The *Exxon Valdez*

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At 12:04 a.m. on March 24, 1989, the *Exxon Valdez* Supertanker ran aground on Bligh Reef near Valdez, Alaska and spilled 11 million gallons of crude oil into Prince William Sound. The massive spill triggered the largest clean-up effort in history. Nonetheless, it soiled 1,500 miles of pristine coastline, killed thousands of marine mammals and shore birds, affected the lucrative Alaskan commercial fisheries, and spawned 11 years of litigation. Exxon, Inc. paid over $1 billion in fines and penalties and was assessed what was at the time the largest punitive damage award in history, $5 billion. Years later, debate still rages over the long-term effects of the spill and clean-up efforts on the Prince William Sound ecosystem, on populations of fish, mammals, and birds, and on the Alaskan people and communities directly affected by the spill.

The 987-foot *Exxon Valdez* departed from the oil terminal in Valdez, Alaska with 1.3 million barrels (50.4 million gallons) of North Slope crude oil bound for refineries on the U.S. west coast. To maneuver around floating ice from nearby glaciers, Captain Joseph Hazelwood steered the ship out of the normal shipping lane. Then just as the ship sailed beyond the Coast Guard's radar tracking area, Hazelwood left the bridge, leaving the ship in the hands of a third mate who was not licensed to pilot the ship in waters so close to shore. The *Exxon Valdez* sailed out of the navigational channel and ran aground on Bligh Reef. The grounding, and possibly the captain's attempt to rock the tanker off the reef, ruptured the hull and spilled millions of gallons of crude oil into the waters of Prince William Sound.

Ten hours after the grounding, Hazelwood tested at a .061 blood alcohol content, higher than the .04 limit Coast Guard regulations permit to operate a ship. Later court testimony indicated that Hazelwood had a history of both great skills as a mariner and of alcohol abuse. He had several alcoholic drinks before his ship departed Valdez on the evening of March 23, and consumed two beers between the time the ship grounded and the blood alcohol test was administered. Later, Hazelwood was found guilty of a Class B

Misdemeanor of negligent discharge of oil and was sentenced to 1000 hours of community service.

The initial response to the spill was impeded by a lack of preparation, as well as communication and coordination problems. The Alyeska Pipeline Service Company, the consortium of seven oil companies that built the Alaska pipeline, had responsibility for first response to the spill. Later analysis indicates, however, that Alyeska employees were poorly trained and lacked sufficient equipment to respond to a spill of this magnitude. Over fourteen hours elapsed before any containment or clean-up efforts began, and even 18 hours after the accident no boom had been placed around the ship to contain the spill. A barge that was supposed to be loaded with containment equipment was undergoing repairs instead. Two small oil skimmers dispatched to the scene quickly filled their holding tanks, but had no facility into which they could offload to continue their operations.

Further complicating the immediate response were disagreements over decision-making authority and the best clean-up methods. In addition to using floating booms and oil skimmers to contain and collect the oil, Exxon experimented with chemical dispersants and even burning the oil by covering it with a napalm-like substance and igniting it with lasers. One test using chemical dispersants was successful. Proponents argued that the dispersants would speed the natural degradation process and limit the amount of oil reaching shorelines. Opponents argued that the dispersants would only hide some of the oil by dropping it in the water column, and that the chemicals themselves would be toxic to sea life. The argument became moot, however, as little of the required quantity of dispersant was dispatched to the scene in time to be deployed effectively.

A storm blew into Prince William Sound on the third day after the spill, forcing skimmer boats and containment boom crews to retreat. By this time, the oil slick covered more than 100 square miles and began reach nearby coastlines.

By the time the crude oil reached shoreline, it had mixed with seawater to form a thick tar-like substance called mousse. Exxon mounted a vast effort to clean oiled beaches, employing a flotilla of local fishing vessels and pleasure craft to shuttle scientists, executives, clean-up crews, and equipment around the affected areas of Prince

William Sound. Many workers scrubbed oil off rocks by hand. Oiled beaches also were sprayed with high pressure, heated water. The heated oily residue was directed back into the ocean where it was collected using skimmer boats. Some argued that pressure washing the beaches would minimize any long-term ecological damage by breaking up the mousse into smaller oily packets. Pressure-washed beaches also gave an appearance of cleanliness. The pressure washing, however, also killed large numbers of organisms growing in estuary environments that would not have necessarily died due to oil exposure.

The effect of the spill was staggering. The oil slick eventually extended nearly 500 miles west and south of Prince William Sound and soiled 1500 miles of coastline. It killed an estimated 2,800 sea otters, 200 Harbor Seals, and 260,000 birds. Herring and salmon fisheries in the Prince William Sound area closed for the 1989 season, with longer-term effects that still are debated.

The degree to which the Prince William Sound ecosystem has recovered also is hotly debated. Casual observation would discern few visual effects of the spill. Wind and wave action serve to break down oil naturally, and the National Oceanic and Atmospheric Administration reports that most sea-borne animal species had returned to levels that are comparable with non-oiled areas by 1992 or 1993. On most oiled beaches, however, even those that were hand-cleaned and pressure-washed, layers of crude oil remain immediately below the surface rocks. Ironically, the areas that were pressure washed with hot water have not recovered as well as oiled beaches that were not washed. Only about 7% of the 11 million spilled gallons were recovered, and scientists continue to monitor any longer-term effects as the hydrocarbons move up the food chain.

As a result of the spill, the Exxon Shipping Company and Exxon Corporation plead guilty to violating the Clean Water Act, the Refuse Act, and the Migratory Bird Treaty Act and agreed to pay $1.025 billion dollars in damages and fines. This was the largest judgment ever levied for an environmental violation. The agreement established funding for scientific research and monitoring and established the *Exxon Valdez* Oil Spill Trustee Council to disperse and monitor recovery and research costs. In a 1994 Federal court judgment, Exxon also was ordered to pay $5.2 billion in compensatory and punitive

damages to commercial fishers and residents of the affected areas. The U.S. Supreme Court let this judgment stand in October 2000.

Concern over the *Exxon Valdez* oil spill led directly to several legislative and regulatory changes designed to prevent oil spills and facilitate clean-up attempts. The 1990 Oil Pollution Act and 1990 Oil Pollution and Liability Act established a U.S. federal cleanup fund paid for by a 5 cent per barrel oil tax, mandated double hull containment systems for all new vessels in excess of 5000 tons by 2005, established minimum liability limits for shippers, and raised the caps on the maximum liability for oil spills. In Alaska, the state government passed a law requiring the Alyeska Pipeline Company to stockpile enough equipment to combat a 300,000-barrel spill. Oil dispersant storage areas are now located for quick deployment anywhere in the state. As for port procedures, both a tug and an emergency response vessel now escort each tanker leaving the Port of Valdez. Tankers now face a speed limit in the main channel of 10 knots, and ship captains now are tested for alcohol an hour before sailing. Tankers can no longer leave the channel for any reason except emergency, and the Coast Guard's radar surveillance has been enhanced. The spill also created new interest in scientific research that has resulted in several new methods for cleaning up oil spills.

Further Reading

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