Status Report on Exxon Valdez Oil Spill
U. S. Fish and Wildlife Service
Region 7 - Alaska
September 26, 1989

EXECUTIVE SUMMARY

The March 24, 1989, grounding of the 987-foot long T/V Exxon Valdez on Bligh Reef in Prince William Sound, Alaska, resulted in the largest oil spill in United States history. Over 10 million gallons of Prudhoe Bay crude oil spilled into eastern Prince William Sound and has spread southwest to the Alaska Peninsula, a distance of more than 700 miles from the spill site (Figure 1). Within that area, approximately 3200 miles of shoreline have been fouled by the oil, approximately 624 of which is associated with National Wildlife Refuge land.

Department of the Interior on-scene participation in the response to the T/V Exxon Valdez has been two-fold: 1) in support of the U.S. Coast Guard Federal On-Scene Coordinator with the other Regional Response Team members; and 2) in response to effects on Interior's trustee resources (e.g. refuge and park lands and their cultural resources, migratory birds, and sea otters).

The Fish and Wildlife Service established four Field Offices (in Valdez, Seward, Homer, and Kodiak) to oversee wildlife rescue/rehabilitation efforts and participate in planning beach cleanup and monitor those operations (Figure 2). Service representatives also provided valuable resource information about Interior trustee resources to various shoreline cleanup assessment teams and scientific support working groups. The Valdez office closed on September 15 for the winter. The other three field offices are monitoring fall bird migrations and maintaining a minimal bird recovery capability. Full-time response activities by the Service in Seward, Homer and Kodiak are expected to cease around October 15. We plan to continue coordinating and monitoring activities, in cooperation with the U.S. Coast Guard, the National Oceanic and Atmospheric Administration, and State of Alaska authorities, through the coming winter. Next summer's response activities will be contingent upon coordination and planning of proposed cleanup activities for next field season and monitoring of wildlife resources through the upcoming winter.

Damage assessment data received to date are in many respects very preliminary in nature and should be considered in this context. Wildlife continue to be impacted by the oil spill. As of September 20, 1989, the U.S. Fish and Wildlife Service has collected 1,010 dead sea otters, 162 dead raptors (including 144 dead bald eagles), and 36,429 dead migratory birds. The Natural Resource Damage Assessment Plan was released in early August for public review; the review period ends on October 30, 1989.

Interior supported the U.S. Coast Guard's efforts to get consistent, substantive activities under way quickly and to maintain the sense of urgency about the job to be done through the summer. The magnitude of the effort needed, the great distance the oil traveled, the miles of shoreline affected, and the harshness of environmental conditions have deterred expeditious cleanup. These deterrents hampered efforts by Exxon and future cleanup will be required. Exxon abandoned all clean up efforts on September 15, 1989.

INTRODUCTION AND BACKGROUND

The March 24, 1989, grounding of the 987-foot long T/V Exxon Valdez on Bligh Reef in Prince William Sound, Alaska, resulted in the largest oil spill in United States history. Over 10 million gallons of Prudhoe Bay crude oil spilled into eastern Prince William Sound. Initially the spill remained stationary; however, on March 27, 1989, a storm with strong northeasterly winds rapidly pushed the oil southwestward, after which the spill was periodically at the mercy of the weather. Pushed by wind and borne by westward flowing ocean currents, oil spread as far west as the Kupreanof Peninsula on the south side of the Alaska Peninsula, a distance of more than 700 miles from the spill site (Figure 1). Within that area, approximately 3,200 miles of shoreline were fouled by the oil. In addition several offshore island groups, most notably the Chiswell and Pye islands off the coast of the Kenai Peninsula and the Barren Islands in lower Cook Inlet (all part of the Alaska Maritime National Wildlife Refuge), and the Kodiak Archipelago, have been affected by the oil.

Interior is in the early phases of identifying and delineating the full extent and magnitude of environmental impacts caused by the T/V Exxon Valdez oil spill and is participating in the natural resource damage assessment process. The draft Natural Resource Damage Assessment Plan and Restoration Strategy is out for public review until October 30.

AGENCY RESPONSIBILITIES

The Department of the Interior has four areas of responsibility in dealing with the T/V Exxon Valdez oil spill. Two responsibilities entail response activities and the remaining two are associated with the Interior's role as a trustee for select natural resources.

The Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendment and Reauthorization Act, and the Clean Water Act authorize Interior spill-related activities. Additionally, Executive Order 12580 names the members of, and delegates certain responsibilities to, the National Response Team, of which Interior is a member. The National Response Team oversees the nation's effective and efficient response to oil and hazardous substance incidents.

As a member of the Alaska Regional Response Team, Interior works with the State of Alaska and other Federal departments to provide guidance and assistance to the U.S Coast Guard (the Federal On-Scene Coordinator) and the Environmental Protection Agency in a manner described in the National Contingency Plan and in the Regional Contingency Plan. The National Plan is the major rule covering Interior's response, which ensures that the resources and expertise of the Federal government are immediately available for oil and hazardous substance incidents that require a national or regional response. Interior also responds to the spill in compliance with Superfund and Clean Water Act provisions for Federal facilities which address spill incidents on its own lands.

Interior, as authorized, is seeking compensation for and restoration of natural resources under its trusteeship which have been injured by the spill.

U.S. Fish and Wildlife Service trust resources impacted to date include sea otters, raptors and other migratory birds, and the shorelines of the Alaska Maritime, Becharof, Alaska Peninsula, and Kodiak National Wildlife Refuges. The National Park Service trust resources impacted by oil include the shorelines and coastal resources of Kenai Fjords National Park, Katmai National Park and Preserve, and Aniakchak National Monument and Preserve.

The Trustee agencies (i.e. State of Alaska, Department of Agriculture, Department of Commerce, and Department of the Interior) generally follow the procedures of the Natural Resource Damage Assessment regulations (Regulations) (43 CFR, Part 11). To provide the Trustee agencies with the necessary background for conducting a Natural Resource Damage Assessment Plan, Interior staff have conducted training for personnel from the Trustee agencies on the use of the Regulations. The Trustees will continue to evaluate the desirability of following these regulations.

RESPONSE ACTIVITIES

The spill began shortly after midnight March 24, 1989; first notification in Interior came to the Bureau of Land Management. Immediately thereafter Paul Gates, Interior's Regional Environmental Officer in the Office of Environmental Project Review in Anchorage and Interior's member on the Alaska Regional Response Team, was notified. The National Response Team members were notified by 5:00 a.m. Alaska time (9:00 a.m. Eastern time).

Thereafter, Mr. Gates' office in Anchorage became a central point for Regional Response Team coordination and coordination of Interior's logistical support to the response management effort led by the U.S. Coast Guard. Interior and Service personnel traveled to Valdez on March 25, 1989, and worked out of the headquarters of the U.S. Coast Guard Federal On-Scene Coordinator, dealing with natural resource-related activities and Interior logistical support throughout the first few weeks following the spill.

Interior efforts have involved five agencies and the Office of Aircraft Services in addition to the Office of Environmental Project Review, on the basis of:

(1) land and natural resource jurisdiction: U.S. Fish and Wildlife Service, National Park Service, Bureau of Indian Affairs;
(2) expertise and logistical support: Bureau of Land Management, Minerals Management Service, Office of Aircraft Services, Fish and Wildlife Service, National Park Service; and
(3) Alaska Native concerns: Bureau of Indian Affairs.

Exxon's early cleanup efforts were generally geared to containing the oil and protecting fish and wildlife by placing booms and guiding oil away from prioritized environmentally sensitive areas. The Fish and Wildlife Service concentrated its short-term efforts on documenting the numbers, species, and locations of migratory birds and the numbers and locations of sea otters in the oil spill area and in areas which potentially could be affected; providing resource information to the U.S. Coast Guard; establishing wildlife receiving stations; conducting beached wildlife and habitat surveys; and overseeing wildlife rescue and rehabilitation.

An Interagency Incident Command Team (Command Team) was sent to Valdez. As it became clear that the spreading oil slick was moving outside of Prince William Sound to the Gulf of Alaska and threatening the Kenai Peninsula shoreline and Kenai Fjords National Park, the National Park Service requested the services of the Valdez-based Command Team. The team began working for the National Park Service on March 29.

Additionally, the Fish and Wildlife Service requested a Command Team be established in Kodiak to respond to the needs of Interior land managers responsible for Kodiak, Alaska Maritime, and Alaska Peninsula/Becharof National Wildlife Refuges; and Katmai National Park. Overall Bureau of Land Management services ranged from providing and setting up remote weather tracking stations for the National Oceanic and Atmospheric Administration to chartering boats for those working to protect sensitive areas in Kenai Fjords National Park. The Kodiak incident command team ceased function the second week of April.

Exxon conducted shoreline cleanup activities in Prince William Sound and at various places along the oil's pathways through the western Gulf of Alaska into Shelikof Strait (between the Kodiak Archipelago and the Alaska Peninsula), beginning in April and ending its operations on September 15. Interior was not responsible for the logistics of shoreline cleanup; however, as resource managers and land managers, we had and will continue to have extensive involvement in all aspects of the spill.

Wildlife rescue efforts were overseen by the Fish and Wildlife Service in Valdez, Seward, Homer, and Kodiak. Sea otter rescue operations were conducted by the Fish and Wildlife Service through the area of the oil spill. Each office supervised Fish and Wildlife Service-contracted or monitored Exxon-contracted vessels and aircraft involved in wildlife rescue efforts. The Exxon efforts ceased on September 7, when Exxon recalled all their bird and otter boats. The Valdez and Seward Field Offices also monitored oiled sea otter and migratory bird rehabilitation at Exxon-constructed centers. The Homer office monitored a major sea otter holding facility at Jakolof Bay, designed to hold up to 80 rehabilitated sea otters for later release.

The Fish and Wildlife Service participated heavily in shoreline cleanup operations (e.g., planning and monitoring shoreline cleanup activities, conducting shoreline surveys for prioritizing beaches for cleanup, evaluating use of bioremediation and dispersants) through the interagency shoreline cleanup committees in Valdez, Seward, Homer, and Kodiak. Particular attention was given to affected national wildlife refuge lands. Numerous representatives from other Service regions around the country assisted in monitoring cleanup activities.

Ongoing Fish and Wildlife Service activities conducted by National Wildlife Refuge, Fish and Wildlife Enhancement, and Research staff involve surveys of potential and actual effects of the oil spill on migratory bird and sea otters and their habitats. To facilitate sea otter capture, the Fish and Wildlife Service entered into an agreement with the Indigenous Conservators of the Environment (an Alaska Native nonprofit organization) to train Alaskan Natives in sea otter capture techniques. The Fish and Wildlife Service also finalized a Sea Otter Release Strategy designed to place rehabilitated sea otters back in a natural, oil-free environment. To test the efficacy of this strategy,

six rehabilitated, radio-fitted sea otters were initially released and followed. As a result of this study, an additional 28 sea otters were released in the clean waters of eastern Prince William Sound in late July. Twenty-one of these otters were implanted with radios to monitor their movements from the release sites. The remaining healthy sea otters were released near their capture locations; the last sea otters were released on August 30, 1989.

The Fish and Wildlife Service organized, through Exxon, two eagle rescue teams whose function was to capture oiled and distressed bald eagles for rehabilitation at an Anchorage-based Bald Eagle Rehabilitation Center. The two eagle capture teams operated until early September. Blood samples were taken from eagles and analysed in the field to determine their health and basic blood chemistry; based on the field analysis, the eagles were either released near the capture site or shipped to Seward or Anchorage for treatment.

After Exxon recalled all contracted bird and otter recovery boats during the first week of September, the Service arranged to cover the Seward and Kodiak operation areas through the fall bird migration with Service boats. The Coast Guard refused our request to cover the cost of providing vessel coverage out of 311(k) funds. The Service is monitoring the situation in the Seward zone and providing minimal bird rescue and collection capability using aerial surveys in conjunction with a boat. In the Homer area, monitoring is limited to helicopter flights 3 times a week. In the Kodiak area, the Tiglax and Ursa Major, larger Service boats, have been mobilized for bird rescue and monitoring. These efforts will continue until late October, by which time the majority of birds will have migrated through the impacted areas.

PRELIMINARY ESTIMATE OF IMMEDIATE DAMAGE

Interior has conducted a variety of pre- and post-oiling surveys since the early days of the spill. While this information is preliminary, it has provided information on the immediate injury to natural resources and has influenced response and protection measures.

Impacts to natural resources of Prince William Sound and the western Gulf of Alaska are categorized as primary and secondary. Primary impacts include immediate wildlife mortalities, loss of wildlife habitat, the contamination of hundreds of miles of shoreline, and the degradation of water quality. Habitat damages occurred in intertidal and subtidal zones, commercially important fish spawning areas, marine mammal haul-out areas, seabird feeding areas, and migratory bird staging, resting, and feeding areas. Impacted shoreline habitat-types include emergent wetlands, mud flats, rocky cliffs, and sand, gravel, and cobble beaches.

Secondary impacts include, but are not limited to: 1) the sublethal and chronic effects of oil on wildlife; 2) contaminated shorelines acting as a secondary source of exposure through contact with organisms using the shoreline, such as wading birds, molluscs, crabs, other crustaceans, and mammals (sea and river otters, Sitka blacktail deer, brown and black bears, etc.); and 3) exposure to oil via the food chain, particularly as contaminated carcasses and vegetation enter the detritus, the bottom line of the food chain.

Mortality, up to this point, has been measured through dead birds and animals collected by a variety of field crews and delivered to the Fish and Wildlife Service for identification and cataloguing. It was and continues to be important to recover as many dead animals as possible because their presence in the environment poses a threat to those wildlife (particularly bears and bald eagles) which may feed upon the carcasses.

Through September 20, 1989, 1,010 sea otters, 162 dead raptors (including 144 dead bald eagles), and 36,429 migratory bird carcasses have been collected. This includes 127 sea otters, 10 bald eagles, and 747 migratory birds that have died in the rehabilitation centers. Another 13 bald eagles and 7 migratory birds have been cleaned and are being held for potential future release. Currently, 788 migratory birds, 19 bald eagles, and 193 sea otters have been released. Twenty-two sea otters will not be released back into the wild - these otters will be placed in aquaria outside of Alaska.

Precise estimates of wildlife mortality are unavailable and await further collection and analysis of data. However, the total number of dead birds and sea otters is probably much greater than the figures provided, as many animals have been scavenged, have sunk, remain on the shoreline, are floating at sea, or, are expected to die from chronic illnesses. Overall, Interior biologists expect an initial decline in migratory birds and sea otter populations using Prince William Sound and the western Gulf of Alaska.

Among the marine mammals, sea otters are particularly sensitive to the effects of oil contamination, as they depend on their fur to keep warm and because they groom extensively, thereby increasing the risk of ingesting toxins. Prior to the spill, sea otters were distributed almost continuously along the portion of the Alaska coastline affected by the oil spill. Surveys of sea otters completed prior to or during the early days of the spill have shown that habitat that supported relatively high densities of sea otters both within and outside of Prince William Sound have been affected by the oil spill. The population of sea otters at risk (i.e., in the path of the spill) estimated at 13,000.

Seabirds in particular have been heavily impacted by the spill. A spill of this magnitude is expected to have significant, long-term effects on a variety of migratory birds, especially loons, grebes, waterfowl, bald eagles, seabirds, and on their marine food resources. Initial surveys conducted in late March and early April 1989, indicated that the population of migratory birds in Prince William Sound and the northern portion of the Gulf of Alaska (coast of lower Kenai Peninsula) was approximately 250,000. Much of this wintering population was at risk from the oil spill. The number of birds using Prince William Sound and the western Gulf of Alaska peaked in late April and May when as many as 10 million to 12 million migratory birds passed through the spill area. Fortunately, most of these migrants stage in the Copper River Delta and the southeastern portion of the Sound and were not directly exposed to the oil.

In order to reduce the injuries to some of these bird resources during spring migration, Interior asked the Federal Aviation Administration to issue NOTAMS (Notices To Airmen) to minimize aircraft disturbance in critical staging areas not impacted by the oil spill. At the same time a plan to displace birds from select areas impacted by oil through the use of mechanical hazing techniques was implemented in late April. For the fall migration, a bird hazing team was organized on an as-needed basis.

Prince William Sound bald eagle surveys were conducted all summer and will continue through the winter to obtain data on the specific impact to this bald eagle population. Preliminary data indicate that incidence of nest failure was high (67 percent) in areas affected by the spill, lower (46 percent) in adjacent unoiled areas, and lowest (29 percent) in an area distant from the spill.

The Alaska Department of Environmental Conservation and the National Oceanic and Atmospheric Administration are developing the computer capability to map impacted shorelines and their relative degree of oiling (i.e., light, medium, heavy). Their effort has not progressed to a point that we can graphically incorporate their findings here; however, enough textual information has been generated by the two agencies to permit us to summarize some of their findings.

During the first few months after the spill, the oiling of the coast was dynamic and new areas were continually impacted, as oil washed off one beach and washed up on others. Beaches treated one day were often reoiled with the next incoming high tide. An estimate of the total miles of oiled shoreline ranges is approximately 3200 miles. Exposed rocky shores and high energy beaches have had the least potential to become permanently oiled, as oil tends to be washed off by wave action. Cobble shores and gravel and sand beaches, however, have had the highest reported incidences and degree of oiling, as oil becomes easily incorporated in the sediments.

Shoreline associated with Interior land trustee responsibilities has been oiled. However, it should be noted that an undetermined amount of oiled shoreline lies on State of Alaska land (Department of Natural Resources), as the State owns and manages intertidal areas below the mean high tide line, with the exception of select areas of the Alaska Maritime National Wildlife Refuge (i.e., Womens Bay Subunit). It is estimated that 624 miles of oiled national wildlife refuge coastline was identified for cleanup including 275 miles (34 moderate to heavy, 241 very light to light) of Alaska Maritime Refuge, 144 miles (17 moderate to heavy, 127 very light to light) of Alaska Peninsula/Becharof Refuge, and 205 miles (18 moderate to heavy, 187 very light to light) of Kodiak Refuge. The National Park Service estimates that 373 miles of park coastline was impacted by the oil including 306 miles of Katmai National Park, 22 miles of Kenai Fjords National Park, and 45 miles of Aniakchak National Park.

STATUS OF CLEAN-UP

The Fish and Wildlife Service participated in the planning and monitoring of shoreline clean-up operations in all four zones of the Exxon Valdez oil spill: Valdez, Seward, Homer and Kodiak. The Service has refuge offices in Homer and Kodiak and these offices will assist the Anchorage office in addressing oil spill activities as needed in those zones. Most clean-up and remobilization planning will be conducted in Anchorage over the upcoming winter and the Fish and Wildlife Service will participate in those activities. Also, monthly oil spill meetings are now planned for Seward, Homer and Kodiak and we plan to participate in those meetings as well. Approximately 3200 miles of shoreline have been affected by the Exxon Valdez oil spill (275 heavy, 295 moderate, 675 light, 2012 very light). The status of this past summers clean-up activities in each of the four zones is as follows:

Valdez Zone:

In the Valdez Zone (Prince William Sound) approximately 790 miles of shoreline were affected (210 heavy, 163 moderate, 271 light, 146 very light).

Exxon is essentially correct in its assertion that all loose oil has been removed from the shorelines of Prince William Sound. There is little or no sheen or free-floating mousse in the Sound, although winter storms may change that. Beach surfaces have either been treated or have turned to asphaltine. Treated beaches, i.e., those that received high-pressure, hot-water flushing, look clean on the surface; however, the undersides of most of the surface rocks still retain a coating of wet, fresh-looking oil, as do the rocks below the surface, often to a depth of several feet. The use of the surfactant Corexit on the heavily-oiled shoreline of Smith Island, one of the worst hit areas, likewise did little to remove subsurface oil. This subsurface oil is often brought to the surface with tidal pumping, resulting in sheening and the recoating of treated or "cleaned" rocks with a thin layer of oil.

Beaches that did not get treatment of any kind because of ecological constraints (e.g., proximity to seal haulouts, anadromous fish streams or seabird colonies) have asphaltine surfaces that are probably too hardened to be treatable by hot water in the future. Due to their ecological sensitivity, these beaches will probably not be candidates for chemical washing in the future.

Inipol, an oleophilic fertilizer, was applied to most gently-sloping gravel/cobble beaches in the Sound (bioremediation) to stimulate growth of natural oil metabolizing bacteria. The improvement in appearance was immediate, as Inipol has wetting properties that loosen and lift off surface oil. The long-term benefits remain to be seen, as much of the fertilizer was applied in late August and September, leaving little time for bacteria to colonize before winter. Oleophilic fertilization is the only method used so far that attacks subsurface oil, but it is slow-acting in the cold temperatures of Alaskan waters and may simply speed up the process of natural weathering and degradation. For sheltered beaches that will receive little winter weathering, chemical degradation may be the only solution.

In summary, most beaches in Prince William Sound are superficially clean but retain substantial subsurface oil that may get redistributed to the surface or washed out to sea over the winter. Shorelines treated late in the summer or not at all still have asphaltine surfaces that may only be treatable by chemicals next summer. Chemical treatment was not an option this year and will probably not be allowed next year for beaches near sensitive resources.

By mid-September of this year, once the clean-up fleets left the Sound, many of the bays abandoned over the summer were reinhabited by sea otters and wintering populations of seabirds, waterfowl and bald eagles. Superficially, the situation looks back to normal; however, long-term impacts of oil on the food chain will take longer to discern. Damage assessment studies will provide information on the longer term injury to resources.

Seward Zone:

In the Seward Zone approximately 232 miles of shoreline were affected (26 heavy, 38 moderate, 112 light, 56 very light).

Clean-up started late in this zone. Oil began impacting beaches in early April, but clean-up did not begin until mid-May. The initial effort involved manual pick-up of oil; and hot-water washing did not begin until late July, on Service lands in the Pye Islands.

The areas most heavily hit by oil in the Seward zone were the Pye and the Chiswell islands, both of which are in the Alaska Maritime National Wildlife Refuge. The Pyes had oiled areas ranging from lightly to heavily hit. Clean-up techniques employed included manual pick-up of oil and oily debris, burning of oiled logs, hot-water wash, and limited use of bioremediation (Inipol). All heavily oiled areas except one received some sort of treatment. The one untreated segment was a high-energy shoreline that presented unsafe working conditions. Some treated areas still look heavily impacted: some are leaching oil back into the water, others are collecting oily debris, and at least three have been reoiled.

Hot water washing worked well on large rocks or slab-rock beaches where the oil flowed directly into the water where it was boomed and skimmed. It did not work well on gravel or cobble beaches, where the oil was driven by the high pressure hoses into the substrate.

The critical Service lands in the Seward zone are the Pye Islands, with over 10,000 nesting seabirds and 1,300 sea lions, and the Chiswell Islands, home to over 60,000 seabirds and 1,800 sea lions. These islands will probably need to be retreated next spring.

Homer Zone:

In the Homer Zone, approximately 281 miles of shoreline were affected (21 heavy, 35 moderate, 48 light, 177 very light).

In these areas, most oil and oily debris was removed from low-energy shores by crews with hand tools. High-energy beaches were not cleaned. Low-energy beaches with significant amounts of oil remaining after manual removal were treated with bioremediation (Inipol).

Significant problems remain with oil in the intertidal mouths of streams and in estuarine areas, threatening anadromous fish and migratory birds. Many shorelines have subsurface oil that is randomly released by tidal action. This creates sheen that may affect waterfowl and sea otters.

The Barren Islands, home to over 650,000 seabirds and 6,000 sea lions, are Service lands that remain unclean and that still contain significant amounts of oil trapped in the beach sediments. These beaches may continue to release oil in the form of sheen throughout the winter, threatening the wildlife of the area.

Kodiak Zone

In the Kodiak Zone, approximately 1955 miles of shoreline were affected (17 heavy, 58 moderate, 247 light, 1633 very light).

The Kodiak zone of the Exxon Valdez oil spill response operation consists of the Kodiak Archipelago and the Alaska Peninsula from Cape Douglas south to Mitrofania Bay. An estimated 550 miles of refuge shore has been impacted to some degree in the Kodiak zone, portions of Kodiak, Alaska Peninsula/Becharof, and Alaska Maritime refuges. The vast majority of these shoreline segments were very lightly to lightly impacted, others were moderately impacted, and a few were heavily impacted by the Exxon Valdez oil spill.

Fifty percent of the total impacted shoreline segments have been inspected by the Fish and Wildlife Service to date. Most have either been adequately treated by cleanup crews or by the tides and nature. Several noteworthy exceptions to this statement exist, and the Service intends to pursue further action on all areas that would benefit from further treatment. We cannot say for certain what the condition is of beach segments that remain to be adequately inspected by the Service.

The wildlife morgue in the Kodiak zone recorded 62 bald eagles, 196 sea otters, and 22,614 birds representing some 78 species most of which were oiled to some degree, and are presumed to be oil spill related mortalities. Late in the season numerous fresh dead birds began to wash up on collector beaches at several locations in the Kodiak zone. Most of these birds did not appear to be oiled and the cause of their deaths is still unknown. We are conducting an active analysis program with regard to these fresh dead birds to try to find cause of death and are recording those birds in this catagory.

Our principal concerns in the Kodiak zone include the potential impact to concentrations of waterfowl and shorebirds expected to arrive with the fall flight of migratory birds. More than 2 million migratory birds use the bays and lagoons of the Kodiak Archipelago for resting and feeding habitat, and some species, like the emperor goose, overwinter in the Kodiak Archipelago. Our continued concern lies with the "environmental stability" of beaches in the spill zone. With fall and winter weather patterns bringing higher-energy storms generally from the southeast, there exists a realistic possibility that oil and oil residues will become unstable and will again pose a threat wildlife resources.

NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION

Interior is deeply involved in the planning and implementation of the natural resource damage assessment being coordinated among the several Trustee agencies. A Memorandum of Agreement (Agreement) among all the Trustees (i.e. State of Alaska, Department of Agriculture, Department of Commerce, Department of the Interior) was signed by all the Trustees except the State of Alaska. The Agreement provides a framework for coordination of the activities of the Trustees in the assessment of damages for injuries to natural resources resulting from the oil spill.

A Trustee Council (Council) has been named and is based in Alaska. The Council has representatives from each Trustee agency and has an advisor from the Environmental Protection Agency (EPA).

A management team, budget team, and legal team have been assembled by the Council to complete the assessment planning process. Each of these teams consists of one representative of each Trustee and the EPA. Advisors from other agencies, including the Bureau of Indian Affairs, have been appointed to assist the members of these teams. The Bureau of Indian Affairs was asked to determine the social, economic, and cultural effects of the spill on Alaska Natives and to assess these impacts. The public review draft of the Natural Resources Damage Assessment Plan was released in late August. Comments are being accepted until October 30. Also, an interagency team of experienced economists has been assembled to determine the economic impacts portion of the damage assessment process.

Exxon has provided $15 million for initial damage assessment work. This amount may increase in the future. Interior and the other three Trustees have each been allocated $2 million as the initial pay-out from the fund. A $7.3 million supplemental appropriation (H.R. 2072) for Interior has been signed by the President. Section 102 of the Department of the Interior and Related Agencies Appropriation Act, 1989, was amended to allow the Secretary of the Interior to transfer funds from other appropriations to cover oil spill-related costs.

Personnel from Interior along with other agency resource experts have designed studies to determine injury to their respective trustee resources and their habitat. The Natural Resource Damage Assessment Plan is a comprehensive approach to assessing the damages to natural resources. Interior's portion of that assessment concentrates on its trustee responsibilities for migratory birds, sea otters, and lands administered by its agencies (national wildlife refuges and national parks). Obviously the amount of damages documented and claimed will not be known for some time; therefore whatever initial work has been done should be considered very preliminary in nature.