

Exxon Valdez Oil Spill 20 Years Later: A NOS Scientist's Perspective

Troy Kitch, NOAA National Ocean Service, Communication and Education

Nearly 11 million gallons of crude oil spilled into Alaska's Prince William Sound on March 24, 1989, after the oil tanker *Exxon Valdez* grounded itself on a reef. It was and still is the single largest spill ever along the U.S. coast.

Alan Mearns, a senior staff scientist with NOS' Office of Response and Restoration, was one of hundreds involved in the initial clean-up. It was a massive effort involving groups from the Coast Guard, NOAA Response and Restoration, NOAA Fisheries, the Environmental Protection Agency, Exxon, and the state of Alaska, among others.

One of Mearns' initial jobs was to consider the use of high-pressure hot-water washing, a technique used during the *Exxon Valdez* clean-up to clear oil from the shores. His role at the time was to educate the agencies involved about the limitations of this type of aggressive clean-up. While it certainly removed the oil, it also removed a lot of marine life that had survived the spill.

This task was a preface to a larger monitoring study that began the next year. NOAA's HAZMAT division, the predecessor of today's Emergency Response Division, initiated a long-term effort to monitor the intertidal shoreline areas affected by the oil spill.

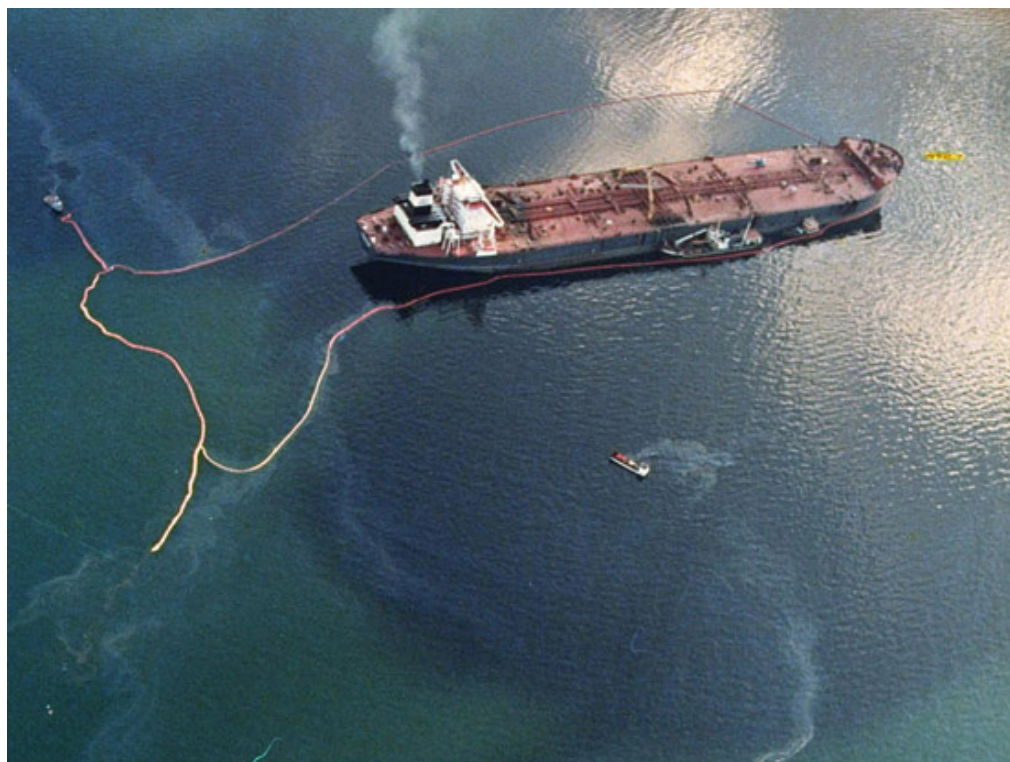
While most of the oiled shorelines in the Sound were cleaned up -- many with high-pressure hot water -- a few small patches were intentionally not cleaned at all. Another half a dozen or so sites that had been unaffected by the oil spill were also marked off. This allowed the NOAA scientists to track how well the area was recovering by comparing the three different treatments. What they learned was surprising.

"I think a lot of us have it fixed in our minds that things are supposed to return to the way they were and take years to do it, and then stay that way once they have returned. And our intertidal systems, at least in the North Pacific, don't do that," Mearns said.

While the oil spill had a profound effect on Prince William Sound -- for example, oil still lingers under the gravel at some beaches -- the study found that

shoreline marine life in the area went through a natural ebb and flow over a cycle of four to seven years.

The study also helped answer the question of how well and how quickly Alaska's Prince William Sound recovered



Exxon Valdez in the Prince William Sound. Photo credit: NOAA.

from the oil.

"Everything depends on how you define recovery. We were looking at the biology, the marine life, its abundance, variety, diversity, and that has definitely recovered. In fact, after many years we looked back through the data and findings with statistics and found that it had recovered within three to four years -- the conspicuous marine life in the intertidal zone," Mearns said.

"Clams and softer beach areas took a lot longer to recover -- more like 10 to 12 years -- and we think a lot of those were blown out by the high pressure washing," he added.

While the *Exxon Valdez* was the impetus for many institutional changes, such as the Oil Pollution Act of 1990 and the creation of NOAA's Damage Assessment Remediation and Restoration Program, there have been equally sweeping advances in the realm of technology and interagency cooperation over the last two decades.

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“One thing that’s changed is that people know each other better, and that’s in large part as a result of continuing training activities. We just don’t sit in the office and write up manuals and send them out -- we take them out to the field,” Mearns said. “We’re in touch with the Coast Guard and various states, we go to them and we do training on the current science of spills, everything ranging from computer modeling to management systems to the effects of oil on marine life. As a result, we get to know our colleagues around the country quite well.”

Mearns has worked on dozens of other spill response incidents, training exercises, and spill-related studies since the *Exxon Valdez* accident. He believes NOAA is much better prepared and equipped today to handle spills of all types, sizes, and origins. Still, he stressed that each spill is unique. The trick now, as then, is constant adaptation using all available tools.

Mearns likes to quote Jacqui Michel of the Research Planning Institute, one of NOS’ prime contractors and an expert in this business. Michel says, “I’ve never been to the same spill twice.” Mearns confirms that “It’s a process of constantly adapting. We get an announcement of a spill, we’re called into action, and we start off thinking, ‘Oh, this is like that other spill we had ten years ago.’ Then you get there and nope, it isn’t. Things have changed. The weather’s different, the oil type is different, and the response community is a different group of people.”

NOAA Employee Finds Satisfaction in Teaching Kids

Marjorie Mooney-Seus, NOAA Fisheries Service Public Affairs

Mark Murray-Brown, director of NOAA’s Northeastern Highly Migratory Species Management Division in Gloucester, Mass., loves working with students. He finds it rewarding and personally motivating to educate students about NOAA activities and programs. He conducts ocean education talks in local schools, serves as a board member of the Gloucester Education Foundation, participates on Gloucester Public School Site Based Councils, and more.

“Having children in the system here is a personal connection,” said Murray-Brown. “I also find I am at my strongest when I talk to children because you filter out all the scientific caveats and politics and really get down to translating a story. Plus you know immediately when you work with children whether you are on target, based on if you see a field of yawns or animated faces and raised hands.”

Landmark Middle School students had a chance to hear last year what Murray-Brown does in his job every day. Murray-Brown gave a 40-minute presentation to about 60 students on the joys and tribulations of working with the bluefin tuna fishery from harpoons to sushi and from managing the statistics to negotiating at international management meetings. During follow-up questions and answers, the students were particularly interested in what fishery managers do and the type of education and experiences that prepare them.

Murray-Brown also recently attended teacher and administrative workshops at the Gloucester and Rockport (Mass.) Public Schools where he discussed what NOAA’s Fisheries Service does in the Northeast, as well as distributed NOAA ocean and climate literacy brochures and the NOAA education activity book. He has also



Earl Meredith and Mark Murray Brown from NOAA's Fisheries Service, attending the Gloucester, Mass., middle school science fair. Photo credit: NOAA.

lectured to and worked in the lab with students and teachers at the Gloucester Maritime Heritage Center, and hosted a “NOAA Fisheries 101” presentation to a visiting Elderhostel tour at the Center. Just prior to the presentation to the Elderhostel, Murray-Brown asked them if any had any career experience in ocean sciences or law -- several hands went up. Upon further inquiry, Murray-Brown learned he was talking to a retired Superior Court judge and a Nobel Prize winner. He is glad he asked -- it is good to know your audience!