

THE OBSERVER

JANUARY 2017 VOLUME 27, NO. 1

A publication of the Prince William Sound Regional Citizens' Advisory Council

Vessel construction, planning underway for Crowley to Edison Chouest transition

Council conducting independent review of vessel designs

By July of 2018, Edison Chouest Offshore, or ECO, of Louisiana will be the marine services contractor for oil tankers and the terminal in Prince William Sound. Until then, Alyeska and ECO will be working with Crowley Maritime, the contractor who currently provides those services, on a smooth transition between the two contractors. These services include escort tugs, general purpose tugs, oil recovery storage barges and associated personnel, all of which are key oil spill prevention and response assets for Prince William Sound. For instance, two state-of-the-art escort tugs accompany every laden tanker that leaves Port Valdez. One tug is tethered through the confined waterway called the Valdez Narrows, and one tug stands by at Hinchinbrook Entrance until the tanker is 17 miles into the Gulf of Alaska. The primary responsibility of these

escort tugs is to rescue or "save" a tanker that may experience problems and prevent oil from spilling, and initiate response efforts should these prevention measures fail.

Construction of new vessels

ECO has begun construction on the first of the new vessels. Five of the new tugs will have primary responsibility for escorting tankers carrying oil through Prince William Sound. Four new "general purpose" tugs will assist tankers docking at the terminal and tow oil response and storage barges. All nine tugs will scout for ice from Columbia Glacier and carry equipment for oil spill response and emergency towing, among other capabilities. All of the escort tugs, and two of the general purpose tugs, will carry equipment

See page 6, *Transition*

Conference focuses on best practices in towing rope technology

By Alan Sorum
Council project manager

A recent conference on rope design hosted by Samson Rope, a leading producer of high performance towing rope, shared best practices for towing that may be applicable in Prince William Sound.

Founded in Boston in 1878, Samson is the

See page 7, *Best practices*

Former board member Marilynn Heddell passes

Marilynn Heddell, former council board member, passed away on November 18, 2016.

Heddell represented Whittier on the board from 1996 until 2013. She held several positions during her 17 years on the council. She was first elected as member-at-large in 1996. She served as secretary from 1997 to 2001, as



See page 6, *Heddell*

Smithsonian partners with council to search for marine invasive species

Citizen scientists, the Prince William Sound College, the Smithsonian Environmental Research Center, and the council partner for invasive species event in Prince William Sound.



Prince William Sound College instructor Sharry Miller pulls a crab trap during the bioblitz. Photo by Austin Love.

An opalescent nudibranch is a native species common in Prince William Sound. This one was found during the September bioblitz. Photo by Nelli Vanderburg.



Read about the Smithsonian's invasive species bioblitz on page 2.

AK Chamber of Commerce - Chenega Bay - Chugach Alaska Corp. - Cordova - Cordova District Fishermen United - Homer - Kenai Peninsula Borough - Kodiak - Kodiak Island Borough - Kodiak Village Mayors - Oil Spill Region Environmental Coalition - Port Graham Corp. - Prince William Sound Aquaculture Corp. - Seldovia - Seward - Tatitlek - Valdez - Whittier

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Volunteer Spotlight

Retired staff member still contributes engineering expertise to council's mission

The council has benefitted from Chicago-born Tom Kuckertz's broad experience in engineering for 16 years and counting. After his retirement from the council in 2014, Kuckertz continued on as a volunteer for the committee he worked with most closely, the Terminal Operations and Environmental Monitoring Committee.

A young Kuckertz earned degrees in electrical engineering at the University of Illinois and the University of Idaho, followed by two years in the U.S. Army's Signal Corps, where he was involved in cryptography.

"Basically, it involved how to move information from one place to another, and in most cases, deny access to adversaries," explained Kuckertz.

Following the Army, Kuckertz earned a doctorate in electrical engineering at the University of Illinois and went to work for the Los Alamos National Laboratory, in Nevada. The Los Alamos lab, run by the University of California, is a science lab that focuses on national security challenges.

At the Los Alamos lab, Kuckertz developed "data acquisition systems." A data acquisition system measures a real world phenomenon,

Tom Kuckertz is a member of the council's Terminal Operations and Environmental Monitoring Committee. The committee supports the council's mission by identifying actual and potential sources of episodic and chronic pollution at the Valdez Marine Terminal. This committee is one of five committees of volunteers from communities affected by the Exxon Valdez oil spill. Volunteers like Kuckertz dedicate their time and expertise to advise the council on technical issues related to the safe transportation of oil through Prince William Sound.

then converts the data from the measurements into a form that can be analyzed by a computer. It's how computers control machines.

"For example, you have embedded control systems in your cars these days. One of my specialties was embedded control systems for acquiring nuclear physics data."

Kuckertz and several fellow engineers started a company called Pajarito Scientific Corporation, named after the plateau where the laboratory was located. The new company specialized in instruments that measure the nuclear waste in containers, typically 55 gallon drums or boxes.

The systems that Kuckertz created could "assay," or very accurately measure, nuclear waste without opening the drums, important in keeping the nuclear waste contained.

"We could tell you how much material was in there, down to sub-milligram quantities. The measurements were expensive, but very precise, very accurate."

"I developed the mathematics for doing that kind of stuff," he said. "These were things that people said you couldn't do."

The company was eventually sold to British Nuclear Fuels Ltd, although Kuckertz stayed on as an employee for a few years. Sadly, just as his employment contract came to an end in the spring of 2000, Kuckertz and his wife Sue lost their home to the massive Cerro Grande forest fire.

The Kuckertz' two kids, Patrick and Carolyn, were living in Alaska, so he looked here for work, and was hired at the council where he managed projects for the next 14 years.

"I got crosswise with a few people now and then, but it was all over technical issues and what was appropriate."

As a committee volunteer

One of the recent issues the council has been concerned about is the liners of the secondary



Tom and Sue Kuckertz. Kuckertz is well-known among the council staff for his sense of humor, his love of debating, and his commonly-given advice: "It's not personal, it's business." Photo courtesy of Tom Kuckertz.

containment system around the crude oil storage tanks at the Valdez terminal. The secondary containment systems surround all the tanks to catch oil and prevent spills from reaching the environment.

The condition of the liners is important because Alyeska receives a "prevention credit" based on the overall integrity or condition of secondary containment systems. This credit allows Alyeska to plan for a smaller spill volume and therefore have less response equipment and personnel available locally.

"The secondary containment cells have a liner that was sprayed on using catalytically blown asphalt, that's sort of like spraying tar. It forms a liner that is subject to ultraviolet degradation, so you can't just leave it out in the sun. So it's covered with an 'overburden' which is gravel and dirt." The overburden protects the liner from ultraviolet and mechanical damage such as driving vehicles on top of it. The liner is also susceptible to damage through pro-

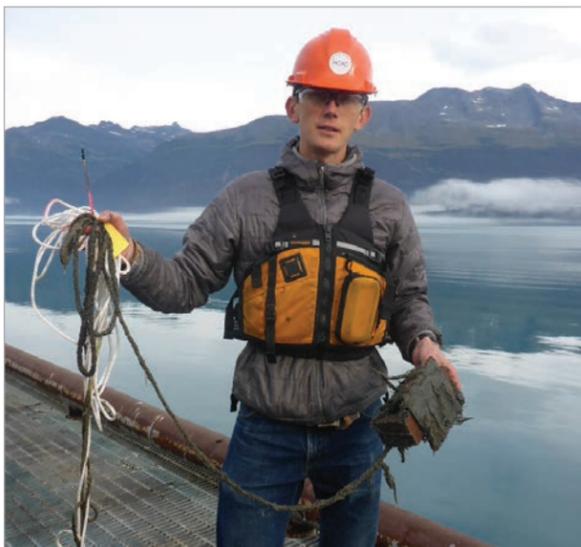
See page 7, **Kuckertz**

Smithsonian partners with council to search for marine invasive species

Linda McCann

Smithsonian Environmental Research Center

A crew of marine biologists ventured to Prince William Sound this September for the third Smithsonian-led "bioblitz" in Alaska, this time in Valdez. During a bioblitz, volunteer citizen scientists team up with professional scientists to search for invasive marine invertebrates. This year, the Smithsonian partnered with the council and Prince William Sound College for a week of



scientific sampling.

Three months before the bioblitz, council staff placed "settlement plates," sheets of sanded PVC that the invertebrates attach to over time. During the bioblitz, volunteers and staff collected the plates, towed plankton nets, set crab traps, and went scuba diving, to look for various non-native species.

The study helped establish critical baseline data for future research, invasive species management, and conservation initiatives. Fortunately, no new non-native species were found during the bioblitz or the scientific sampling.

Earlier in the week, Smithsonian and council staff took samples near Tatitlek and near the Alyeska terminal. One species of non-native bryozoan was found on the research dives at Tatitlek, *Schizoporella japonica*. This species, native to Japan, has been found at many localities around

See page 4, **Bioblitz**

Left: Council staffer Austin Love collects a settlement plate from the Alyeska terminal. Alyeska hosted plates to gather samples from that location. Photo by Nelli Vanderburg.



Above: Colorful marine tubeworms and white plumose anemones were found during the bioblitz. These are not invasive. Photo by Gail Ashton. Below: The bioblitz team. Photo courtesy of Lisa Matlock.



From the Executive Director

Recertification is time for reflection and self-evaluation

In December, the council submitted its application to the U.S. Coast Guard for recertification under the Oil Pollution Act of 1990, referred to as “OPA90.”

The Act requires the council to reapply yearly for the Coast Guard’s approval as the official citizens’ advisory group to the oil industry in Prince William Sound. Guidelines established in 2002 streamlined the recertification process for two out of three years, with every third year requiring stricter procedures. That process—known as comprehensive recertification—was used this year.

The application and supporting documents describe how the council has met its responsibilities under OPA90 over the past few years. We are evaluated on whether we include a broad representation of interests in our membership, maintain open communication with industry and government on a variety of issues, coordinate on scientific work, develop and carry out effective monitoring programs, work to prevent and plan for oil spills, and more.

As staff worked together to compile the information, we reflected not only on our achievements, but also the importance of our relationships with our communities, partners, industry, and regulators. The number of diverse groups we coordinate with—from board-represented entities to Alyeska, divisions of state and federal government, research consultants, and the public at large—can be seen as daunting to those not familiar with our organization. But

it is only through all of these diverse groups working together that we can accomplish our goal: maintaining environmentally safe operation of the Alyeska Pipeline marine terminal in Valdez, and ultimately preventing oil spills in Prince William Sound.

While the role of the council under OPA90 is to advise and monitor, we also promote and maintain partnerships through communication and coordination with industry and regulators. Our relationships with different sectors can be complicated, but the council strives to maintain positive and productive dealings.

It is important that we look for opportunities to celebrate successes towards our shared goals, such as last spring’s tour of Alyeska/SERVS fishing vessel oil spill response training. Residents of Seward were invited aboard a Kenai Fjords Tours vessel, chartered by the council, to learn how community members help protect local waters from oil spills. Two

Alyeska staff members helped narrate the tour, along with council staff. This project was positive for everyone: the community of Seward, Alyeska/SERVS, and the council. The council is planning these tours annually, with the next happening in Cordova this May.

The council’s role is to be a voice for the communities and groups we represent. We are fortunate to have dedicated, hardworking board and committee volunteers that provide direction and invaluable local and technical input that guides and assists us in our efforts,

without which our work could not be done. We thank all of those who have given so many hours to support our mission, both past and present, as well as our public partners and industry and regulatory agency colleagues. Together we continue to advocate for the highest level of standards and care to protect Prince William Sound and its downstream communities from future oil spills.

The Coast Guard publishes our recertification application for a public comment period. We encourage all of our partners, member entities, interest groups, and anyone who has a stake in making sure that local citizens are involved in decisions that impact the safe transportation of oil from the Valdez Marine Terminal and associated tankers to submit a letter of support. As *The Observer* went to press, the public comment period had not yet begun, although it was expected to at any time. For information on how to submit a letter, please visit our website, or contact our Director of External Communications, Brooke Taylor, at (907) 273-6228 or brooke.taylor@pwsrca.org.

• Donna Schantz is the executive director of the Prince William Sound Regional Citizens’ Advisory Council.



Donna Schantz

“It is only through all of these diverse groups working together that we can accomplish our goal: maintaining environmentally safe operation of the Alyeska Pipeline marine terminal in Valdez, and ultimately preventing oil spills in Prince William Sound.”

- Donna Schantz

From Alyeska

Alyeska’s commitments during transition include protection, safe oil transportation, and transparency

My name is Mike Day and I’m the accountable manager for the marine services transition, which means that I oversee the internal Alyeska transition team and work with Edison Chouest Offshore, or ECO, to make sure they’re ready to provide services in Prince William Sound in 2018. As a lifelong resident of Prince William Sound, it’s incredibly important to me that we are successful.

I recently spent a few days at ECO facilities to monitor the work. ECO is building nine new tugs for Alyeska, and construction is progressing on schedule. They will be built at Edison Chouest shipyards in Louisiana and Mississippi, before completing extensive sea

trials in the Gulf of Mexico or Puget Sound, and additional tests in Prince William Sound.

ECO will construct five new tanker escort tugs, four new general purpose tugs for tanker docking and other activities, and three new oil spill response barges. They will also bring the Ross Chouest, a large anchor-handler already in their fleet, into the system. The new vessels will meet the capabilities of the current fleet, and in many cases exceed it.

Alyeska, ECO, and others designed the fleet to include industry best practices, SERVS’ lessons learned, and stakeholder input. Alyeska has also adopted several recommendations provided by the council over the years including outfitting both

escort and general purpose tugs with render/recover winches.

In the new year, I’m looking forward to seeing the progress of the new oil spill response barges ECO will be building in Portland, Oregon. We’re also getting ready to add more personnel at SERVS, to make sure we’re able to

meet the needs of the transition and meet our commitment to the safe transportation of oil through Prince William Sound.

As we started work on this project, we developed transition commitments and values to remind ourselves of what’s most important during the next two years:

- Alyeska upholds its obligation to protect the environment, culture, and resources of Prince William Sound during and beyond the contract transition.
- Alyeska commits to moving oil safely through spill prevention, with zero incidents and immediate, effective response if necessary.
- Alyeska respects the value of transparent partnerships with its Prince William Sound area regulators and stakeholders, many of whom live within its unique communities and environment.

We review these values with our transition participant team – of which the council is a member – frequently, and ask that they raise any issues with us. If you have any concerns that we are not living up to this commitment, please contact your local council representative, or Alyeska directly at MarineServicesTransition@alyeska-pipeline.com.
• Mike Day is the operations manager for Alyeska’s Ship Escort/Response Vessel System.



Vessel under construction. Photo courtesy of Alyeska.

Bioblitz: Partners search for marine invasive species in Sound

Continued from page 2

Alaska, including Valdez, but has not been seen there recently.

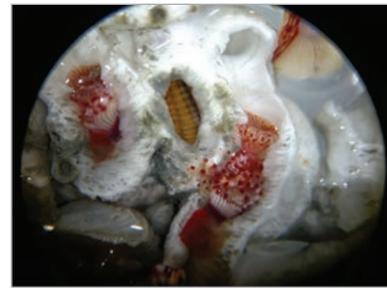
The Smithsonian conducts this research as part of a program called the Invasive Tunicate Network. The network includes teachers, students, outdoor enthusiasts, environmental groups, and state and federal biologists who are monitoring for non-native tunicates and other invasive species along the U.S. West Coast, with a primary focus on Alaska. See platewatch.nisbase.org for a complete listing.



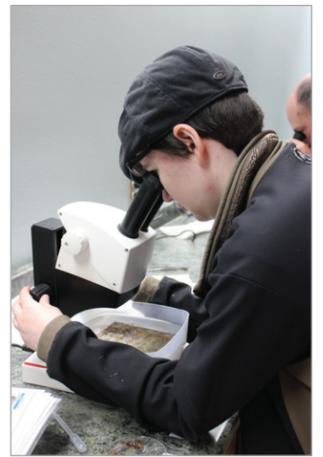
Council staffers Austin Love and Nelli Vanderburg work with the Smithsonian staff to survey Port Valdez. Photo by Kim Holzer.



Smithsonian staffer Kim Holzer shows council staffer Lisa Matlock sampling methods for invasive species. Photo by Nelli Vanderburg.



Above: Serpulid or tubeworm. Photo by Nelli Vanderburg.



Above: Cori Pegau, the council's green crab monitor intern for the Cordova area. Photo by Lisa Matlock.

Volunteers learn how to identify the aquatic species in a classroom before the search begins outdoors. Photo by Lisa Matlock.



After a day of lectures and hands-on training in the lab, community volunteers and students surveyed the Valdez harbor for the non-native species they'd learned about. Among other marine creatures, they found many clams, crabs, bryozoans, anemones and marine tubeworms. Above: Decorator crab found in Valdez harbor. Left: Valdez teacher Jenny Heckathorn holding a crab. Photos by Nelli Vanderburg.

Bioblitz target species

The group was looking for specific non-native species that are already present in areas where Alaska's tankers take on ballast water, are fairly easy to identify, and pose a possible risk to Alaska.

Specific species include *Didemnum vexillum*, a tunicate commonly known

as "sea vomit;" the European green crab; and *Watersipora*, commonly called red rust bryozoan.



Red rust bryozoan (above). Photo by Melissa Frey.

Sea vomit (left) has been found elsewhere in Alaska. Photo by Melissa Frey.



The council is particularly concerned about the European green crab (above) and conducts regular monitoring for this species. The crab larvae are known to travel in the ballast water of ships, and is an efficient and voracious predator that has invaded the West Coast from San Francisco to Vancouver Island. It is feared that the green crab will find its way to Alaska waters, although fortunately, no green crabs have been found so far in Alaska. Photo by Linda McCann.

COUNCIL BOARD MEETINGS

The citizens' council board of directors meets three times annually. The January meeting is held in Anchorage, May in Valdez, and the September meeting is rotated among communities affected by the Exxon Valdez oil spill.

Board meetings are open to the public, and an opportunity for public comments is provided at the beginning of each meeting. Agendas and other meeting materials are available on our website: www.pwsrca.org

The tentative board meeting schedule for the coming year is:

- May 4 & 5, 2017: Valdez
- September 21 & 22, 2017: Whittier
- January 18 & 19, 2018: Anchorage



Community Corner

Partnerships help involve the next generation in the council's mission

By Lisa Matlock
Outreach Coordinator

Since 2009, the council has partnered with the Chugach Children's Forest to help youth from the Exxon Valdez oil spill region connect to Prince William Sound directly through unique outdoor experiences. The council has co-sponsored multiple expeditions in which students from Cordova to Kodiak ply the waters of Prince William Sound by kayak, charter vessel, and ferry. The wonders of the Sound, its wildlife, its communities, and its beauty have touched them all, and along the way these youth have learned how the Exxon Valdez oil spill affected this special place and how they can be part of preventing future spills.

The Chugach Children's Forest, itself a partnership between the Chugach National Forest and the non-profit organization, Alaska Geographic, introduces diverse, young Alaskans to their wild backyard. One of the Children's Forest's goals is to "address the critical challenges of people's growing disconnect from nature paired with mounting impacts on our natural world" and to "bring together communities, educators, land management agencies, and environmental and social non-profits to offer a wide range of innovative programs."

Youth expedition

As part of our efforts to involve the next generation in the council's mission, we have helped sponsor an annual six-day discovery expedition into Prince William Sound for middle schoolers with the Children's Forest. Students from rural communities in the council's region and urban Anchorage, learn from each other's widely dif-



fering perspectives while experiencing the wild marine environment aboard the M/V Babkin.

"The council's network of volunteers and partners in these small communities help make recruitment of the participants in the expeditions possible," said Ann Mayo-Kiely, program director for Alaska Geographic.

The expedition's science instructor, Kate Alexander Morse, is a council volunteer from Cordova who also works for the Copper River Watershed Project. According to Mayo-Kiely, Morse's personal connections to and great knowledge of Prince William Sound and the council's

"One important thing I learned was how significant the Exxon Valdez oil spill was."
-Samuel Bogdan, a participant in the 2016 youth expedition.

work "help bring the Sound to life for the kids."

"Morse engages youth with creative and hands-on activities that increase awareness of the Sound and threats to its health in order to empower these student citizens to raise their own voices in advocating for this place," added Mayo-Kiely.

Throughout the expedition, youth participants explore the Sound's marine and rainforest ecosystems and how the ocean, glaciers, and people interact with the ecosystems. When possible, the expedition includes a visit to Alyeska's Ship Escort and Response Vessel System to learn about oil spill prevention and response, with an eye toward protecting the most sensitive sites in the Sound.

Teacher expedition

Along with the youth expedition, the council also supports a teacher expedition, which is co-led by the Chugach National Forest's wilderness ranger, Tim Lydon. Eight teachers from the council's region and all over the state kayak for six days in the western Sound, learning about how to bring the ecology and history of Prince William Sound into their own classrooms. At the end of these expeditions, participant teachers develop lessons that are shared with the council for potential inclusion in the Alaska Oil Spill Curriculum.

"Being immersed in the beauty of Prince William Sound revealed what all of us stand to lose if we fail to incorporate relevant place-based education for our students," said Susan Stotz, a

Left: Students look for lingering Exxon Valdez oil during in 2016. Photo courtesy of Alaska Geographic.



Teachers' Expedition in 2014, Photo by Elly Ray.

teacher who participated in the 2014 expedition.

The council's partnership with the Chugach Children's Forest originated with Linda Robinson, the council's former outreach coordinator and current volunteer for the Information and Education Committee.

"The council realized the importance of involving youth in promoting our mission," said Robinson. "We decided the most effective way to do this would be to collaborate with other organizations that work with youth to incorporate education on oil spills but more importantly, provide information in how, as citizens, we can work toward prevention and response to protect our backyard."

This project is one of the important ways the council works with our partners to help develop the next generation of citizens who will keep the Sound protected from oil spills.



During the 2017 youth expedition, the science program will be led by the council's outreach coordinator, Lisa Matlock. Photo courtesy of Alaska Geographic.

Marine firefighting symposium coming to Homer in May

Council is hosting the ninth Marine Firefighting Symposium for Land-Based Firefighters on May 12-14, 2017, in Homer, Alaska. This three-day conference is an industry recognized effort to provide the best available marine firefighting information and practices to shore-based firefighters, using both classroom and field experiences.

Shipboard fires can occur in any coastal community and at any time. Depending on location and severity, marine firefighting efforts can require not only a local response, but a regional effort as well. Through the enhanced training offered at the symposium, firefighters in coastal communities can be better prepared to respond safely and effectively to marine fire incidents.

The primary focus of the symposium is to raise awareness and increase safety in the event of a shipboard fire related to the oil tankers and other vessels associated with the transportation

of oil in Prince William Sound.

Some of the topics to be covered during the symposium will include interpretation of ship fire plans, firefighter coordination with ship's crew, basics of vessel stability, ship awareness, vessel familiarization, coordination of private and public responses, politics of a marine incident, an update on implementation of U.S. Coast Guard salvage and marine firefighting regulations and an introduction to oil shipping. Numerous hands-on and field activities will allow community firefighters to work with marine industry salvage and firefighting contractors.

The council is pleased to have its nationally renowned training cadre of John Lewis, John Taylor, Don Ryan and Ron Raschio, led by Jeff Johnson. Several of these instructors provided input and material for the land-based shipboard firefighting manual produced by the International Fire Service Training Association. Fire-

fighters and industry participants consistently provide positive comments on the events. The council is able to offer this training at no cost.

Registration will open at the end of January. Please contact Alan Sorum at (907)255-3217 or visit our website at <http://www.pwsrccac.org/programs/maritime/marine-firefighting> for more information.

THE OBSERVER is published in January, May, and September by the Prince William Sound Regional Citizens' Advisory Council. Except where credited to others, articles are written by Amanda Johnson, the public communications project manager for the council. Questions or comments about anything in The Observer? Another topic that you want to hear about? Let us know!
Contact us: newsletter@pwsrccac.org

Transition: Council conducting independent review of vessel designs

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that will enable the crew to fight fires on another vessel. Three new spill response barges will be outfitted with Crucial oil skimmers, a new high-capacity skimming technology that provides a more efficient means of picking up oil on water, and Ocean Buster boom systems that are considered leading technology for containing oil slicks.

One existing ECO vessel, the Ross Chouest, will also be coming back to Alaska. The Ross Chouest was most recently on contract to Shell to retrieve anchors used for oil exploration in the Chukchi and Beaufort seas. The Ross Chouest will be used as an ice scout, oil spill response, to handle mooring anchors, as well as take part in Alyeska's Ship Escort Response Vessel System's annual fishing vessel training outside of Prince William Sound in the ports of Kodiak, Seward, and Homer.

New vessels may start arriving this year

Construction began last August on the first two general purpose tugs, and construction of the escort tugs began this winter. ECO is building the tugs at their shipyards in Louisiana and Mississippi. Equipment sea trials and the first exercises will be conducted in the Gulf of Mexico. The response barges will be built in Oregon and tested in Puget Sound.

The first general purpose tugs may launch as early as mid-2017, and may begin arriving in Prince William Sound in late 2017. The rest of the vessels will arrive at various times after construction is completed and initial on-water testing has been conducted. Additional demonstration exercises will be conducted in Prince William Sound in 2018, both before and after the July transition.

ECO plans to start recruiting

personnel in mid-2017.

The council has been participating in a series of information-sharing meetings with Alyeska, ECO, Crowley, the oil shippers, Alaska Department of Environmental Conservation, and the U.S. Coast Guard, and we anticipate attending drills, exercises, and touring the vessel construction facilities starting later this year.

Council developing recommendations for equipment and training

The council has begun an independent review to verify that the vessels' designs are appropriate for their intended use, that training programs are adequate to ensure that crews are experienced and proficient in Alaskan waters, and all efforts meet or exceed existing capabilities as well as state and federal requirements. Subject matter experts as well as local citizens with extensive experience in the cold

Alaska maritime environment are working with the council to review the documents.

"This is a significant change in equipment and some personnel may be new to Alaska," said Roy Robertson, the council's drill monitor. "One of our main concerns is that all personnel should be well-trained and most should have experience with our unique conditions. Among other suggestions, we will be recommending that SERVS' response coordinators ride along on escort trips to ensure that all the elements of the prevention and response system are well-understood and being followed."

"The goal of our tug design analysis is to ensure that each vessel is appropriate for its intended use, and that the designs are optimal for ensuring the highest level of oil spill prevention and response capabilities to protect Prince William Sound and the downstream communities," said Donna Schantz, executive director for the council.

The council will share the results of this work with Alyeska, Edison Chouest, the oil shippers and the regulatory agencies who will be evaluating the new equipment and personnel.

"The council was created to involve local citizens in decisions that impact the safe transportation of oil," added Schantz. "After the Exxon Valdez spill, Congress found that only when local citizens are involved do the the partnerships and trust develop that is necessary to build the safest system possible. Our job is to independently review spill prevention and response plans, verify equipment and personnel capabilities, and advocate for the highest level of safeguards to protect the environment as well as the economic, social, and overall well-being of the people who live and work in the region."

This Alyeska chart (left) compares some of the capabilities and specifications of the new vessels to the current fleet. The council is independently analyzing the vessels' design specifications. Image courtesy of Alyeska.

TUG COMPARISON

Current Vessel	Capability	C-Plan Specification	ECO Vessel	Capability	Specification
Docking tug	horsepower	5,750-7,200 HP	General purpose tug	horsepower	6,008 HP
	bollard pull	105K-150K pounds		bollard pull	145K pounds
	winch	N/A		winch	33K pounds Render/Recover
Escort tug	horsepower	10,192 HP	Escort tug	horsepower	12,336 HP
	bollard pull	220-300K pounds		bollard pull	300K pounds (guaranteed)
	winch	Conventional		winch	500K pounds Render/Recover
Utility tug	horsepower	5,700 HP	Utility tug	horsepower	11,400 HP
	bollard pull	160K pounds		bollard pull	275K pounds
	winch	Conventional		winch	Conventional



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Heddell: "Marilynn always entered the room with a smile and a hug."

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vice-president from 2002 to 2004, again as secretary from 2004 to 2008, and was elected to the position of treasurer in 2012.

Heddell was an active member of the council's finance committee. This committee helps the board to oversee the council's financial affairs and ensure a balanced budget each year.

Heddell and her husband, Pete, operated a marine charter service, Honey Charters, and a gift shop

in Whittier for 22 years. Pete continues to serve as a member of the Port Operations and Vessel Traffic System Committee.

Heddell was very involved in the community of Whittier. She helped start the Greater Whittier Chamber of Commerce and Whittier's Prince William Sound Museum with exhibits on the history of Whittier and World War II in Alaska. She also represented Whittier on the Prince William Sound Economic Development Council. In 2013, she and Pete were presented with a

"Spirit of Alaska" award from the Alaska Travel Industry Association for demonstrating exceptional efforts to support a local community, charity, or other organization outside the travel industry.

"Marilynn always entered the room with a smile and a hug," remembered council volunteer and former outreach coordinator Linda Robinson. "When working the booth at Pacific Marine Expo, you could always count on Marilyn and Pete coming by, dropping their coats, and visiting with guests.

I never saw her without a warm greeting for everyone," added Robinson.



Left: Marilyn and Pete Heddell in front of their Whittier shop, the Captain Cook Books and Gifts. Photo by Linda Robinson.

Kuckertz: Creative engineering solutions can solve impossible-seeming problems

Continued from page 2

longed contact with hydrocarbons like crude oil.

Over the years, excavation for activities such as servicing manholes required digging into the overburden, which sometimes damages the liner, necessitating repairs. The committee would like to be able to recommend a method of inspecting the liner without further damaging it.

"Once you dig, you raise the risk very substantially of damaging the liner, just by inspecting it," Kuckertz says. "In addition, digging up the overburden is very costly."

Kuckertz thinks some of the methods he used in his work in New Mexico could have some potential answers.

"Much like with the nuclear waste, some type of penetrating radiation might work. You could use electromagnetic ground penetrating radar, if it will penetrate far enough, or you can use acoustic interrogation, which means that instead of electromagnetic waves you use sound waves."

Kuckertz says the idea of using waves to "see" could be described much like radar is used to track airplanes.

"The waves encounter a discontinuity in the transmission medium. In the case of radar, it encounters an airplane, that's a discontinuity, so you get a reflection in the waves. It's a basic physics principle. You can measure that reflection and see what it looks like."

Kuckertz says that the measurements coming from the reflection will be different depending on what the waves encounter.

"A smooth surface would have one kind of reflection. Cracks and other imperfections would have another kind of reflection," Kuckertz says. "That's called the 'signature' of whatever you are looking for. In the case of the airplane, you know

what the particular signature of an airplane looks like, and that signature varies based on whether it's moving or not. It tells you where it is."

In the case of the secondary containment, Kuckertz says the key would be determining the right type of waves, whether electromagnetic, acoustic, or another type.

"That's been a hard sell," says Kuckertz. "The biggest problem is not knowing what the signatures of the cracks and imperfections look like as opposed to the gravel in the overburden."

Kuckertz says that no matter the final method, it's important to find something that works.

"If it's going to be really expensive to remove the overburden once a year to look for cracks, no one is going to do that. But if you can use some type of instrument, and roll it around on the ground, that's a lot less burdensome."

Science saves lives

Kuckertz described a use of sound waves that he helped develop while he was at the Los Alamos Laboratory that probably saved lives.

"In the first Iraq war, we had all these artillery shells that were captured. Some of the shells were filled with liquid biological nerve agent, and some were filled with explosives."

The shells looked alike, and the Army had trouble telling them apart, which created a dangerous situation.

"The method of destroying these shells was different. The liquid needed to be burned in a furnace, but you would blow your furnace up if you put the high explosive shells in there."

They developed an instrument that analyzed the frequencies of sound wave reflections to help separate the nerve agent shells from the explosive shells.

"That was basic physics," said Kuckertz.



Kuckertz (second from right) is involved with Maryland's Engineering Accreditation Commission. He inspects engineering colleges that apply for accreditation, including a recent trip to inspect Abu Dhabi University. Photo courtesy of Tom Kuckertz.

Best practices: Conference shares information on towing rope technology

Continued from page 1

world's largest producer of ropes made with "Dyneema," an ultra-high molecular weight polyethylene fiber. The company manufactures ropes of traditional fibers, like nylon and polyester.

Samson provided the emergency towing equipment for the last two foreign-flagged tankers that called on the Valdez Marine Terminal. The International Maritime Organization, a United Nations agency tasked with improving maritime safety and preventing pollution from ships, requires tankers to carry an emergency towing package on their stern. In addition to this equipment, the Alaska Department of Environmental Conservation requires what is known as the "Prince William Sound Tow Package" to be carried on the bow of every tanker. This towing package consists of a messenger line, towline, buoy, and heavy-duty shackle that can be quickly deployed in an emergency.

Every year the company hosts a summit at its factory in Ferndale, Washington, where it invites customers and leading industry experts to discuss the latest innovations in rope design and manufacturing, and share best practices for rope use in the field. Project Manager Alan Sorum attended the summit for the council on November 9, 2016. Some highlights of the conference are shared below.

Testing rope used in real world applications

Analyzing used rope allows Samson to help its customers be safer and more efficient. Ropes are brought back to the factory for testing once they are taken out of service to measure breaking strength. The company uses the rope's history, test results, and predictive modeling to help rope owners and operators in many industries predict when their lines should be replaced, providing safer operations.

Always important to the analysis is the rope's history, including its installation, operational use, monitoring, and condition assessment. The company promotes periodic inspections, looking for cut yarns, compression, discoloration, inconsistent diameter, and melting and twisting of the rope. Effective management can greatly extend rope service life and improve overall towing safety. Samson provides pocket inspection guides and mobile apps for users to reference for these inspections.

At Samson's extensive testing facility, they demonstrated a residual break test on a "pendant" from a Crowley tug, the Attentive, from its Valdez operation.

A pendant is a short piece of rope added to the beginning of a main towline meant to take the abuse that comes from regular use. The pendant can be periodically replaced to preserve the more expensive mainline.

The Attentive's line broke, with a truly impressive noise, at just over 900,000 pounds or 450 tons. This value is very close to the original strength of the rope when it was new.

New tow winch testing technology

Samson is in the process of commissioning a new winch test machine. A winch is a mechanical device consisting of a rope and a rotating drum that adjusts tension on a rope or line. This appliance, and the technology behind the analysis tool, allows them to test lines on a winch drum under load. The testing machine looks to be a significant tool in understanding line construction and uses that have not formerly been possible.

Designing towing systems as a whole

The naval architecture firm, Robert Allan Ltd, made a presentation on how they use a "systems approach" to optimize towing structure. Their approach looks at the system as a whole, and includes fairleads (devices that guide a towing rope), tow winches, towlines, and supporting structures, rather than looking at one piece at a time. There is limited room on a tug to accommodate towing infrastructure, so optimization of these systems is necessary.

Control systems for towing winches

Seattle-based Markey Machinery, who specialize in engineering custom deck machinery for vessels, made a presentation on their next generation "render-recover" winch control systems. A render-recover winch is designed to monitor and automatically adjust line tension. Markey has developed a more precise way to control the forces experienced on a winch during a tow. This reduces operator control of the system and improves the safety of their towing winches.

Applying lessons in Alaska

Samson worked with Crowley Marine for many years developing best practices in the use and care of high performance towlines. These included annual trainings, rope manuals, splicing instructions, inspection guides, and rope retirement support to prevent failures and safe operations. The council is encouraging Edison Chouest Offshore to adopt these practices as they assume their duties as the Alyeska marine services contractor.

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

The Prince William Sound Regional Citizens' Advisory Council is an independent, non-profit corporation formed after the 1989 Exxon Valdez oil spill to minimize the environmental impacts of the trans-Alaska pipeline terminal and tanker fleet.

The council has 18 member organizations, including communities affected by the Exxon Valdez oil spill and groups representing Alaska Native, aquaculture, environmental, commercial fishing, recreation, and tourism interests in the spill region.

The council is certified under the federal Oil Pollution Act of 1990 as the citizen advisory group for Prince William Sound, and operates under a contract with Alyeska Pipeline Service Co. The contract, which is in effect as long as oil flows through the pipeline, guarantees the council's independence, provides annual funding, and ensures the council the same access to terminal facilities as state and federal regulatory agencies.

*The council's mission:
Citizens promoting
environmentally safe operation of
the Alyeska terminal and associated tankers.*

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ABOUT THE COUNCIL'S ADVISORY COMMITTEES

Much of the council's work is done through permanent volunteer committees made up of board members, technical experts, and citizens with an interest in making oil transportation safer in Alaska.

These standing committees work with staff on projects, study and deliberate current oil transportation issues, and formulate their own advice and recommendations to the council's full board of directors.

Our committees provide an avenue for public participation in the council's work.

The council has five technical advisory committees:

Terminal Operations & Environmental Monitoring:

The Terminal Operations and Environmental Monitoring Committee identifies actual and potential sources of episodic and chronic pollution at the Valdez Marine Terminal.

Members:

Chair: Harold Blehm, Valdez
Vice-chair: Mikkel Foltmar, Anchorage
Amanda Bauer, Valdez*
Steve Goudreau, Valdez
Tom Kuckertz, Anchorage
George Skladal, Anchorage

Port Operations and Vessel Traffic Systems:

The Port Operations and Vessel Traffic Systems Committee monitors port and tanker operations in Prince William Sound. The committee identifies and recommends improvements in the vessel traffic navigation systems and monitors the vessel escort system.

Members:

Chair: Amanda Bauer, Valdez*
Vice-chair: Robert Archibald, Homer*
Cliff Chambers, Seward
Pat Duffy, Valdez
Pete Heddell, Whittier
Orson Smith, Seward*
Jeremy Talbott, Valdez

Scientific Advisory:

The Scientific Advisory Committee sponsors independent scientific research and provides scientific assistance and advice to the other council committees on technical reports, scientific methodology, data interpretation, and position papers.

Members:

Chair: John Kennish, Anchorage
Vice-chair: Paula Martin, Sitka
Sarah Allan, Anchorage
Jeffrey Brooks, Anchorage
Wayne Donaldson, Kodiak*
Roger Green, Hope
Davin Holen, Anchorage
Dorothy M. Moore, Valdez*
Debasmita Misra, Fairbanks
Mark Udevitz, Anchorage

Oil Spill Prevention and Response:

The Oil Spill Prevention and Response Committee works to minimize the risks and impacts associated with oil transportation by reviewing and recommending strong spill prevention and response measures, adequate contingency planning, and effective regulations.

Members:

Chair: John LeClair, Anchorage
Vice-chair: Jerry Brookman, Kenai
Robert Beedle, Cordova*
Mike Bender, Whittier*
Alisha Chartier, Seldovia*
David Goldstein, Whittier
Jim Herbert, Seward
Gordon Scott, Girdwood

Information and Education:

The Information and Education Committee's mission is to support the council's mission by fostering public awareness, responsibility, and participation in the council's activities through information and education.

Members:

Chair: Cathy Hart, Anchorage
Vice-chair: Linda Robinson, Homer
Jamie Acton, Anchorage
Trent Dodson, Kodiak
Jane Eisemann, Kodiak
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*member of board of directors