

THE OBSERVER



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30 YEARS AFTER EXXON VALDEZ

How has oil transportation changed in Prince William Sound since 1989?

The immediate cause of 1989 Exxon Valdez oil spill was a navigational error on the part of the tanker's captain and crew. However, Congress found that complacency among the oil industry and the regulatory agencies responsible for monitoring the operation of the Valdez terminal and vessel traffic in Prince William Sound was also a contributing factor in the disaster.

Few prevention measures were in place and cleanup resources were inadequate.

Since 1989, regulatory agencies, the industry, and citizens have been working together on improved methods to prevent oil spills and how to be better prepared to clean up if another spill should occur.

Laws and Regulations

One of the most important results of the oil spill was the enactment of the federal Oil Pollution Act of 1990, or "OPA 90," which addressed many deficiencies, including liability, compensation, and oversight. The law required two citizens' oversight councils, one for Prince William Sound and one for Cook Inlet.

Top photo: A fishing vessel practices using oil spill boom and skimmers during fishing vessel training last year. The fishermen bring valuable knowledge about local waters during a spill response. Fishing vessel response was a major improvement in oil spill prevention and response since the Exxon Valdez oil spill. Photo by Cathy Hart.

Both federal and state laws now require more comprehensive prevention measures and planning for larger spills and require more spill response equipment to be immediately available.

What has improved in oil spill prevention since the Exxon Valdez oil spill?

Double hulls

All tankers transporting oil through Prince William Sound are now double-hulled. Double hulls, basically two steel skins separated by several feet of space, are an effective design feature which can reduce or eliminate spills that result from groundings or collisions.

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Tangled boom from the 1989 cleanup. Photo by Charles Ehler, courtesy of Alaska Resource Library & Information Services.



Out-of-service buoy and winter storms raise concerns

Council concerned about communications, response capabilities, and crew safety during storms

An out-of-service buoy and a series of recent storms have combined to raise concern at the Council about tanker transit procedures during period with the high wind speeds and wave heights in which tankers are allowed to travel through Prince William Sound.

Seal Rocks buoy out of service

From May until December of 2018, a critical buoy located near Hinchinbrook Entrance was out-of-service. This buoy, referred to as “Seal Rocks buoy,” collects wind speed and wave height data. That information is used by the U.S. Coast Guard to make decisions as to whether Hinchinbrook Entrance is open or closed to outbound laden oil tanker traffic. When this buoy is inoperable, the U.S. Coast Guard uses data from two nearby buoys, Cape Cleare and Cape Suckling, along with reports from Edison Chouest Offshore, or ECO, tug crews that are sent out to observe wind and waves to make Hinchinbrook Entrance open and closure decisions.

In November and December, several winter storms came through Prince William Sound that raised concern about these alternate methods for reporting weather conditions at the Entrance.

Problems arise during November and December’s stormy weather

On the afternoon of November 12, an outbound laden tanker departed its berth at 1:30 p.m., after an ECO utility tug noted wind and wave heights were below closure conditions at noon. At 1:37 p.m., however, the same ECO tug reported 50 knot winds with higher gusts. The Coast Guard closed Hinchinbrook Entrance a few minutes later. The tanker continued its outbound transit for six hours all while Hinchinbrook Entrance remained closed. The tanker then made the decision to conduct racetrack circles to maintain a holding pattern in Southern Prince William Sound until 9:30 p.m., when Hinchinbrook re-opened.

The ECO utility tug had left an oil spill response barge moored in Port Etches while it was away observing weather at the Entrance. At around 11 p.m., high winds caused the barge to break loose from its mooring, resulting in the barge running aground. There were no injuries and the barge sustained only minor damage. In addition, at some point the ECO utility tug lost one of its anchors, and a thruster failed. Alyeska is still investigating

these occurrences.

Two other storms, one in late November and another in December, re-emphasized the concerns. During these two storms, ECO tugs reported wave heights just below closure as laden oil tankers departed through Hinchinbrook Entrance. In both cases, weather data from Cape Cleare which is approximately 60 miles southwest of Seal Rocks, and Cape Suckling, approximately 125 miles to the southeast, indicated that wave heights were significantly above closure limits, and forecasts predicted weather to worsen.

Closure conditions: Hinchinbrook Entrance, the relatively narrow passage from Prince William Sound into the Gulf of Alaska, closes to outbound laden tanker traffic when sustained winds meet or exceed 45 knots (51 miles per hour) or wave height meets or exceeds 15 feet.

Further evaluation needed

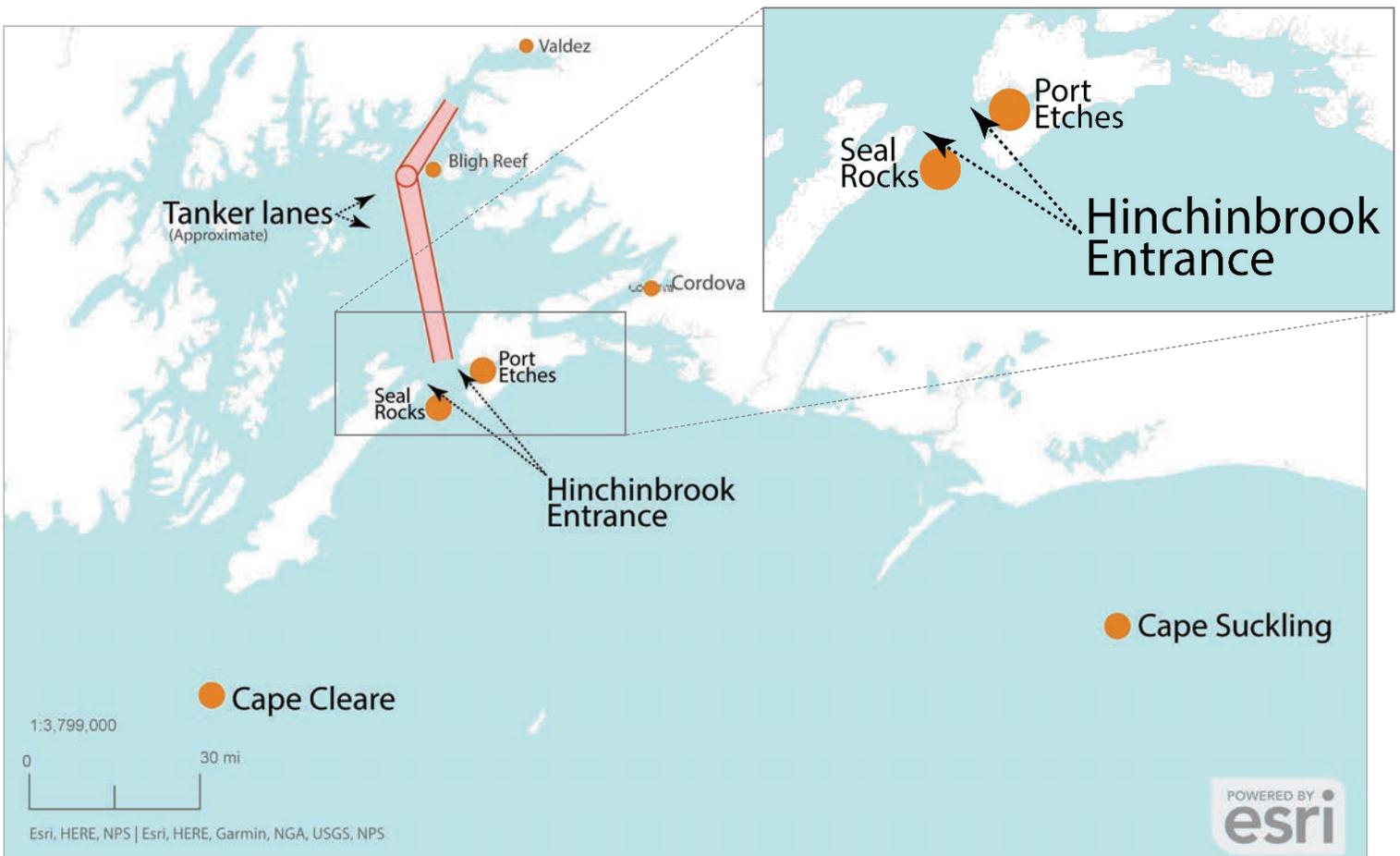
In a February letter to the Coast Guard, the Alaska Department of Environmental Conservation, and the industry, the Council recommended improvements be made to clarify the procedures for reporting weather conditions when the Seal Rocks buoy is inoperable. In addition, the Council recommends further evaluation of the buoys, their locations, and consideration of additional buoys to improve the weather reporting in the area.

“The Council’s main concern is if a tanker experiences a problem during one of these storms, the tugs and crews will be called in to assist. We are concerned about the safety of the tugs and crews, and their ability to prevent an oil spill in weather conditions that are near or above established Hinchinbrook closure conditions,” said Donna Schantz, Executive Director for the Council. “We’ve also conducted studies that show how an effective oil spill response is not possible in the higher sea states, especially during the winter months.”

Read more on our website:

The Council’s full recommendations:
www.bit.ly/SealRocksBuoy

The Council’s 2007 report on the “response gap” in Prince William Sound: www.bit.ly/ResponseGap



New study analyzes weather at Hinchinbrook Entrance

A recent Council-sponsored report found that wind and waves at Hinchinbrook Entrance may be under reported as observed by the Seal Rocks weather buoy.

Researchers from Tetra Tech analyzed wind and wave data to better define weather conditions at the Entrance, as well as how these conditions might affect rescue operations by the escort tugs. To do this, researchers looked at the frequency and duration of weather events when the Entrance was closed to laden tankers.

Average closure conditions

Wave height alone was found to be the cause of most of the closures, occurring 10 to 26 times a year on average. Average wave height during closures was over 17 feet and the highest recorded wave was over 26 feet. Wind speed closes the Entrance one to three times annually, as do closures for both wind and waves. Winds average just

over 54 miles per hour during closure and the highest recorded wind speed was over 61 miles per hour.

Closures for winds typically last less than two hours, while waves close the Entrance for an average of just over six hours.

Seal Rocks buoy's data may not be precise

Researchers also compared the data collected from the Seal Rocks buoy to other close-by weather stations. During most conditions, they found that wind speeds may be over reported, meaning actual wind speeds are slower, compared to nearby buoys. However, the researchers added that during the highest wind speeds, buoys may be tilted, causing under reporting, but that this would need further study.

Wave heights at Seal Rocks may be under reported, meaning actual wave heights could be higher than the data shows.

The Council studies and monitors ocean and weather conditions to ensure the best, most scientifically accurate advice on a safe and effective spill prevention and response system in accordance with their OPA 90 mandate.

For more information:

Read the full report on our website:

- www.bit.ly/HinchinbrookWindWaves

More information about our weather monitoring:

- www.bit.ly/TrackingWeather

Thirty years later, Council continues mission to combat complacency

By Donna Schantz
Executive Director

On March 24, 1989, the Exxon Valdez ran aground on Bligh Reef and spilled an estimated 11 million gallons of crude oil. Congress determined that complacency on the part of industry and government was a contributing factor in the accident and they mandated citizen involvement in the oversight of crude oil terminals and tankers. For the past 30 years, the Council has filled this role for Prince William Sound and its downstream communities, advocating for environmental safeguards to prevent oil spills and a strong response system should prevention measures fail.

Improvements since 1989

Measures developed with Council participation since 1989 represent vast improvements in oil spill prevention and response. We have double-hull tankers, high-performance escort tugs, a much-improved workforce, state-of-the-art equipment for recovering oil, and a fleet of over 400 trained fishing vessels and crews ready to respond promptly to an oil spill. We also have improved communications between the oil industry and the state and federal governments, and more oil spill clean-up equipment than probably any other U.S. port. This has taken considerable effort on the part of industry, regulators, the Council, and other members of the public.

Some recent examples of improvements include new purpose-built tugs and oil spill response barges that came on line with the marine services transition in 2018, and new technology that allows pipelines at the Valdez Marine Terminal to be internally inspected, which had not been done since start-up over 40 years ago.

Our responsibility to stand against complacency

The Council applauds these improvements. Our Congressional mandate is to involve local citizens to review and assess measures designed to prevent oil spills and the planning and preparedness for responding to a spill, and to make recommendations concerning the safe operation of the terminal facilities and associated tankers. We strive to combat complacency, which is becoming more important as time goes on.

The Council recently filed an administrative appeal of an amendment to the Valdez Marine Terminal contingency plan that reduced protections for the Valdez Duck Flats and Solomon Gulch Hatchery in the event of an oil spill.

That amendment is a prime example of what we believe was complacency leading to the rollback of a prior commitment in the industry's preparedness and response plan.

A settlement agreement has been reached on this issue to work it through a collaborative workgroup process and there is still much work to be done. Achieving agreement to work this issue with the goal of reaching consensus by all parties is in line with the vision outlined in the Oil Pollution Act of 1990.



Donna Schantz
Executive Director

Reductions in regulatory and industry staff reinforce need for citizen oversight

The Council is closely monitoring other changes that appear to be reducing regulatory oversight and protections at the state and federal levels. On the state level, we continue to have serious concerns about the state's ability to maintain adequate staffing levels and resources at the Spill Prevention and Response Division of the Alaska Department of Environmental Conservation, as well as continued adequate funding for spill prevention and response capabilities.

Another recent concern for the Council is Alyeska's significant organizational restructuring plan which took effect on January 1, 2019. The Council is concerned about the elimination of jobs and movement of key management/leadership roles away from the operations they are responsible for overseeing. This is especially troubling since state and federal regulatory oversight positions are also being reduced.

With reductions in the number of people responsible for overseeing the safe operation of the Valdez Marine Terminal and associated tankers among state, federal, and industry groups occurring at the same time as so many changes to the system, it is that much more important for the Council to step up our efforts. We must remain vigilant in our mission to ensure another 30 years of protection for Prince William Sound and its downstream communities.

From Alyeska:

Inspecting the “uninspectable”

Alyeska completes inspection of buried piping on the Valdez Marine Terminal

2018 marked the third and final year of the buried crude piping inspection project at the Valdez Marine Terminal, or VMT, culminating in the inspection of the 48-inch crude line “A” and “B” headers. This final stretch accounted for more than a mile of piping that carries oil across the terminal, from the East Metering building, up to the tank farm and down to West Metering. Until recent advances in technology, the piping was considered “uninspectable” and had not been internally inspected since construction.

“This critical project required focus, hard work, and cooperation across several teams around TAPS,” said Scott Hicks, Senior Director of VMT Operations. “It was not only important to know the pipe is in good shape, but that we also made a significant investment in future inspections, so the VMT can continue safe operations into the future.”

Over the last two project seasons, personnel had inspected piping under the East Metering building, the relief piping from East Metering to the East Tank Farm, and crude piping from West Metering to the end of berths 4 and 5 with smaller crawler pig tools. They also prepared the facility for inspections with the larger in-line inspection pig by taking out short 90 degree bends in the piping and valves too narrow to let the tool through, and reinforced the foundation of the area where pig launchers and receivers were installed this summer.

Things kicked off in earnest during the June 36-hour pipeline shutdown. The facility was a hive of activity while alternating oil movements between headers from East Metering through the relief piping and tanks and then to storage tanks. This allowed crews to cut pipes and install new valves and pig launchers and receivers at East Meters and West Meters, respectively.

With the required infrastructure in place, personnel routed 19 pigs through A and B Headers over a 33-day window in July and August. The project team had to work with

oil movements and operations to coordinate the pigging around shipping windows.

To ensure the piping was free from wax, 15 cleaning pigs were routed through the headers. After the cleaning pigs, crews sent two 48-inch tools through each header. One measured metal loss and wall thickness; the other could detect dents and other deformities in the pipe.

The data received from the tools indicates the pipe is in good condition, and the system returned to service. There were no injuries or spills during the course of the project.

- *Photo and information courtesy of Alyeska Corporate Communications.*



The Council needs your feedback!

We want to make our newsletter as helpful, informative, and useful as possible for YOU, our readers! Take a quick, 5-minute survey to let us know what information you are most interested in.

Please visit www.bit.ly/ObserverFeedback to fill out the survey. Thank you for your time.

New buoys will collect data about winds and currents in Port Valdez

In February, the Council reached an agreement with Alyeska that will improve knowledge about weather conditions in Port Valdez. Alyeska has agreed to allow a buoy to be installed in front of the Valdez Marine Terminal to measure winds and surface currents. A second buoy will collect data from a nearby salt marsh.

Agreement reached on appeal to amendment of spill contingency plan

The agreement is the outcome of an appeal to a 2017 amendment to the oil spill contingency plan for the terminal.

In that 2017 amendment, Alyeska replaced a tool used by responders in deciding whether to protect the salt marsh known as the Valdez Duck Flats, and the Solomon Gulch Fish Hatchery in case of a spill from the terminal. The Council, the City of Valdez, the Valdez Fisheries Development Association, and the Prince William Sound Aquaculture Corporation appealed the 2017 change. They were concerned the new tool would not adequately protect these two environmentally sensitive areas.

Eastern Lion spill in 1994 taught lesson in protecting sensitive areas

In 1994, the tanker Eastern Lion spilled crude oil into Prince William Sound while loading at the terminal. Oil from that spill reached the marsh and hatchery. It was determined that the contingency plan lacked a rapid decision-making tool for oil spill responders to use early in a response.

After that spill, federal and state agencies, the industry, and the Council participated in a facilitated, collaborative process to develop a tool that would protect the hatchery and salt marsh. The result, a decision matrix, was implemented in 1997 to ensure that protective boom is deployed before oil could reach these sensitive areas.

New workgroup to find a resolution

In exchange for dismissing the appeal, all parties will participate in a facilitated collaborative workgroup to

reach consensus on how to ensure protection of the Duck Flats and hatchery. The 1997 matrix will remain in place until the workgroup concludes.

“The Council has long advocated that robust weather monitoring systems be placed at the Valdez Marine Terminal,” said Donna Schantz, executive director for the Council. “We are required by the Oil Pollution Act of 1990 to study wind and water currents and other environmental factors in the vicinity of the terminal facilities, to determine how they might affect the ability to prevent, respond to, contain, and clean up an oil spill. These weather buoys will help us better achieve that goal.”

Donation and grant will help support data collection

To support these efforts, the Council has received a donation of two weather buoys from Fairweather Scientific, a subsidiary of Edison Chouest Offshore.

The first buoy, placed near the terminal, will be supported by the Council. A grant from the City of Valdez will support operating and maintenance costs of a second buoy, placed near the Duck Flats. It is anticipated that both buoys will be in operation for at least the next five years.

The wind and waves on the southern side of Port Valdez can be remarkably different than those recorded at the official weather stations located onshore in Valdez.

“Weather is a significant factor in the management of safe crude oil transportation through Prince William Sound,” added Schantz. “Marine safety, tanker escort operations, oil spill response planning, containment boom tactics, and oil tanker movements are all affected by weather. We are pleased by the support received to help us collect important scientific data to help prevent oil spills and improve response efforts should prevention measures fail.”

The buoys are expected to be in place this spring. Data from the buoys will be available online once they are in place and operating.

The Valdez Duck Flats is designated as a “environmentally sensitive area” in spill contingency planning.



How Alaskans reimagined oil spill prevention and response

Council report documents history and intent behind Alaska's standard for spill response planning

Alaska, and Prince William Sound in particular, is known for its world-class oil spill prevention and response system. But it wasn't always that way. In March of 1989, when the Exxon Valdez ran aground and spilled an estimated 11 million gallons of crude oil, responders were ill-prepared.

Many changes have been made since then. A recent report, funded by the Council, tells the story of how Alaskans came together in the disaster's aftermath to change the laws governing oil spill response in Alaska. Researchers Tim Robertson and Elise DeCola of Nuka Research interviewed many of those directly involved in creating these standards and compiled their stories.

Robertson directed oil spill response operations in Seldovia after the Exxon Valdez spill and was an early member of the Council's Board of Directors.

Early contingency plans didn't equal an effective response

The report chronicles problems related to the early spill contingency plans that contributed to the Exxon Valdez disaster. The plan that was in place in 1989 listed equipment needed for a response. However, some of that equipment was buried under 10 feet of snow, a response barge was undergoing maintenance, and there were not enough trained personnel on hand to respond to the spill. Three days after the spill, a winter storm spread the oil farther.

"The problem wasn't a lack of regulations; it was that the regulations had not compelled an adequate oil spill response system," according to the report.

An emergency order from Alaska's governor planted the seed that grew into today's robust system

Two weeks after the spill, Alaska Governor Steve Cowper issued an emergency order that noted the failures of the previous plan. The order also defined what he expected to be put in place: a robust new system that could handle an Exxon Valdez-sized spill. The governor gave Alyeska 38 days to set it up and threatened to shut down the terminal if they did not comply.

A team of oil industry experts, attorneys, state employees, and spill response specialists came together with their wide range of experience in oil spill response to solve this challenge.

The report chronicles the challenges and breakthroughs the group encountered while developing the revolutionary new system. They sought advice from the oil shipping industries in Norway and Scotland to develop the system of escort tugs, oil storage barges, boom, skimmers, and trained personnel. This interim system was designed to meet the governor's order and became the genesis of Alyeska's current Ship Escort/Response Vessel System.

"How did we know we'd built the right-sized system? The Cordova fishing fleet wanted ten times as much equipment, and industry wanted to cut it in half."

– Michael Williams
 Former BP attorney

New regulations based on real events

With the realization that the response to the spill had been inadequate, new regulations were soon underway. Lawmakers based their new rules on this interim plan and the lessons from the Exxon Valdez spill.

House Bill 567, as it was known, contained very specific terms. The authors of the bill wanted a "self-executing" law for the most part. This means the law was written in a way that allowed little room for interpretation.

Many of the specifics required compromise, including the amount of oil the industry had to plan to clean up and how much time they had to be able to pick up that oil.

The resulting requirement was that industry must be able to contain, control, and clean up 300,000 barrels, or 12.6 million gallons, slightly more than the amount spilled by the Exxon Valdez, in the first 72 hours after a spill. This included not just having the equipment, but making sure it was ready to go and that people were trained on how to use the equipment.

"At the end of the day, we needed a suite of bills that nobody loved but everybody could live with."

– Drue Pearce
 Former Senator

More stories are documented in the Council's report, which describes in detail requirements such as personnel training and equipment maintenance, among others: www.bit.ly/LegislativeIntent

Drills test new response equipment and personnel

Exercises required for marine transition

A series of drills and exercises, including one large no-notice drill, helped assess the new system in Prince William Sound.

Throughout the past year, Alyeska conducted a series of exercises designed to meet requirements from the Alaska Department of Environmental Conservation and train the crews aboard Edison Chouest Offshore’s new vessels. Some exercises were conducted during windy conditions and others during darkness.

In June, the department approved major amendments to the oil spill contingency plans for the Valdez Marine Terminal and the tankers that transport oil through Prince William Sound. These amendments stemmed from the change of spill prevention and response contractors to Edison Chouest Offshore, who took over from Crowley Maritime last July. The approval came with conditions, which required specific exercises and training for the new equipment and personnel.

The department required each of the five escort tugs, the four general purpose tugs, and the Ross Chouest utility

tug to conduct exercises with oil spill response barges. In addition, the department specified that some of these exercises had to occur in winds of at least 20 knots (23 miles per hour) and in darkness.

Some exercises tested the tugs’ spill prevention capabilities. Each of the five escort tugs stopped a laden tanker traveling at 10 knots (over 11 miles per hour) and at 6 knots (almost 7 miles per hour). All tugs demonstrated their abilities to stop and tow a stricken tanker.

Many of these exercises were completed during the summer prior to July 1, when Edison Chouest officially took over the contract, but some of the darkness and heavier weather events took place after the transition.

Alyeska was given until December 31, 2018 to complete these exercises, however they were completed earlier. All vessels met the department’s standards.

With these new assets approved, the current version of the tanker plan will be in place through February 2022. The terminal’s plan is up for renewal later this year.

Annual fall shippers’ drill

Crowley Alaska Tankers hosted a large-scale table-top exercise in October.

For this annual drill, the role of the “spiller” alternates among the shipping companies that move oil through Prince William Sound. Crowley Alaska Tankers’ new role in the Prince William Sound system means they join the rotation. Approximately 200 people participated in this drill.

This year, the scenario involved a tanker colliding with an out of control vessel causing an instantaneous release of 140,000 barrels, or almost 6 million gallons, of crude oil into central Prince William Sound. Simulated weather moved the spill towards the village of Tatitlek; a trajectory typically not usually played in these sorts of large exercises.

Read more about the annual drill and more on our website, including the Regional Stakeholder Committee, a no-notice drill, and a test of response strategies for sensitive areas: www.bit.ly/OilSpillExercises

Earlier this year, Crowley Alaska Tankers purchased two Prince William Sound tankers from SeaRiver Maritime. The two are now known as the Washington, formerly the Liberty Bay, and the California, formerly the Eagle Bay.



The Council believes safely incorporating realistic challenges into drills and exercises increases safety during a real response. This photo from a July 2018 exercise shows how response crews practice deploying oil spill boom at night. Photo by Jeremy Robida.

Outreach coordinator Matlock leaves the Council

After five years spreading awareness about the Council's work to citizens in the communities affected by the Exxon Valdez oil spill, Lisa Matlock recently left the Council. As outreach coordinator, she worked with all of the Council's committees, but particularly with the Information and Education Committee, fostering public awareness, responsibility, and participation in the Council's activities through information and education.



Matlock joined the Council in 2013 with twenty years of experience in science education and extensive knowledge of coastal Alaska. From her first days at the Council, she traveled the region, presenting educational programs, talking to city councils, and coordinating community receptions. She promoted programs that involve students in the Council's mission and took the information booth to many conferences each year. Along the way, she encouraged young and old alike to become stewards of Prince William Sound.

Matlock is responsible for one of the Council's most popular new programs in recent years: community tours of Alyeska's oil spill response training for local vessels. Local mariners, mostly fishing crews, are trained each year in spill response techniques so that they are prepared to help in case of a spill.

Read more about Matlock's contributions, and get to know our new outreach coordinator, Betsi Oliver, on our website:
www.bit.ly/LisaMatlock

Popovici moving on

Shawna Popovici, the project manager assistant for the Anchorage office, resigned in January.

Popovici joined the Council in 2015. She worked closely with the Council's Information and Education, Scientific Advisory, Legislative Affairs, and Board Governance committees and managed the Council's extensive internal document management system.

Popovici accepted a management position with the Alaska Department of Natural Resources Division of Parks and Outdoor Recreation. She will be heading up the Interpretation and Education efforts for the division.

Community Corner: Council fosters pathways to engaged citizens

By Betsi Oliver
Outreach Coordinator

What makes the difference between youth who develop careers and other roles protecting our ecosystem versus those who don't?

When youth develop a personal connection to the outdoors, an understanding of and interest in science, and civic engagement experience, they develop into young adults who are engaged, informed, and passionate.



In previous jobs I implemented youth education programs that were supported by the Council. As a mentor for the young participants, I saw that a web of interconnected experiences provides a strong foundation for their development. For a young person, finding a next step gives meaning to the fun field trip they did in elementary or middle school, turning it into their context for participating in Science Bowl, an internship, a volunteer effort, or an academic path.

I'd like to briefly showcase a few youth, some whom I know and some I don't, who participated in Council-supported youth involvement programs early in their pathway. These young people are the future of leadership in their communities, the region that the Council represents. For clarity, any program that the Council supported is in bold.

Cordova's Sarah Hoepfner grew up participating in Copper River Watershed Project programs so she was a perfect fit to participate in the Copper River Watershed Expedition. In 2013, Sarah served as the very first Council intern in Cordova, monitoring for green crab and other marine invasives in the harbor. She taught environmental education about invasive species locally and at the World Wilderness Congress with Council volunteer, Cathy Hart. She now studies biology with an emphasis in ecology and biodiversity at Humboldt State.

Hear more from Oliver about the students who have benefited from the Council's funding of youth involvement programs and gone on to become engaged citizens:

www.bit.ly/PathwaysEngagedYouth

30 years after the Exxon Valdez

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Alyeska's Ship Escort/Response Vessel System

The Ship Escort/Response Vessel System, known as SERVS, was developed after the Exxon Valdez spill. SERVS' mission is to prevent oil spills by escorting tankers to ensure they navigate safely through Prince William Sound, provide assistance in order to avoid an accident should the tanker experience an engine failure or other malfunction, and to begin immediate response if there is a spill. SERVS maintains a fleet of large escort tugs, keeps trained response crews on duty around the clock, and has spill response equipment ready to respond.

Improved tanker escorts

The system's powerful tugs escort all loaded tankers from the terminal at Valdez, through Prince William Sound and Hinchinbrook Entrance, and out into the Gulf of Alaska. Two tugs accompany each laden tanker out of Prince William Sound, with one tug tethered to the tanker until it reaches Central Sound where there is more room to maneuver. One tug will stand by at the Entrance to the Sound until the tanker is 17 miles out into the Gulf of Alaska.

Risks from human error

All tanker captains, and any crew member suspected of consuming alcohol, are now subject to alcohol tests before sailing. Crews now receive more training and work hours are limited to reduce accidents caused by fatigue.

Monitoring marine traffic

The Coast Guard now monitors the speed and heading of all tankers and other vessels in Prince William Sound through improved radar and the Automatic Identification System. Vessels equipped with this system transmit real-time information about their locations and movements that is made available to the Coast Guard's Vessel Traffic System offices in Valdez, as well as Council offices, and others.

What has improved in oil spill response since the Exxon Valdez oil spill?

While prevention measures are the best way to avoid environmental damage from oil spills, even the best system cannot remove all risks. Oil spill response in Prince William Sound has seen many improvements since 1989. Alyeska's SERVS is now considered one of the best oil spill prevention and response forces in the world.

Contingency plans

Contingency plans, extensive documents which contain details on preventing and cleaning up oil spills, are required by state and federal law. The requirements in these plans have expanded since 1989 and now must demonstrate that larger spills can be contained and cleaned up with more spill response equipment and trained crews that are immediately available.

Some changes in the contingency plans since 1989 include:

- Local fishing vessels are an integral part of the response plans. The crews, located in the ports of Valdez, Cordova, Whittier, Homer, Seward, and Kodiak, are contracted by Alyeska to respond in the event of a spill, and trained every year in spill cleanup methods.
- More emphasis on shoreline protection and wildlife protection.
- Special strategies have been developed to protect specific areas that have been identified as a sensitive area or a critical resource, such as salmon streams or hatcheries.



In 2018, Alyeska began work with their new spill prevention and response contractor, Edison Chouest Offshore. These services include operation of escort tugs, oil recovery storage barges, and associated personnel. These resources are key oil spill prevention and response assets for Prince William Sound.

To fulfill their contract, Edison Chouest built nine new tugs and four spill response barges, which represents a significant improvement for the oil spill prevention and response system. In some cases, new general-purpose tugs replaced conventional tugs that were over 40 years old. Photo by Jeremy Robida.

Spill response equipment

In 1989, there were only 13 oil-skimming systems in Alyeska's response inventory; today, 100 units are available.

Only 5 miles of oil spill boom were available in 1989; today, over 50 miles of various types of boom are available.

Alyeska had only about 220,000 gallons of storage capacity for recovered oil and oily water immediately after the Exxon Valdez spill; today, on-water storage capacity is now over 34 million gallons.



The combination of the new Crucial skimmers with Buster boom systems have increased oil skimming efficiency since 1989.

Spill drills

Before 1989, few oil spill drills were conducted in Prince William Sound. Today, three major exercises take place per year, along with several smaller drills. The drills provide opportunities for response personnel to work with equipment and practice procedures.

Improvements at the terminal

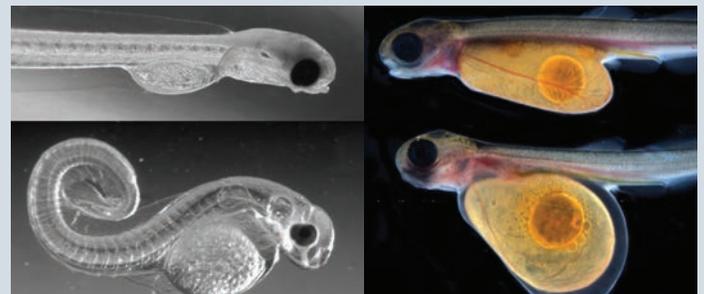
For the first twenty years of operations at the terminal, thousands of tons of toxic vapors were emitted annually during the tanker loading process. These harmful vapors threatened the health of the terminal's workers and Valdez residents. In 1997, Alyeska installed vapor controls at two loading berths, which nearly eliminated the pollution from loading operations.

The Ballast Water Treatment Facility, designed to clean oily residue from tanker ballast water before it is released back into the environment, has also seen improvements. A system has been installed to reduce the vapors released into the environment from the facility. Over the years, emissions from the Ballast Water Treatment Facility have been reduced.

Concerns remain

Although there have been many improvements, there are still many areas of concern, meriting the continued attention and sustained efforts from the Council. A few of these include:

- **Complacency:** Rollbacks or weakening of state and federal environmental protections.
- **Heavy weather operations:** The safety of escort tug crews and their ability to respond during strong winds and waves has been questioned due to lack of training in all conditions in which the tugs are expected to operate.
- **Response gap:** Studies by the Council have shown that it is not possible to effectively clean up an oil spill during the strong winds and waves in which tankers are allowed to transport oil.
- **Aging infrastructure:** The terminal is over 40 years old and was originally designed for 30 years of service.



Lingering oil can have toxic effects on species such as salmon and herring at much lower levels than previously thought. A Council-sponsored study looked at the effects of crude oil exposure on the embryos of Pacific herring and pink salmon. The fish in the top images were in a control group that was not exposed to oil. The bottom embryos show the physical effects of exposure to very low levels of crude oil, as low as 10-45 parts per billion.

Then & Now

There have been many changes in the system since 1989. Read more about the changes and remaining concerns in our new publication "Then and Now: 30 Years After the Exxon Valdez Oil Spill":

www.bit.ly/ExxonValdez30

