY			
1 APR 1300	312	NOAA/KUMMERLOWE CAPE DISAPPOINTMENT LIGHTHOUSE	A-92-7	BAR NO OIL OBSERVED	VISUAL SURVEY
1 APR 1320	313	NOAA/KUMMERLOWE ILWACO	A-92-8	ACCOUNTS, FISHERMEN HAD NOT SEEN ANY OIL	TALKING WITH FISHERMEN
1 APR 1200	314	NOAA/KAISER COLUMBIA RIVER MOUTH	B-92-1	SURVEY OF SEDIMENT PLUME DEFINITE NORTH FLOW, BUT SOME SOUTH SCATTER (IMPLIES	AERIAL SURVEY
		TRANSITIONAL PERIOD, CURRENTS WEAK TO NORTH)			
1 APR 1100	315	NOAA/KAISER CAPE DISAPPOINTMENT (TO) LEDBETTER POINT	B-92-2	BEACH SURVEY DIATEMACEOUS, LOOKED LIKE POSSIBLE OIL SURF. VELELHA OR OIL	AERIAL SURVEY
		ON BEACH NEAR LONG BEACH & LEDBETTER POINT. PHOTOS TAKEN, BOTH 35MM AND POLAROID.			
1 APR 1122	316	NOAA/KAISER BAY CENTER, WILLAPA BAY TO NORTH COVE	B-92-3	BEACH SURVEY NO OBVIOUS OILING	AERIAL SURVEY, ALTITUDE 500'
1 APR 1126	317	NOAA/KAISER NORTH COVE (TO) WESTPORT	B-92-4	BEACH SURVEY POSSIBLE OIL NEAR GRAYLAND (ABOUT 1/4 MILE, EACH SIDE)	AERIAL SURVEY, 500'
				PHOTOS TAKEN, 35MM	
1 APR 1132	318	NOAA/KAISER POINT BROWE (TO) OCEAN SHORES	B-92-5	BEACH SURVEY POSSIBLE OIL NEAR OCEAN SHORES	AERIAL SURVEY, 500'
				PHOTOS TAKEN, 35MM	
1 APR 1505	319	NOAA/BACA 0.5 MILE SOUTH OF CHINOOK	B-92-6	MARSH GRASS	PHOTOGRAPH (35 MM)
		NO SAMPLES			
1 APR 1530	320	NOAA/BACA SEAVIEW TO OYSTERVILLE, (PACIFIC SIDE)	B-92-7	BEACH SURVEY FEW SCATTERED TARBALLS, 3 OILED & DEAD WESTERN GREBES. CLEAN	VISUAL, PHOTOGRAPHS
		UP BEING CONDUCTED. PICTURES OF OIL IN BAG. 5 BAGS		CHECKED, 1-W/BIRD. SUSPECTED OIL ON MORNING OVERFLITE	
29 MAR 0815	321	EPA/SAINSBURY BETWEEN GOBLE & SANDY ISL. ; ORE. SIDE	D-89-1	BOTTOM NO OIL	CANNONBALL/DIAPER
29 MAR 0825	322	EPA/SAINSBURY BETWEEN GOBLE & SANDY ISL. ;85 FT. DEEP	D-89-2	BOTTOM OIL FLECKS	CANNONBALL
29 MAR 0835	323	EPA/SAINSBURY BETWEEN GOBLE & SANDY ISL. ; 65 FT. DEEP	D-89-3	BOTTOM OIL FLECKS	CANNONBALL
		TAIL END OF DEEP			
29 MAR 0845	324	EPA/SAINSBURY BETWEEN GOBLE & SANDY ISL. ; 95 FT. DEEP	D-89-4	BOTTOM OIL FLECKS	CANNONBALL

EX5063-000143-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
29 MAR 0900	325	EPA/SAINSBURY ORE. SIDE (FL. R. "52")	D-89-5	BOTTOM OIL FLECKS	CANNONBALL
29 MAR 0920	326	EPA/SAINSBURY UPSTREAM END MARTIN ISL. (G "67")	D-89-6	BOTTOM NO OIL	CANNONBALL
29 MAR 0930	327	EPA/SAINSBURY COL. R, MID-CHANNEL, MARTIN ISL. ; 34 FT. DEEP	D-89-7	BOTTOM NO OIL	CANNONBALL
29 MAR 0940	328	EPA/SAINSBURY FL. G. "65", MARTIN ISL. ; 55 FT. DEEP	D-89-8	BOTTOM NO OIL	CANNONBALL
29 MAR 0945	329	EPA/SAINSBURY MARTIN BLUFF	D-89-9	BOTTOM NO OIL	CANNONBALL
29 MAR 0950	330	EPA/SAINSBURY MARTIN BLUFF, MID-CHANNEL ; 50 FT. DEEP	D-89-10	BOTTOM NO OIL	CANNONBALL
29 MAR 0955	331	EPA/SAINSBURY MARTIN BLUFF, DOWNSTREAM ; 65 FT. DEEP	D-89-11	BOTTOM NO OIL	CANNONBALL
29 MAR 1000	332	EPA/SAINSBURY MARTIN BLUFF, DOWNSTREAM	D-89-12	BOTTOM NO OIL	CANNONBALL
29 MAR 1005	333	EPA/SAINSBURY MARTIN BLUFF, DOWNSTREAM	D-89-13	BOTTOM NO OIL	CANNONBALL
29 MAR 1010	334	EPA/SAINSBURY WASH. SIDE OPPOSITE DEER ISL. PT., LT. "59" ;80 FT	D-89-14	BOTTOM NO OIL	CANNONBALL
29 MAR 1014	335	EPA/SAINSBURY LT. "59" MID-CHANNEL	D-89-15	BOTTOM NO OIL	CANNONBALL
29 MAR 1018	336	EPA/SAINSBURY KALAMA GRAIN SILOS, UPSTREAM END	D-89-16	BOTTOM NO OIL	CANNONBALL
29 MAR 1024	337	EPA/SAINSBURY KALAMA GRAIN SILOS, DOWNSTREAM END	D-89-17	BOTTOM NO OIL	CANNONBALL
29 MAR 1028	338	EPA/SAINSBURY MID-CHANNEL OFF KALAMA GRAIN SILOS	D-89-18	BOTTOM NO OIL	CANNONBALL
29 MAR 1032	339	EPA/SAINSBURY KALAMA, MID-CHANNEL FL. G "49" 30 FT. DRAG ON BOTTOM	D-89-19	BOTTOM NO OIL	CANNONBALL
29 MAR 1050	340	EPA/SAINSBURY KALAMA , FL. G "47A" 50 FT. DRAG	D-89-20	BOTTOM NO OIL	CANNONBALL
29 MAR 1055	341	EPA/SAINSBURY KALAMA, DOWNSTREAM 50 FT. DRAG	D-89-21	BOTTOM NO OIL	CANNONBALL
29 MAR 1100	342	EPA/SAINSBURY KALAMA, DOWNSTREAM 50 FT. DRAG	D-89-22	BOTTOM NO OIL	CANNONBALL

EX5063-000145-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE / TIME	SEQ. #	AGENCY / NAME / LOCATION(S) / NOTES	FIELD TAG#	WHAT WAS SAMPLED / RESULTS	METHOD USED
29 MAR 1115	343	EPA/SAINSBURY ORE. SIDE, UPSTREAM FROM TROJAN ; 100 FT. DEEP 50 FT. DRAG	D-89-23	BOTTOM NO OIL	CANNONBALL
29 MAR 1120	344	EPA/SAINSBURY ORE. SIDE UPST. TROJAN/COFFIN ROCK DRUG BALL APP. 120 FT. DEEP ALONG BOTTOM	D-89-24	BOTTOM MINOR OIL FLECKS	CANNONBALL
29 MAR 1130	345	EPA/SAINSBURY ORE. SIDE UPST. TROJAN/COFFIN ROCK ; 70 FT. DEEP DRUG BALL ALONG BOTTOM	D-89-25	BOTTOM OIL FLECKS	CANNONBALL
29 MAR 1140	346	EPA/SAINSBURY ORE. SIDE DWNST. TROJAN/COFFIN ROCK ; 70 FT. DEEP BALL DRAGGER 30-40 FT.	D-89-26	BOTTOM NO OIL FLECKS	CANNONBALL
29 MAR 1208	347	EPA/SAINSBURY MID-CHANNEL DWNST. TROJAN	D-89-27	BOTTOM LIGHT OIL FLECKS	CANNONBALL
29 MAR 1230	348	EPA/SAINSBURY FL. G "41" WASH. SIDE BOTTOM DRAG OF APP. 100 FT.	D-89-28	BOTTOM LIGHT OILING	CANNONBALL
29 MAR 1240	349	EPA/SAINSBURY UPST. END COTTONWOOD ISL. ; 45 FT. DEEP DRAG OF APP. 100 FT.	D-89-29	BOTTOM FLECKS	CANNONBALL
29 MAR 1245	350	EPA/SAINSBURY MID-CHANNEL FL. G "39" ; 50 FT. DEEP DRAG OF APP. 100 FT.	D-89-30	BOTTOM NO FLECKS	CANNONBALL
29 MAR 1250	351	EPA/SAINSBURY WASH. SIDE FL. G "39" ; 40 FT. DEEP DRAG OF APP. 100 FT.	D-89-31	BOTTOM NO OIL	CANNONBALL
29 MAR 1255	352	EPA/SAINSBURY WASH. SIDE FL. "33" ; 60 FT. DEEP DRAG OF APP. 100 FT.	D-89-32	BOTTOM NO OIL	CANNONBALL
29 MAR 1320	353	EPA/SAINSBURY WASH. SIDE DWNST. FL.G "29A" DRAG OF APP. 100 FT.	D-89-33	BOTTOM FLECKS	CANNONBALL
29 MAR 1345	354	EPA/SAINSBURY QK FL. "17" DWNST. MT. COFFIN ; 100 FT. DEEP 100 FT. DEEP , DRAG OF APP. 100 FT.	D-89-34	BOTTOM NO OIL	CANNONBALL
29 MAR 1400	355	EPA/SAINSBURY DWNST. WALKER ISL. , ORE. SIDE ; 35 FT. DEEP	D-89-35	BOTTOM FLECKS	CANNONBALL
29 MAR 1405	356	EPA/SAINSBURY DWNST. WALKER ISL., ORE. SIDE ; 40 FT. DEEP DRAG OF APP. 100 FT.	D-89-36	BOTTOM FLECKS	CANNONBALL
29 MAR 1410	357	EPA/SAINSBURY DWNST. WALKER ISL. , ORE. SIDE ; 65 FT. DEEP DRAG OF APP. 100 FT.	D-89-37	BOTTOM NO FLECKS	CANNONBALL
29 MAR 1425	358	EPA/SAINSBURY UPSTRM. GREEN PT. ORE. ; 30 FT. DEEP NO'S 038-042 ARE A SEQUENTIAL TRAVERSE ACROSS THE RIVER; ORE. TO WASH. SIDES.	D-89-38	BOTTOM FLECKS	CANNONBALL
29 MAR 1430	359	EPA/SAINSBURY UPSTRM. GREEN PT. ORE. ; 35 FT. DEEP NO'S 038-042 ARE A SEQUENTIAL TRAVERSE ACROSS THE RIVER; ORE. TO WASH. SIDES.	D-89-39	BOTTOM FLECKS	CANNONBALL
29 MAR 1435	360	EPA/SAINSBURY UPSTRM. GREEN PT. ORE., MID-CHANNEL ; 55 FT. DEEP NO'S 038-042 ARE A SEQUENTIAL TRAVERSE ACROSS THE RIVER; ORE. TO WASH. SIDES.	D-89-40	BOTTOM NO OIL	CANNONBALL

EX5063-000147-TRB

NOAA/HAZMAT SAMPLE TRACKING THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
29 MAR 1440	361	EPA/SAINSBURY UPSTRM. GREEN PT. ORE. ; 25 FT. DEEP	D-89-41	BOTTOM FLECKS	CANNONBALL
		NO'S 038-042 ARE A SEQUENTIAL TRAVERSE ACROSS THE RIVER: ORE. TO WASH. SIDES.			
29 MAR 1445	362	EPA/SAINSBURY UPSTRM. GREEN PT. ORE. ; 17 FT. DEEP	D-89-42	BOTTOM NO OIL	CANNONBALL
		NO'S 038-042 ARE A SEQUENTIAL TRAVERSE ACROSS THE RIVER: ORE. TO WASH. SIDES.			
29 MAR 1450	363	EPA/SAINSBURY UPSTRM. GREEN PT., HUMP ISL. ; 20 FT. DEEP	D-89-43	BOTTOM NO OIL	CANNONBALL
29 MAR 1500	364	EPA/SAINSBURY STELLA, WASH. ; 55 FT. DEEP	D-89-44	BOTTOM NO OIL	CANNONBALL
29 MAR 1505	365	EPA/SAINSBURY STELLA, WASH. ; 85 FT. DEEP	D-89-45	BOTTOM NO OIL	CANNONBALL
29 MAR 1515	366	EPA/SAINSBURY CRIMS ISL. BEHIND GRAVEL BAR	D-89-46	BOTTOM OIL FLECKS	CANNONBALL
29 MAR 1520	367	EPA/SAINSBURY DWNST. FROM STELLA ; 105 FT. DEEP	D-89-47	BOTTOM OIL FLECKS	CANNONBALL
21 MAR	368	NOAA/KUMMERLOWE MID-SHIP OF MOBILOIL STBD SIDE DWNRIVER 100 FT	A-81-4	BOTTOM	SEDIMENT GRAB
21 MAR	369	NOAA/KUMMERLOWE MID-SHIP OF MOBILOIL STBD SIDE DWNRIVER 100 FT	A-81-5	BOTTOM	SEDIMENT GRAB
21 MAR	370	NOAA/KUMMERLOWE ABEAM WARRIOR ROCK LIGHT 200 YDS EAST OF OTSD BOOM 60 FT WATER DEPTH	A-81-6	BOTTOM	SEDIMENT GRAB
21 MAR	371	NOAA/KUMMERLOWE 150 YDS DWNRIVER BUOY #4 TRANSECT 1, STATION A TRANSECT 1 IS A LINE BETWEEN BUOY #4 AND DAY MARKER #6	A-81-7	BOTTOM	SEDIMENT GRAB
21 MAR	372	NOAA STERN OF MOBILOIL - TRANSECT 1 STATION B UNABLE TO GET SAMPLE, CURRENTS TOO STRONG	A-81-7.1	WATER NONE	
21 MAR	373	NOAA/KUMMERLOWE SE OF WARRIOR ROCK LIGHT - TRANSECT 1 STATION C	A-81-8	BOTTOM	SEDIMENT GRAB
21 MAR	374	NOAA/KUMMERLOWE 100 YDS EAST OF WARRIOR ROCK LIGHT	A-81-9	BOTTOM	SEDIMENT GRAB
21 MAR	375	NOAA/KUMMERLOWE 25 YDS NE OF WARRIOR ROCK LIGHT	A-81-10	BOTTOM	SEDIMENT GRAB
22 MAR 1339	376	NOAA/KUMMERLOWE LINE BETWEEN WARRIOR ROCK AND DAYMARK 80	A-82-1	BOTTOM TARBALLS 2CM SIZE	CANNONBALL
22 MAR 1346	377	NOAA/KUMMERLOWE WARRIOR ROCK BETWEEN DAYMARK 80 AND 79	A-82-2	BOTTOM HEAVY OIING - DIAPER COVERED WITH OIL	CANNONBALL
22 MAR 1402	378	NOAA/KUMMERLOWE RT SIDE WARRIOR LT - TRANS. W/BCH 150 YDS N PR. LN	A-82-3	BOTTOM VERY HEAVY OIL	CANNONBALL

EX5063-000149-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
22 MAR 1413	379	NOAA/KUMMERLOWE LINE BTWN WARRIOR RK & STACK, 25 YDS FROM LIGHT	A-82-4	BOTTOM HEAVY OIL	CANNONBALL
22 MAR 1330	380	NOAA/KUMMERLOWE BETWEEN DAYMARK 4A AND BUOY 4	A-82-5	BOTTOM NO OIL	CANNONBALL
22 MAR 1334	381	NOAA/KUMMERLOWE BUOY 4 MIDWAY BETWEEN DAYMARK 6 AND 8	A-82-6	BOTTOM NO OIL	CANNONBALL
22 MAR 1335	382	NOAA/KUMMERLOWE LINE BETWEEN DAYMARK 8 AND BUOY 4	A-82-7	BOTTOM NO OIL	CANNONBALL
22 MAR 1337	383	NOAA/KUMMERLOWE LINE BETWEEN WARRIOR ROCK AND DAYMARK 5	A-82-8	BOTTOM NO OIL	CANNONBALL
22 MAR 1350	384	NOAA/KUMMERLOWE WARRIOR ROCK AND DAYMARK 79	A-82-9	BOTTOM VERY SMALL AMT OF OIL	CANNONBALL
22 MAR 1353	385	NOAA/KUMMERLOWE LINE BTW WARRIOR RK & WOODEN STRUC. (FRWD RGE MARK	A-82-10	BOTTOM NO OIL	CANNONBALL
22 MAR 1355	386	NOAA/KUMMERLOWE 100 YDS OFFSHORE OF WARRIOR ROCK	A-82-11	BOTTOM NO OIL	CANNONBALL
22 MAR 1409	387	NOAA/KUMMERLOWE LINE BTW WARRIOR RK & STACK, BUOY 4 & DAYMARK 8	A-82-12	BOTTOM NO OIL	CANNONBALL
22 MAR 1410	388	NOAA/KUMMERLOWE LINE BTW WARRIOR RK AND STACK 75 YDS FROM LIGHT	A-82-13	BOTTOM 1 SMALL TAR BALL	CANNONBALL
22 MAR 1412	389	NOAA/KUMMERLOWE LINE BTW WARRIOR RK AND STACK, 50 YDS FROM LIGHT	A-82-14	BOTTOM NO OIL	CANNONBALL
22 MAR 1419	390	NOAA/KUMMERLOWE 150 YDS N. OF WARRIOR ROCK LIGHT-165 MAGNETIC	A-82-15	BOTTOM NO OIL	CANNONBALL
22 MAR 1420	391	NOAA/KUMMERLOWE WARIOR ROCK- 155 MAGNETIC- 150 YDS NORTH	A-82-16	BOTTOM NO OIL	CANNONBALL
22 MAR 1422	392	NOAA/KUMMERLOWE WARRIOR ROCK 175 MAGNETIC	1-82-17	BOTTOM NO OIL	CANNONBALL
22 MAR 1424	393	NOAA/KUMMERLOWE WARRIOR ROCK - 188 MAGNETIC	A-82-18	BOTTOM NO OIL	CANNONBALL
22 MAR	394	NOAA/KUMMERLOWE BUOY 4 - DAYMARK 6	A-82-19	BOTTOM SLIGHT OIL	CANNONBALL
22 MAR	395	NOAA/KUMMERLOWE 75 YDS OFF BEACH-150 - 200 YDS N. WARRIOR RK LIGHT	A-82-20	BOTTOM NO OIL	CANNONBALL
22 MAR 1522	396	NOAA/KUMMERLOWE DAYMARK 73 TO DAYMARK 72- TRANSECT	A-82-21	BOTTOM SLIGHT OIL	PLANKTON NET TOW

EX5063-000151-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
23 MAR 1655	397	NOAA/KUMMERLOWE CATHLAMET CHANNEL 100FT OFF DAYMARK 2 40' WATER DEPTH	A-83-1	BOTTOM NO OIL	CANNONBALL
23 MAR 1707	398	NOAA/KUMMERLOWE DUE W TENASILLAHE ISL, N-MOST OF 20+ LOGRAFT DOLPH	A-83-2	BOTTOM NO OIL	CANNONBALL
23 MAR 1712	399	NOAA/KUMMERLOWE SOUTH WEST ENTRANCE TO MULTNOMAH SLOUGH	A-83-3	BOTTOM NO OIL	CANNONBALL
23 MAR 1716	400	NOAA/KUMMERLOWE NORTHWEST CORNER OF WELSH ISLAND	A-83-4	BOTTOM NO OIL	CANNONBALL
23 MAR 1727	401	NOAA/KUMMERLOWE MIDDLE PILLAR ROCK UPPER RANGE BTW 2 RANGEMARKER	A-83-5	BOTTOM NO OIL	CANNONBALL
1 APR 1505	402	NOAA/BACA BAKER BAY APP 1/2 MI UPRIVER OF CHINOOK 35MM PHOTO TAKEN	B-92-8	MARSH GRASS OILED, IN HOUSE SAMPLE TAKEN	PULLED GRASS
22 MAR 1600	403	WDF/NEWMAN TWIN HARBORS, Y-GAP TO NORTH COVE		BEACH SURVEY NO EVIDENCE OF OIL	VISUAL INSPECTION
23 MAR 1030	404	WDF/MCINTOSH TWIN HARBORS, WESTPORT TO NORTH COVE		BEACH SURVEY NO OIL OR OILED BIRDS	VISUAL SURVEY
22 MAR 1400	405	WDF/MOORE LONG BEACH, OCEAN PARK TO TIP LIGHTER TO NORTH		BEACH SURVEY + 1 TAR BALL EVERY 3' TARBALL SAMPLES TAKEN	VISUAL SURVEY
22 MAR 1600	406	WDF/CREEKMAN WAIKIKI BEACH AT N. JETTY		BEACH SURVEY LARGE (1.5 =DIA) BLOBS EVERY 5 PACES SAMPLE TAKEN	VISUAL SURVEY
22 MAR 1400	407	WDF/CREEKMAN LONG BEACH, SEAVIEW TO LONG BEACH		BEACH SURVEY LARGE GLOBS EVERY 10 PACES JAR SAMPLE TAKENN	VISUAL SURVEY
22 MAR 1000	408	WDF/MOORE LONG BEACH, BEARDS HOLLOW TO LONG BEACH TWO OILED BIRDS AT CRANBERRY		BEACH SURVEY <1 3CM TARBALL PER SQ. FT.	VISUAL SURVEY
23 MAR 1100	409	WDF/MOORE LONG BEACH LIGHTER AT LEDBETTER - 8 OILED BIRDS, ONE DEAD		BEACH SURVEY HEAVY OILING, 10 CM BLOBS EVERY 2-3 FT AT SOUTH END	VISUAL SURVEY
23 MAR 1800	410	WDF/RAMMER TWIN HARBORS BEACH		BEACH SURVEY OIL PRESENT FROM Y-GAP TO .7 MI NORTH	VISUAL SURVEY
23 MAR 1600	411	WDF/MOORE LONG BEACH 2 GLOBS 1 FT., 2.5CM-10CM GLOBS 9 OILED BIRDS		BEACH SURVEY INCREASE IN OIL HEAVY AROUND XB	VISUAL SURVEY
24 MAR 1400	412	WDF/MOORE LONG BEACH, LONG BEACH TO OCEAN PARK		BEACH SURVEY OIL ON BEACH, 9 OILED BIRDS	VISUAL SURVEY
24 MAR 0800	413	WDF/HOOPER TWIN HARBORS, GRAYLAND APPROACH TO S. JETTY 3 LIVE OILED BIRDS		BEACH SURVEY OIL ON TWIN HARBORS BEACH (LIGHT OILING)	6 JAR SAMPLES OF BEACHED OIL
24 MAR 1400	414	WDF/HOOPER TWIN HARBORS, GRAYLAND BEACH NORTHEND TO SOUTHEND		BEACH SURVEY 1 SAMPLE AT (AREA H) 1 SQ. FT. GLOB EVERY 3-4'	VISUAL AND JAR SAMPLES

EX5063-000153-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE / TIME	SEQ. #	AGENCY / NAME / LOCATION(S) / NOTES	FIELD TAG#	WHAT WAS SAMPLED / RESULTS	METHOD USED
24 MAR 1400	415	WDF/TUFFS LONG BEACH, TOKELAND, OYSTER PT., GRASSY ISL.		BEACH SURVEY NO SIGNS OF OIL	VISUAL SURVEY
24 MAR 0900	416	WDF/BARRY COPALIS BEACH TO MOCLIPS		BEACH SURVEY NO OIL	VISUAL SURVEY
24 MAR 1400	417	WDF/BARRY COPALIS BEACH TO MOCLIPS		BEACH SURVEY NO OIL	VISUAL SURVEY
24 MAR 0900	418	WDF/MOORE LONG BEACH		BEACH SURVEY SAME AMT OF FRESH OIL AS ON 23RD (UP 2 GLOBS/FT 2.5 - 10CM)	VISUAL SURVEY
25 MAR 0900	419	WDF/MOORE LONG BEACH, LONG BEACH TO OCEAN PARK		BEACH SURVEY HEAVIER FROM KLIPSAN TO OCEAN PARK, SAME LB TO KLIPSAN	VISUAL SURVEY
25 MAR 0800	420	WDF/H.HOOPER;D.HOOPER TWIN HARBORS BEACH EVERY 100 FT.) MODERATE AT XH AT 1800 IN LOCAL		BEACH SURVEY NO OIL EXCEPT VERY LIGHT OILING AT EDGEWATER (1 3CM GLOB	VISUAL SURVEY
25 MAR 1400	421	WDF/MOORE LONG BEACH, OCEAN PARK TO TIP		BEACH SURVEY NO OIL AT TIP BUT LARGER GLOBS W. OF TIP/ O.P. NORTH SAME	VISUAL SURVEY
26 MAR 1000	422	WDF/MOORE LONG BEACH, LONG BEACH TO TIP		BEACH SURVEY NEW OIL IN ALL AREAS, SAMPLES TAKEN	VISUAL & JAR
26 MAR 1415	423	WDF/NEWMAN TWIN HARBORS, Y-GAP TO NORTH COVE 1/4 MI NORTH OF N.COVE 300' TRENCH 2-3" DEEP BUT NO OIL FOUND		BEACH SURVEY NO OIL FOUND	VISUAL SURVEY
26 MAR 1500	424	WDF/BARRY COPALIS BEACH & MOCLIPS BEACH MAX= 3 BLOBS PER SQ. M NORMAL 1 PER SQ. 5M (LIGHT - VERY LIGHT)		BEACH SURVEY OIL 1 MI SOUTH OF OCEAN CITY TO 2 MI SOUTH OF OCEAN SHORES	VISUAL SURVEY
26 MAR 1530	425	WDF/B INGVOL (LOCAL OYSTERMAN) TWIN HARBORS, W OF BAY CITY IN GRAYS HARBOR		BLOBS IN WATER	SCOOP & JAR AT BOAT LAUNCH
26 MAR 1400	426	WDF/G.LIPPERT WILLAPA BAY, NAHCOTTA TO GRASSY ISL. TO TOKELAND		SURFACE WATER & BEACH SURVEY NO OIL IN BAY	VISUAL SURVEY
27 MAR 1300	427	WDF/T.HOOPER TWIN HARBORS, WESTPORT TO NORTH COVE SAMPLES TAKEN		BEACH SURVEY 3-4 BLOBS PER SQ. M, "MODERATE TO HEAVY" OILING	VISUAL SURVEY
27 MAR 1400	428	WDF/SIMONS COPALIS BEACH & MOCLIPS BEACH TO CONNER CREEK NO OIL N.		BEACH SURVEY 2-4" GLOBS EVERY 16 SQ. M	VISUAL SURVEY OIL FROM 3 MI S OF OCEAN SHORE
27 MAR 1100	429	WDF/MOORE LONG BEACH, LONG BEACH TO 4 MI N OF OYSTERVILLE		BEACH SURVEY SAME OILING AS BEFORE W/NEW AND OLD OIL	VISUAL SURVEY
28 MAR 1200	430	WDF/T.HOOPER TWIN HARBORS 20 DEAD OILED BIRDS 4 SAMPLES, 2 AT Y-GAP & 2 AT XH. OIL BLOBS FROM BEACH INTO JARS, SAMPLES AT MONESA		BEACH SURVEY NO NEW OIL AND DECTEASE IN OIL (POSSIBLY BURIED)	VISUAL SURVEY
28 MAR 1300	431	WDF/BARRY COPALIS BEACH SAMPLS AT OCEAN CITY AND OYHUT		BEACH SURVEY MUCH LESS OIL (1" OR LESS GLOBS)	VISUAL SURVEY
29 MAR 1400	432	WDF/MOORE LONG BEACH, LONG BEACH TO N OF OYSTERVILLE 7 RAZOR CLAM SAMPLES TAKEN AT 1.8 MI N OF OYSTERVILLE		BEACH AND OYSTERS LIGHTER W/SOME NEW OIL S OF O.V. BASEBALL SIZED BALLS	VISUAL SURVEY

EX5063-000155-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
29 MAR 1000	433	WDF/D. OLSON WILLAPA BAY, RODESIA BEACH AT GOOSE PT.		BEACH SURVEY APP. 1/2 GAL. OF OIL PER MI AT TIDELINE	VISUAL SURVEY
		SAMPLES TAKEN, CLEANUP IN PROGRESS			
29 MAR 1300	434	WDF/NEWMAN TWIN HARBORS, WESTPORT TO NORTH COVE		BEACH SURVEY 2 GLOBS (3-5CM) PER SQ. YD. AT HIGH TIDELINE (LIGHT TO	VISUAL SURVEY
		MODERATE)			
29 MAR 1000	435	WDF/SIMONS COPALIS BEACH		BEACH SURVEY OIL VERY LIGHT N OF CONNER CREEK LIGHT S OF CONNER CREEK	VISUAL SURVEY
		2 SAMPLES: 1/4 M N OF COPALIS GAP			
30 MAR 1330	436	WDF/NEWMAN TWIN HARBORS, Y-GAP TO NORTH COVE		BEACH SURVEY NO NEW OIL. NORTH-LG BLOBS PER 50-150', S-NUMEPOUS SM GLOBS	VISUAL SURVEY
		>24 POOLS OF OIL 6-10 "=DIA AT NORTH COVE			
30 MAR 1100	437	WDF/RAMMER COPALIS BEACH, COPALIS BEACH TO OCEAN SHORES		BEACH SURVEY LITTLE OIL AT N, BUT FRESH OIL AT HIGH TIDELINE AT CONNER C.	VISUAL SURVEY
		MORE AT OCEAN CITY AND OYHUT W/SAMPLES THERE/OCEAN SHORES S A LITTLE OIL. SM GOOSENECK BARNICLES GROWING			
31 MAR 1300	438	WDF/RAMMER TWIN HARBORS, Y-GAP TO NORTH COVE		BEACH SURVEY 1 POOL FRESH OIL APP 8" ACROSS AT N COVE 6-8 TARBALLS IN ALL	VISUAL SURVEY
		OIL PROBABLY BURIED BY SAND			
1 APR	439	WDF/SIMONS TWIN HARBORS, Y-GAP TO S OF NORTH COVE		BEACH SURVEY VERY LIGHT 10 2-6 OIL BALL ON WHOLE AREA	VISUAL SURVEY
4 APR	440	WDF/MOORE LONG BEACH, OCEAN PARK TO 1 MI N OF OCEAN PARK		BEACH SURVEY DIME SIZE OIL, 1 PER 30' AT TIDELINE	VISUAL SURVEY
21 MAR 1600	441	WDF/MOORE LONG BEACH, LONG BEACH TO OYSTERVILLE, 6 SITES		CLEAN SAND (PRE-OILED) CLEAN SAMPLES IN STORAGE AT WDF NAHCOTTA	SCOOPS &JARS
21 MAR 1600	442	WDF/MONTESANO LAB COPALIS BEACH, TWIN HARBORS, MOCKROCKS BEACH		BEACH SAMPLES (PRE-OILED) BACKGROUND SAMPLES IN STORAGE AT WDF/MONTESANO LAB	SCOOPS AND JARS
22 MAR 1200	443	WDF/CRAB FISHERMAN CRAB FISHING AREAS		NETS/LINE/CRAB NO REPORTED OILING	VISUAL SURVEY
29 MAR 1529	444	WDF/MEEKIN BACHELOR SLOUGH (RM 89)	141269	FISH, WATER SAMPLE ALSO ORION PH METER NO FISH MORTALITIES	LIVEBOXES,YSI D.E. METER,
		WATER CHEM. PARAMERS-CONDUCTIVITY,TOTAL HARDNESS,TOTAL ALKALINITY,PH, TEMPERATURE			
28 MAR 1400	445	WDF/MOORE OCEAN PARK H2O LINE	WDF-88-1	BEACH TARBALL	ALUMINUM FOIL
		ORIGINALLY TRACKED AS OP-28-84			
28 MAR 1215	446	LONG BEACH APPROACH	WDF-88-2	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1300	447	AT TIDE LINE	WDF-88-3	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1400	448	WDF/MOORE H2O LINE EDGE, OCEAN PARK	WDF-8U8-4	BEACH TARBALL	ALUMINUM FOIL
28 MAR	449	WDF/MOORE OYSTERVILLE + 1/8 H2O LINE	WDF-88-5	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1230	450	WDF/MOORE LONG BEACH APPROACH + 1/4	WDF-88-6	BEACH TARBALL	ALUMINUM FOIL

EX5063-000157-TRB

NOAA/HAZMAT SAMPLE TRACKING ... THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
28 MAR 1300	451	WDF/MOORE TIDE LINE	WDF-88-7	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1400	452	WDF/MOORE OCEAN PARK H20 LINE EDGE	WDF-88-8	BEACH TARBALL	ALUMINUM FOIL
28 MAR	453	WDF/MOORE OYSTERVILLE + 1/8 H20 LINE	WDF-88-9	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1200	454	WDF/MOORE LONG BEACH APPROACH + 1/4	WDF-88-10	BEACH TARBALL	ALUMINUM FOIL
28 MAR 1300	455	TIDE LINE	WDF-88-11	BEACH TARBALL	ALUMINUM FOIL
28 MAR	456	WDF/MOORE OYSTERVILLE + 1/8 H20 LINE	WDF-88-12	BEACH TARBALL	ALUMINUM FOIL
28 MAR	457	WDF/SIMONS AREA XH	WDF-88-13	BEACH TARBALL	JAR
28 MAR	458	WDF/SIMONS AREA XH	WDF-88-14	BEACH TARBALL	JAR
28 MAR	459	WDF/SIMONS GRAYLAND, Y-GAP	WDF-88-15	BEACH TARBALL	JAR
28 MAR	460	WDF/SIMONS GRAYLAND, Y-GAP	WDF-88-16	BEACH TARBALL	JAR
28 MAR	461	WDF/SIMONS 1/4 MI SOUTH OF OYEHUT	WDF-88-17	BEACH TARBALL	JAR
28 MAR	462	WDF/SIMONS 1/4 MI SOUTH OF OYEHUT	WDF-88-18	BEACH TARBALL	JAR
28 MAR	463	WDF/SIMONS 3/4 MI SOUTH OF OCEAN CITY	WDF-88-19	BEACH TARBALL	JAR
28 MAR	464	WDF/SIMONS 3/4 MI SOUTH OF OCEAN CITY	WDF-88-20	BEACH TARBALL	JAR
20 MAR 1135	465	NMFS/MCCONNEL END OF RICE ISLAND		SURFACE WATER FIRST SIGHTINGS OF OIL SHEEN	VISUAL SURVEY
1 MAR	466	NMFS/HAMMOND LAB AT 19 NMFS ESTUARY STUDY SITES		CRAB DISTRIBUTION PRE-SPILL BACKGROUND SAMPLES	8M TRAWL/5MI? TOWS
12 MAR	467	NMFS/HAMMOND LAB CATHLAMET BAY 4 SITES		BOTTOM 16 SAMPLES AT EACH SITE BY DIVERS. PRE-SPILL	8 M TRAWLS & TUBE CORER
19 MAR 1400	468	USFWS/HAGEDORN CATHLAMET TO STELLA		BANK AREA NO OIL VISABLE	VISUAL SURVEY

EX5063-000159-TRB

NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S)	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
		NOTES			
19 MAR 1400	469	USFWS/CLARK CATHLAMET/SLOUGH AREAS AROUND REFUGE		BANK AREA NO OIL VISABLE	VISUAL SURVEY
20 MAR 1000	470	USFWS/HAGEDORN SLOUGHS AROUND CATHLAMET OIL IN DURING HIGH TIDE SO STICKING TO BEACHES		SLOUGH AND RIVER BEACHES OIL SLICK IN ELOCHMAN, STEAMBOAT, AND BROOKS SLOUGHS	VISUAL SURVEY
20 MAR 1400	471	USFWS/HAGEDORN HARRINGTON POINT		BEACH AND WATER SURFACE SHEEN ABOUT 50 YDS OFF SHORE	VISUAL SURVEY
21 MAR 1000	472	USFWS/CLARK CATHLAMET TO FITZPATRICK ISLS.		BEACH AND SLOUGH AREAS OILED BIRDS AND DEBRIS IN BRUSH LINE	VISUAL SURVEY
21 MAR 1400	473	USFWS/CLARK HUNTING IS., PRICE IS. & ELOCHOMAN SLOUGH		RIVER & SLOUGH AREAS OIL GLOBS AT MOUTH OF SLOUGH OIL IN AT HIGH TIDE	VISUAL SURVEY
21 MAR 1000	474	USFWS/HAGEDORN GRAY'S BAY		SURFACE WATER OIL GLOBS AT HARRINGTON POINT ON BEACH	VISUAL SURVEY
22 MAR 1000	475	USFWS/HAGEDORN ASTORIA TO LONGVIEW		RIVER SURVEY ACCUMULATION AT S. OF MOUTH AND FROM STELLA TO GRAY'S BAY	HELO SURVEY NOTES
22 MAR 1000	476	USFWS/CLARK RICE IS.,MILLER SAND, JIMCROW SANDS, HUNTING IS.		BEACHES & MARSHES OIL ON BEACHES AND IN MARSHES	VISUAL SURVEY
23 MAR 1000	477	USFWS/CLARK CARLSON, RUSH, LOIS & MARSH ISLANDS SET UP BIRD CLEANING CENTER		BEACH SURVEY SOME OIL ON BEACH	VISUAL SURVEY
28 MAR 1300	478	ODEQ/SUTHERLAND BUOY 72, 75 & 77 MID-CHANNEL UPSTM. OF DEER ISL.	DEQ-1	BOTTOM NO OIL	CANNONBALL
28 MAR 1330	479	ODEQ/SUTHERLAND TRANSECT ST. HELENS BAR TO ST. HELENS 3 DROPS, 100 FT OFFSHORE ON EACH SIDE AND MID-CHANNEL	DEQ-2	BOTTOM SMALL AMT OF OIL NEXT TO ST. HELENS BAR	CANNONBALL
29 MAR 1149	480	ODEQ/SUTHERLAND ODFW/JONES WAONA RM 42 TRANSECT 10'-40' DEEP	DEQ-3	BOTTOM NO OIL	CANNONBALL
29 MAR 1130	481	ODEQ/SUTHERLAND ODFW/JONES SW SIDE PUGET ISLAND, WELCOME SLOUGH, BRADWOOD	DEQ-4	SHORELINE NOTED SMALL AMTS OF SHEEN IN WELCOME SLOUGH	VISUAL SURVEY
29 MAR 1230	482	ODEQ/SUTHERLAND CLIFTON CHNL-2 SITES BRADWD,TRANS CLIFT-MULT SLOUG 5'-50' DEEP	DEQ-5	BOTTOM NO OIL	CANNONBALL
29 MAR 1230	483	ODEQ/SUTHERLAND ODFW/JONES SHORELINE CLIFTON CHANNEL & PRAIRE CHANNEL	DEQ-6	SHORELINE NOTED A FEW PATCHES OF OIL ON NORTH SIDE OF MARSH ISL.	VISUAL SURVEY
29 MAR 1330	484	ODEQ/SUTHERLAND PRAIRIE CHANNEL-TRANSECT HORSESHOE ISL & RM 25	DEQ-7	BOTTOM NO OIL	CANNONBALL
29 MAR 1400	485	ODEQ/SUTHERLAND WENDY ISLAND CHANNEL 4 SITES	DEQ-8	BOTTOM NO OIL	CANNONBALL
29 MAR 1430	486	ODEQ/SUTHERLAND JIM CROW SANDS AMTS)	DEQ-9	BEACH SURVEY NOTED DIME SIZE OIL SPOTS ON BEACH AT HIGH TIDE LINE (MINOR	VISUAL SURVEY

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NOAA/HAZMAT SAMPLE TRACKING FOR THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
29 MAR 1515	487	ODEQ/SUTHERLAND ODFW/JONES THREE TREE PT TO STEAMBOAT SLOUGH	DEQ-10	BOTTOM VERY SMALL AMTS NEAR LOWER END OF PRICE ISLAND	CANNONBALL
29 MAR 1500	488	ODEQ/SUTHERLAND THREE TREE PT. TO CATHLAMET HUNTING ISLAND	DEQ-11	SHORELINE NOTES SOME OIL ON SHORE PARTICULARLY ALONG LOWER END OF	VISUAL SURVEY
29 MAR 1630	489	ODEQ/SUTHERLAND BERNIE SLOUGH, WALLACE SLOUGH, BRADBURY SLOUGH	DEQ-12	BOTTOM NO OIL	CANNONBALL
29 MAR 1720	490	ODEQ/SUTHERLAND BRADBURY SLOUGH & WALLACE SLOUGH	DEQ-13	SHORELINE NO OIL	VISUAL SURVEY
30 MAR 0900	491	ODEQ/SUTHERLAND JOHN DAY CHANNEL, PRAIRIE CHANNEL, KNAPPA SLOUGH	DEQ-14	BOTTOM NO OIL	CANNONBALL
30 MAR 0900	492	ODEQ/SUTHERLAND LOIS ISLAND RM 18	DEQ-15	BEACH SURVEY FOUND OCCASIONAL TARBALLS ON INTER-TIDAL AREA 4"-6"	VISUAL SURVEY
30 MAR 0900	493	ODEQ/SUTHERLAND SOUTH CHANNEL, PRAIRIE CHANNEL, KNAPPA SLOUGH	DEQ-16	SHORELINE NO OIL SITED	VISUAL SURVEY
19 MAR 1200	494	ODEQ/KOLLIAS GOBLE BOAT DOCK DIME TO QUARTER SIZE, FLOATING ON SURFACE AND GIVEN OFF SHEEN	DEQ-17	SURFACE WATER SCATTERING OF OIL GLOBULES FOUND	VISUAL SURVEY
19 MAR 1300	495	ODEQ/KOLLIAS FISHER ISLAND SLOUGH CONTINUOUS LAYER WITH SOME STREAKS OF OPEN WATER; SOME IS REDDISH-FOAM, INDICATIVE OF EMULSION FORMATIO	DEQ-18	SURFACE WATER OIL FLOATING ON SURFACE OF SLOUGH	VISUAL SURVEY
28 MAR 1230	496	ODEQ/SMITS CLATSOP SPIT	DEQ-19	BEACH SURVEY 3-4 SMALL PANCAKE SIZED OIL GLOBULES PER SQ. YD.--SPOTTY	VISUAL SURVEY
28 MAR 1300	497	ODEQ/SMITS SOUTH JETTY, RIVERSIDE, NEAR PARKING AREA SOME EEL GRASS COATED WITH OIL	DEQ-20	BANK AREA 1 DEAD BIRD - SOME OIL-PANCAKE SIZE - SCATTERED	VISUAL SURVEY
28 MAR 1330	498	ODEQ/SMITS HAMMOND BOAT BASIN IN 20' X 20' AREA	DEQ-21	BANK AREA SM AREA OF EEL GRASS COATED WITH OIL-SOME OIL PANCAKE SIZE	VISUAL SURVEY
24 MAR	499	ODFW/BOITZ BONNEVILLE TO GOBLE		ANGLER BEACH SURVEY NO OIL PROBLEMS NOTED	VISUAL SURVEY
22 MAR	500	ODFW/LINK JETTY SANDS AND OCEAN BEACH		BEACH SURVEY OIL ON JETTY SANDS BUT NONE ON OCEAN BEACHES	VISUAL SURVEY
22 MAR 1000	501	ODFW/BOHN ASTORIA TO ST. HELENS		ANGLER BEACH SURVEY STREAKS OF OIL IN ESTUARY UP TO JIM CROW AND AT FISHER ISL.	VISUAL SURVEY
20 MAR 1400	502	ODEQ/SUTHERLAND SHIP SITE TO STELLA		SURFACE WATER & BEACH SURVEY OIL STREAKS FROM SHIP, BEACHES OILED- LONGVIEW	VISUAL (HELO OVERFLIGHT)
29 MAR	503	ODFW/WEBER CLATSOP BEACH		BEACH SURVEY 4-8" BLOBS ON BEACH, NO DENSITY NOTED, NO SAMPLES	VISUAL SURVEY
6 APR	504	ODFW/WEBER CLATSOP BEACH 8-10 OILED BIRDS IN 6 MI OF BEACH		BEACH SURVEY OIL ON BEACH - 4-8" BLOBS	VISUAL SURVEY

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DATE / TIME	SEQ. #	AGENCY / NAME / LOCATION(S) / NOTES	FIELD TAG#	WHAT WAS SAMPLED / RESULTS	METHOD USED
27 MAR 1000	505	ODFW/BOITZ ASTORIA TO BONNEVILLE BEACH & BOAT SAMPLES AT SAME TIME		ANGLER BEACH SURVEY PATCHES OF OIL FROM LONGVIEW BRIDGE TO LOWER WALLACE ISL.	VISUAL SURVEY
24 MAR 1200	506	ODFW/BOITZ PRESCOTT BEACH , DIBBLE ISL. & ST. HELENS		ANGLER BEACH SURVEY NOT YET AVAILABLE	INTERVIEWS
24 MAR 1200	507	ODFW/BOITZ ASTORIA TO BONNEVILLE		ANGLER BEACH SURVEY OIL SHEEN AT FISHER ISLAND AND IN ESTUARY	VISUAL SURVEY
22 MAR	508	ODFW/BOITZ ASTORIA TO BONNEVILLE BEACH & BOAT SURVEYS AT SAME TIME		ANGLER BEACH SURVEY NO OIL NOTED ON REPORT FORMS	VISUAL SURVEY
30 MAR	509	ODFW/HREHA ASTORIA AREA SEAFOOD PROCESSORS		LONGLINE AND TRAWL CAUGHT FISH NO REPORTED PROBLEMS WITH OILED FISH	INTERVIEWS
28 MAR 1040	510	WDOE/KITTLE ELOCHOMAN SLOUGH WATER PARAMETERS-CONDUCTIVITY,TOTAL HARDNESS, TOTAL ALKA- LINITY, PH,TEMPERATURE	141268	WATER, FISH BOX NO FISH MORTALITIES	JAR, IN-SITU BIOASSAY
20 MAR 1200	511	WDF/WALL COLUMBIA RIVER, RM 12-20 (ASTORIA) -SAMPLERS AWARE OF SPILL. NO SIGN OF OIL IN WATER OR PICKED UP BY NET. NO SIGN OF OIL ON FISH		FISH NETTED 2 STURGEON (TAGGED & RELEASED)	COMMERCIAL GILLNET
21 MAR 0730	512	WDF/JAMES COLUMBIA RIVER, RM 31-34 (SKAMOKAWA) HAVE HAD OIL. NO SAMPLES TAKEN. NET PICKED UP 12-18 TARBALLSTOW ENDED AT 11:00		FISH EXAMINED APP 24 STURGEON FOR OIL IN GILLS, 2 OF WHICH MAY	COMMERCIAL GILLNET
23 MAR	513	WDF/WALL COLUMBIA RIVER, RM 40-110 FISH SAMPLED AT BUYERS AND ENTRAILS OF 1 FISH. HEAD AND ENTRAILS STORED IN FREEZER		FISH EXAMINED 18 STURGEON FOR OIL, NONE VISIBLE. COLLECTED HEAD	COMMERCIAL SETLINE
24 MAR 0930	514	WDF/JAMES COLUMBIA RIVER, RM 31-34 (SKAMOKAWA) ECTED 22 STURGEON, 6 SALMON, 1 STEELHEAD. PHOTOGRAPHS TAKEN EXAMINED & TAGGED AN ADDITIONAL 34 STURGEON F		FISH OIL FOUND IN MOUTH OF 13 OF THE 22 STURGEON COLLECTED. COLL-	COMMERCIAL GILLNET
26 MAR 1430	515	WDF/JAMES COLUMBIA RIVER, RM 101 (ENTRANCE TO WILLAMETTE RV. STORED IN FREEZER. FINISHED FISHING AT 1630		FISH COLLECTED 4 STURGEON, NO OUTWARD SIGNS OF OIL	HOOK AND LINE (SPORT)
2 APR 1400	516	WDF/WALL COLUMBIA RIVER, RM 124 (CORBETT) CHECKED A TOTAL OF 49 STURGEON, 10 SALMON - SAMPLES FROZEN		FISH COLLECTED 4 STURGEON, 1 SALMON, NO OUTWARD SIGNS OF OIL	COMMERCIAL GILLNET
2 APR 0900	517	ODFW/HIROSE COLUMBIA RIVER, RM28 (WOODY ISLAND) HEAD COLLECTED. CHECKED A TOTAL OF 62 STURGEON, 17 SALMON, 2 STEELHEAD, NO OIL FOUND. SAMPLES STORED IN		FISH NO OUTWARD SIGNS OF OIL FOUND ON 2 STURGEON,1 SALMON,1 STEEL	COMMERCIAL GILLNET
2 APR	518	ODFW/B JAMES COLUMBIA RIVER, RM 28 (WOODY ISLAND) SPRING CHINOOK, 1 STEELHEAD. 62 STURGEON, 15 SPRING CHINOOK2 STEELHEAD CAUGHT ON DRIFT		FISH OILY DEBRIS ON LEADLINE, NO OIL NOTED ON FISH -2 STURGEON, 1	COMMERCIAL GILLNET
2 APR	519	ODFW/B JAMES COLUMBIA RIVER, RM 124 (CORBETT) FISH. 49 STURGEON, 10 SPRING CHINOOK CAUGHT ON DRIFT.		FISH 4 STURGEON, 1 SPRING CHINOOK COLLECTED, NO OIL OBSERVED ON	COMMERCIAL GILLNET
21 MAR 1400	520	WDNR/B LACEY COLUMBIA RIVER, COUNTY LINE PARK, RM 53		BEACH TARBALL TARBALL < 1 SQ M. SIZE:QUARTER WIDTH:4-5 FT	VISUAL SURVEY
22 MAR 1650	521	NMFS/MCCONNEL ASTORIA BRIDGE, DERDENORA SANDS, DANSY PT. AND LONG BEACH PENNINSULA TO SEAVIEW		FISH OILED FISH, OIL ON BEACHES AT YOUNG'S BAY TO LEWIS & CLARK R	SHRIMP TRAWLS - 3 HAULS
28 MAR 1400	522	WDOE/KITTLE COLUMBIA R. BEACH, WAHINGTON ST. RM 8		BEACH SURVEY OIL ON BEACH, GLOBS QUARTER SIZE, 2-3 SQ M. , BAND WIDTH 1 M	VISUAL SURVEY

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NOAA/HAZMAT SAMPLE TRACKING THE MOBILOIL SPILL (BY SEQ. #) HSTR07
REPORT DATE: 12 JUL 1984

DATE TIME	SEQ. #	AGENCY / NAME LOCATION(S) NOTES	FIELD TAG#	WHAT WAS SAMPLED RESULTS	METHOD USED
29 MAR	523	WDF/MEEKIN		FISH AND WATER PARAMETERS	IN-SITU BIOASSAY
		ELOCHOMAN SLOUGH -COLUMBIA RIVER (RM 39		NO FISH MORTALITIES	
		WATER PARAMETERS-CONDUCTIVITY, TOTAL HARDNESS,TOTAL		ALKALINITY,PH, TEMPERATURE	
31 MAR	524	WDF/MEEKIN		FISH AND WATER PARAMETERS	IN-SITU BIOASSAY
		ELOCHOMAN SLOUGH-COLUMBIA RIVER (RM 39)		NO FISH MORTALITIES	
		WATER CHEMISTRY PARAMETERS-CONDUCTIVITY,TOTAL HARDNESS,		TOTAL ALKALINITY,PH,TEMPERATURE	
27 MAR	525	WDOE/KITTLE		FISH AND WATER PARAMETERS	IN-SITU BIOASSAY
0903		ELOCHOMAN SLOUGH, RM 39		WATER TEMP. 7.1C.,D.O. 12.0 PPM, PH 7.7, NO FISH MORTALITIES	
		OIL GLOBULES ABOUT 1/S0.M, SIZE 1 1/2 IN DIAM, RAINBOW		STREAK SHEEN, WIDTH ABOUT 5 M FROM ISLAND SHO	
26 MAR	526	WDOE/KITTLE		FISH	IN-SITU BIOASSAY
1830		ELOCHOMAN SLOUGH - RM 39		WATER TEMP. 7.5C, PH 7.2, D.O. 12.1 PPM	
		OIL GLOBULES AND STREAKS ON THE WATER SURFACE. 3 LIVE BOXES 20 FISH/BOX			
2 APR	527	WDF/MEEKIN		FALL CHINOOK JUVENILES (CNTRL)	LIVE BOX BIO-ASSAY
1300		BACHELOR SLOUGH (RM 91.6)		ALL CONTRL FISH SURVIVED	
		2 FISH WERE TAKEN FROM 2 LIVE BOXES AND 5 FISH WERE TAKEN		FROM THE 3RD LIVE BOX (3 SAMPLES TOTAL)	
2 APR	528	WDF/MEEKIN		FALL CHINOOK JUVENILES-TEST	FLIVE BOX BIOASSAY
0840		ELOCHOMAN SLOUGH (RM 39.1)		TEST FISH IN BOXES 1 AND 2 SURVIED FOR 160 HOURS. 2 FISH	
		EACH TAKEN ROM 2 LIVE BOXES. TWO SAMPLES TOTAL			
30 MAR	529	WDF/MEEKIN		FALL CHINOOK JUVENILES -TEST	LIVE BOX BIOASSAY
1040		ELOCHOMAN SLOUGH (RM 39.1)		TEST BOX #3 LIVE BOX WASHED ON LOGBOOM BY SHIP WAKE-ALL 20	
		FISH DEAD.20 FISH TAKEN AS SAMPLE-TOTAL BIOASSAY TIME AT 90 HOURS.WATER CHEM. PARAMETERS-CONDUCTIVITY,TOT			
31 MAR	530	WDF/MEEKIN		FISH	50 FT. BEACH SEINE
1530		WOOTLAND BAR (RM 82)		SEVEN CHINOOK JUVENILES AND ONE CHUM JUVENILE WERE SEINED	
		EIGHT SEINE HAULS WERE MADE. TOTAL OF ONE SAMPLE			
28 MAR	531	WDF/MEEKIN		BEACH SURVEY	PICKED UP ON BEACH
1745		WOODLAND BAR (RM 82)		ONE CUM SALMON JUVENILE AND ONE FRESHWATER CLAM	
31 MAR	532	WDF/MEEKIN		FISH	LIVE BOXES,YSI D.E. METER
		BACHELOR SLOUGH (RM 89)		ORION PH METER NO FISH MORTALITIES	
		WATER CHEM PARAMETERS-CONDUCTIVITY,TOTAL HARDNESS,TOTAL		ALKALINITY,PH,TEMPERATURE	
30 MAR	533	WDF/MEEKIN		FISH	LIVEBOXES,YSI D.E. METER
		BACHELOR SLOUGH (RM 89)		ORION PH METER NO FISH MORTALITIES	
		WATER CHEM. PARAMETERS - CONDUCTIVITY, TOTAL HARDNESS,		TOTAL ALKALINITY, PH, TEMPERATURE	
28 MAR	534	WDF/MEEKIN		FISH	LIVEBOXES,YSI D.E. METER,
		BACHELOR SLOUGH (RM 89)		ORION PH METER NO FISH MORTALITIES	
		WATER CHEM. PARAMETERS-CONDUCTIVITY, TOTAL HARDNESS,TOTAL		ALKALINITY, PH, TEMPERATURE	
27 MAR	535	WDOE/KITTLE		FISH	LIVEBOXES,YSI D.E. METER,
		BACHELOR SLOUGH (RM 89)		ORION PH METER FISH APPEAR NORMAL	
		LIVEBOX INSTALLATION. NO OIL ON SITE.WATER CHEM PARAMETERS: TOTAL HARDNESS,CONDUCTIVITY,TOTAL ALKALINITY,			
25 MAR	536	USFWS/BRITTON		FISH	N/A
		ELOCHOMAN SLOUGH		ONE STURGEON OILED CARCASS	
27 MAR	537	ODFW/BENNET		ANGLER BEACH SURVEY	VISUAL SURVEY
		BONNEVILLE TO ASTORIA		FLOATING OIL IN PUGET ISL. AREA NOT IN MID-STREAM. OIL AT	
		STELLA,NASSA,CAPE HORN, FLANDERS			
27 MAR	538	ODFW/BOITZ		ANGLER BEACH SURVEY	VISUAL SURVEY
		PRESCOTT AND DIBBLIE POINT		LINES AND LUES FOULED WITH OIL	
2 APR	539	ODFW/GALBREATH		TEST FISHING,DRIFT NETTING	1200 FT. DIVER NET WITH APRON
		BELOW 3-TREE PT. TO JIM CROW SANDS		OIL ON BOTTOM 6 INCHES OF NET ON WASH. HALF OF NET.	
		SAMPLE FISH BEING CHECKED BY WDOE/KITTLE			
4 APR	540	ODFW/GALBREATH		TEST FISHING DRIFT NETTING	1200 FT. DIVER NET WITH APRON
		BEOW 3 TREE PT. TO JIM CROW SANDS		LESS OIL. OIL COATED LEAVES ONLY A FEW CLUMPS	
		SAMPLE FISH BEING CHECKD BY WDOE/KITTLE			

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