

Alaska Region Marine Mammal Stranding Network

Winter/Spring 2013 NEWSLETTER

Stranding Photo of the Fall: Frozen sea water clings to the baleen of the decaying bowhead whale near Barrow this fall while stranding responder, Raphaela Stimmelmayer, examines what remains.



Photo credit: Craig George, North Slope Borough.

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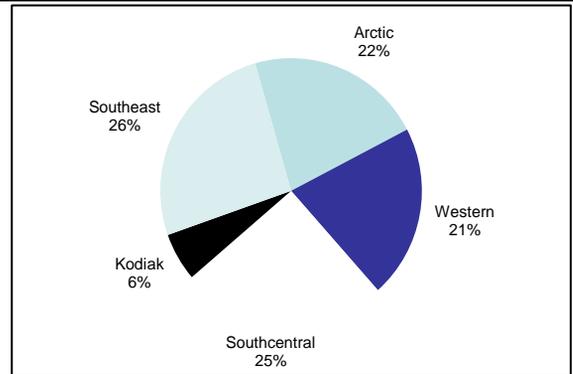
Summary of 2012 Marine Mammal Stranding Events in Alaska

Kaili Jackson, NMFS

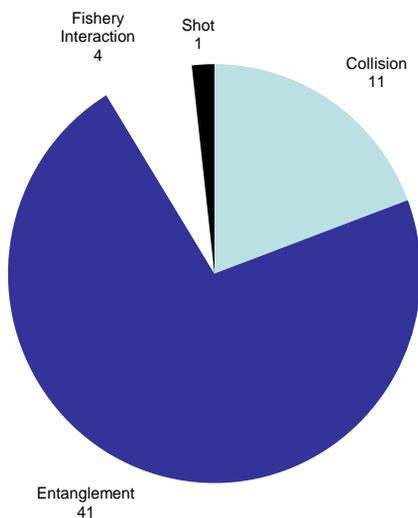
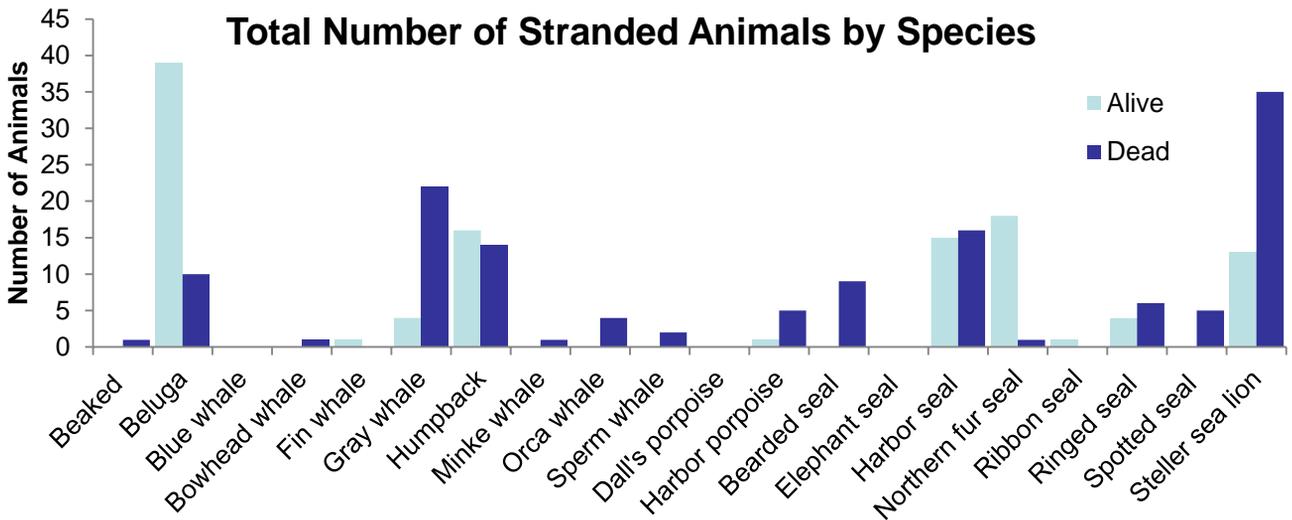
Another busy year in the Alaska marine mammal stranding world- 20 different marine mammal species were reported stranded in some form or fashion. Here is a sneak peak at the data collected by the stranding network. Keep an eye out for a complete summary coming soon. Alaska stranding summaries can be found at

<http://alaskafisheries.noaa.gov/protectedresources/strandings.htm>.

Statewide stranding distribution

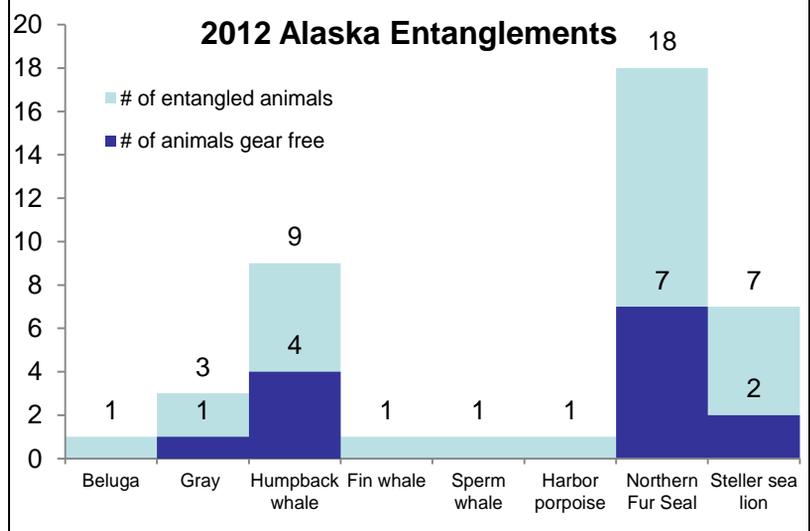


Total Number of Stranded Animals by Species



This pie diagram indicates the proportion of human interaction events in Alaska- the majority being entanglements. Gear type from 2012 events has not been identified for all entanglements.

2012 Alaska Entanglements



Forty-one animals (of 8 different species) were reported entangled in 2012. At least 14 of the entangled animals were later reported gear free, due to release on site by the fisherman, self release, or efforts by our network members.

Northern Pinniped Unusual Mortality Event (UME) Update February 2013

How many ice seals appeared to be affected by UME symptoms in 2012 as compared to 2011?

In 2011 over 200 ice seals were reported with UME symptoms. Most of the affected seals were ringed seals, but the unusual hair loss, delayed molt, skin lesions, and lethargy were also noted in spotted and bearded seals as well as one ribbon seal. Reports were received from northern Alaska, Canada (NWT), Russia (Chukotka), and Japan, with most ringed seal cases observed on the North Slope and bearded and spotted seal cases primarily observed from around the Bering Strait region.

In 2012, fewer cases were reported, with numbers declining as the year progressed. No new Canadian cases were observed in 2012. In Russia, fewer than 3 cases were identified in the spring with no new summer or fall cases. Similarly, less than 5 spring cases were received from northern Japan and no new reports received in the fall. In Alaska, there were fewer stranded seals on the North Slope with no live seals hauling out on local beaches (as observed during the summer of 2011); among the stranded seal carcasses no new cases were observed around Wainwright, Point Hope and Barrow. For subsistence harvested seals in Barrow, only 6 seals were found that had moderate patchy hair loss. The majority of reported cases (53) were from the Nome/Bering Strait region. Many of the cases reported in 2012, primarily adult bearded seals, did not appear to fit the 2011 case definitions as closely and it was also uncertain how many of these cases were ongoing (aka survivors) vs. new.

How many walrus appeared to be affected by UME symptoms in 2012 as compared to 2011?

In 2011, coastal community members, active hunters and research teams reported walrus with unusual skin lesions at the Pt. Lay coastal haulout. Because the lesions were similar in appearance to those observed in stranded seals, walrus were included in the ongoing UME investigation. Although Russian researchers and hunters have previously observed walrus with similar skin lesions at coastal haulouts in Chukotka, the condition had not been previously reported in Alaska.

In 2012, persistent sea ice in the Chukchi Sea prevented significant attendance at coastal haulouts, with no walrus observed at the Pt. Lay coastal haulout in Alaska and fewer animals observed at the Chukotka haulout in Russia. Of those animals observed in Chukotka, no new UME cases were noted. Similarly, no UME cases were noted in walrus carcasses along the Chukchi Sea coast as part of North Slope Borough surveys. Within the Alaska hunting community, 6 out of more than 1300 landed animals were reported with unusual skin lesions in 2012, however none of the reported animals clearly fit the UME case definition for walrus.

Diagnostic testing of walrus tissue samples for known viral and bacterial agents have consistently returned negative results. The cause and significance of the unusual skin lesions observed in walrus remains unknown.

Have polar bears been added as an affected species?

Since the spring of 2012, a total of 23 polar bears from Barrow, Deadhorse and Kaktovik have been identified with variable degrees of hair loss/ thinning, inflamed and crusting skin, and oral lesions. The prevalence of these symptoms appears to be in about 28% of observed animals. Thus far, testing for endocrine abnormalities (thyroid function) and vitamin A and trace mineral imbalances in affected bears has been inconclusive, as have toxicity studies. Proposed testing includes genetic sequencing of tissue samples for new viruses.

The concurrent presence of hair loss in seals, walrus and polar bears has suggested a possible connection between the events. However, unlike the seals and walrus, the bears do not appear to exhibit behavioral changes or systemic involvement nor has mortality been observed in affected animals. A similar hair loss condition has also been observed in polar bears in the past. Consequently, evidence is insufficient to include polar bears as a UME species at this time, but monitoring for new or unusual cases will continue into the 2013 field season.

What are most recent events in the investigation?

On January 21, 2013, a full day UME workshop was held at the Alaska Marine Science Symposium in Anchorage, Alaska. The workshop was designed for those who had been involved in the response and investigation to date, and included members of agencies, diagnostic laboratories, academia and the subsistence communities from many areas throughout the US and Canada. The goal of the workshop was to facilitate the exchange of information, update participants on current findings; discuss the next steps including a list of possible causes of the event; concluding with an after action review of the investigation outlining what worked, what didn't work and gaps that needed to be addressed in the future. Proceedings of the workshop are being prepared and will be made available.

Continued on next page.

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UME Update cont...

Currently under discussion is how to most prudently use remaining tissues as well as the submission and testing of control samples. Some specific questions under consideration include:

Is the UME due to a poorly described infectious agent?

A pathological progression that appears to be central to the UME includes a skin vasculitis (blood vessel inflammation) and immunosuppression followed by a variety of secondary bacterial and fungal infections. Substantial testing has been completed on an array of both viral and bacterial agents associated with vasculitis and other pathologies in marine mammals, with consistently negative results. Recently, more specialized testing has indicated the possible presence of less well characterized viral agents, including circovirus, lentivirus, retrovirus, and gammaherpesvirus. Follow-up of preliminary findings, as well as testing for these viral agents in control animals, is essential in determining their potential as agents of disease.

Bacteria associated with the cases are likely secondary pathogens; however, *S. phocae* and hemotropic mycoplasma are two bacterial agents currently being considered for assessment as important co-factors.

Is the UME due to toxic agents?

Public concern about the Fukushima nuclear plant accident in Japan has prompted tissue testing for radionuclides. Preliminary qualitative screening showed radiation levels within typical background levels for Alaska. As a follow up muscle tissue from control (n=11) and a few diseased seals (n=7) have been provided to the University of Alaska Fairbanks for gamma analysis. Gamma analysis of control and four diseased seal samples have been finalized in January; preliminary results confirm cesium 137 levels in control and four diseased seals are similar to historical levels observed in seals sampled in the mid – 1990's in Alaska. Testing for the remaining seal samples has not been completed and gamma analysis is ongoing. An interim report is being prepared on these preliminary findings, which will be made available.

Testing has been negative for the most common harmful algal blooms (HABs), including domoic acid, PSP and okadaic acid. Testing for cyanotoxins, such as microcystin and nodularin, has also been suggested relative to a cyanobacterial bloom that has occurred in recent years in the Kotzebue Sound/Chukchi Sea and liver samples from 4 seals with possible cyanobacterial changes have been submitted to a HABs discovery laboratory. Results were expected in December, but difficulties with the test have delayed these results. Results are expected imminently.

Is the UME a result of multifactorial causes leading to abnormal molt?

Testing is being considered for endocrine/metabolic/nutritional abnormalities associated with abnormal skin and hair growth. Environmental factors that made the spring of 2011 unique will continue to be reviewed.



A sickened ringed seal found near Barrow, Alaska, in 2011. Photo courtesy of North Slope Borough Department of Wildlife Management.

If you find a seal or walrus acting abnormally or showing signs of illness, note its location and contact *your local wildlife authority* as soon as possible.

For more background on this event, updates, regional contacts, and how to help, see:

<http://alaskafisheries.noaa.gov/protectedresources/seals/ice/diseased/default.htm>
http://alaska.fws.gov/fisheries/mmm/walrus/disease_investigation.htm

Alaska SeaLife Center 2012 Stranding Recap

The 2012 stranding season at the Alaska SeaLife Center was a busy and unique one. The year began with the release of Corky, a juvenile sea otter, which was treated for a blood infection. He became the fourth sea otter released by the ASLC. In February, we hosted another successful state stranding meeting. And as normal, when you host a stranding meeting, along comes a stranded animal. This year, it was a ribbon seal in Yakutat. The UME team gathered and went into action. The rehab team had little time to rest as a week old sea otter pup arrived



in March from Port Heiden. Meshik spent a little over a month with us before he was transferred to the Pittsburgh Zoo and Aquarium. A week later, the first harbor seal pup stranded in Haines which kicked off the seal rehab season. From May to October, the ASLC would respond to 15 harbor seals, admitting 12 seals and releasing 11. Seals were all rescued and released in the locations where they were stranded which included Haines, Homer, Tyonek, Juneau, Egegik, Ugashik Bay and Dutch Harbor. Each release included some level of public education and had kids in attendance. On June 18th, we received the call of a baby beluga stranded in South Naknek. Four hours later, multiple phone calls from NOAA Anchorage and Washington DC, a private flight to and from South Naknek, we lowered the whale into the pool in Seward. What followed was three weeks of the most amazing multi-organizational teamwork I have ever witnessed. Worldwide press captured the story as teams



worked around the clock. Every department at the Alaska SeaLife Center responded to the call to assist the events occurring in the beluga pool as well as covering the normal stranding season, not to mention the a busy summer in all the other departments. Three weeks later, the beluga died (see Carrie Goertz, DVM report for details).

Continued on next page.

ASLC cont...

After a week of catching our breath, the walrus rush began. Admitting our first walrus since 2007 quickly became admitting three walrus. Thanks to an amazing team at the North Slope Borough and the North Slope Veterinary Clinic and coordination with USFWS, we were able rescue three young



walrus and transport them back to Seward with transportation assistance by Northern Air Cargo and a Coast Guard C130. Unfortunately, we lost one walrus a few days in due to starvation, but the other two quickly became stars in our new I SEA U quarantine facility which allowed the public to come see the 24hr care involved with baby walrus, mainly a lot of cuddle time and cleaning. Once each was stabilized, we were at an advantage to put them together to allow company for each other. Teams from Sea World San Diego, Pittsburgh Zoo, Indianapolis Zoo, and The New York Aquarium all sent staff to assist in the care.

Three months later, they were transferred to the Indianapolis Zoo and The New York Aquarium, where once again the nation's press jumped at the cuteness of these guys, putting Alaska's marine mammals on the front pages. Rest time? I don't think so! One week to the hour of sending the walrus off, we received a call from Homer of a young sea otter pup in the road. After a heavy storm surge, a

young pup was separated from mom and was causing a traffic jam. The Homer Stranding Network jumped into action and did an incredible job doing an intense search along the spit for a mother otter screaming for its young. After a few hours of searching, the decision by USFWS was to transport it to Seward. Once again, we went into 24hr care and the I Sea U was transformed into a sea otter nursery. As of March, she is still currently at the Alaska SeaLife Center waiting permits to be approved to transfer her to an international facility. Throw in 30 rehab birds and that rounded off the year of live stranding



events. The ASLC Stranding and Veterinary team also assisted or preformed necropsies on a number of DOA marine mammals including a humpback whale, two belugas, and a number of sea otters. Once again, the Alaska SeaLife Center is incredibly appreciative to all the members of the stranding network and our agency partners. Stranding response becomes an easy logistical challenge when there is clear communications and the willingness to assist as we have in Alaska. The Alaska SeaLife Center is excited and eager to see what our case load is for 2013 and knows that the network will be an integral part of another successful year.

Ocean Genome Legacy Seeks Samples for its Marine Mammal Genome Archive

A variety of marine mammal tissue collections exist in the U.S. However, significant obstacles limit widespread scientific use of the materials including strict national and international regulations on the collection, use, transfer, and holding of marine mammal parts and DNA; inconsistencies in the quality, condition, and storage of specimens; and limitations of each program's mission-specific funding. Ocean Genome Legacy (OGL) is asking for your help in solving these problems.

To improve research access to materials from marine mammals suitable for molecular biology and genomic research, OGL has created the Marine Mammal Genome Archive (MMGA). MMGA samples are obtained from existing collections, new strandings, ongoing research projects, and byproducts of routine veterinary care. Genomic materials and data in the MMGA are available for use by the broader scientific community under appropriate permits and in compliance with all existing laws, rules and regulations. Holdings may be accessed online via the Ocean Genome Resource catalog (www.oqlf.org/catalog).

OGL utilizes the latest methods of gene and genome amplification to facilitate broad access to MMGA materials by providing accurate synthetic replicas of individual genes or complete genomes that contain no detectable material from the original specimen. They are accurate representations that are suitable for most types of molecular research, but are not subject to existing national and international regulations and so may be distributed and used for research without need for special permits. With respect to research use, these replicas are the legal equivalent of photos, sound recordings or digitized data. They are also more stable and resistant to decay, less expensive to store and maintain, and extend the usable quantity of materials by orders of magnitude.

OGR materials are distributed on a permanent loan basis in compliance with all local, national and international regulations and treaties under material transfer agreements that authorize non-commercial research only. OGL has loaned ~2,000 DNA samples to date and currently contributes data to public databases including the Encyclopedia of Life (EOL), the Ocean Biogeographic Information System (OBIS), the Barcode of Life Database (BOLD). As a member of the International Society of Biological and Environmental Repositories (<http://www.isber.org/>) and the Global Genomic Biodiversity Network (<http://www.gqbn.org>), OGL works to ensure that current best practices are maintained in collection, archival storage, and dissemination of biomaterials and associated data.



(Left) Multiple seal species are now represented in the OGR, thanks in part to samples collected as part of the routine veterinary care of stranded individuals (Photo credit: www.longbeachwhales.com.) (Center) Common dolphins from the eastern US are well-represented in the biorepository (Photo: www.animalspot.net). (Right) Minke whale was the first marine mammal represented in the OGR biorepository. (Photo credit: Mike Ball www.australiantraveller.com)

Genome Archive Cont...

Because OGL is a publicly funded nonprofit organization, OGL does not authorize, license, or obtain revenue from commercial use of materials in its collections. There is no charge for use of OGR materials, although in most cases fees are required to recover part of the costs of processing, storage and distribution of samples. OGL's mission is to facilitate research that can help improve scientific understanding and that can contribute to the successful protection and management of marine species and environments. By providing open-access to materials and data from existing collections, ensuring proper handling and long term storage of materials for genetic and genomic analyses, and creating off-site redundancy to improve the physical security of invaluable collections, OGL hopes to help preserve irreplaceable biodiversity that is rapidly disappearing from the wild oceans.

How can you become a part of this important effort? OGL relies on external scientists with unique taxonomic expertise to provide the majority of its holdings. We are asking you to join us as collaborators in building this important community resource by contributing samples from your own existing marine mammal collections and stranding network activities. For your convenience, Kaili Jackson, NOAA, will distribute collection materials provided by OGL at the annual 2013 Alaska Stranding Network Meeting. The OGR collection is still growing, so samples from all species and populations can be archived.

Donating samples is easy. Simply place small (quarter-sized) pieces of muscle, skin, brain, heart, or kidney tissue or a small volume of blood in the provided pre-labeled tubes or Whirl-Pak bags and add the provided nonflammable, nontoxic fixative,. For best results, please provide samples taken from live or fresh dead (code 2) animals. Samples in OGLFix™ may be stored and shipped at room temperature. You can request additional sampling kits by contacting Ocean Genome Legacy at

info@oglf.org (Attn: Biorepository), or by completing the on-line deposit inquiry form at <http://www.oglf.org/InquiryNew.htm>



We hope you will support the development of the Marine Mammal Genome Archive by depositing subsamples of materials collected under your NMFS permits into this special OGR collection!



For more information on this project, please contact Timery DeBoer, Biorepository Manager, deboer@oglf.org

(Top left) OGL laboratory building in Ipswich, MA. (Top right) Purified DNA extract cryopreserved t OGL. (Bottom left) Main laboratory at OGL. (Bottom right) Liquid nitrogen tanks for cryopreservation at OGL. All photo credits: OGL staff.

Sample Request: Humpback Blubber

We are interested in determining pregnancy status in humpback whales using hormone levels from blubber biopsies. We are requesting blubber samples from stranded humpback whales as a way to validate hormone levels for our study. We ask that stranding network response teams collect a cube of blubber and skin (approximately 1"x1"x1") from the dorsal surface (preferably near the dorsal fin). And note any information about the life history status of the animal (adult, calf, male, female, pregnant, not pregnant, etc.) Samples should be wrapped in aluminum foil and frozen. Contact Suzie Teerlink (s.teerlink@alaska.edu) to arrange transport of samples. We greatly appreciate you taking the time to add this to your sampling repertoire and help us gather important tissues to validate our study.



Suzie Teerlink
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Photos By: Kelli Burkinshaw

Case Study: Live Beluga Stranding and Rehabilitation

Carrie Goertz, MS, DVM
Staff Veterinarian
Alaska SeaLife Center

On June 18th, a two day old, male beluga calf stranded mid-afternoon in South Naknek, Bristol Bay after a night of heavy storms with pounding surf. Good Samaritans tried to return him to the water but he re-stranded. No adult whales were observed so arrangements were made to take him to ASLC via truck and air. He had two episodes of prolonged breath hold during transport but swam unsupported when put in the water. At admission, he was passing fetal feces, a fleshy umbilical remnant was present, and he had fetal folds, all of which implied that he was a very young neonate. He was approximately 100 pounds (45.5kg) and 144 cm long.



The calf was housed in a natural salt-water pool at ASLC with 24 hr care by experienced attendants and tube fed electrolytes and subsequently 'beluga formula' consisting of varying amounts of Zoologic Milk Matrix, salmon oil, and supplements. Medications included prophylactic antibiotics, gastric modifiers, and muscle relaxants. The calf was able to swim without assistance but had occasional periods of apparent abdominal discomfort attributed to delayed gastric emptying, constipation, and gas. Immune globulins were given in an effort to support suspected immune deficiency from lack of maternal transfer.

On Jul 8th, he appeared increasingly disoriented, vomited, and appeared to be experiencing an episode of delayed gastric emptying with mild increased respiratory effort. As we were attempting to relieve the buildup of undigested formula from his stomach with a stomach tube, he developed respiratory distress. Despite emergency therapy he succumbed about midnight.

On histopathological examination, multiple tissues from the baby beluga still appeared like fetal tissue, suggesting that not only was he premature when we picked him up but also he had not yet developmentally caught up at the time of his death three weeks later with what would be expected in a full term neonate. We all knew he had an uphill battle but it turns out to have been pretty steep. In retrospect, it's downright amazing that he lived for three weeks. It was thanks to the care provided by rehabilitation staff augmented with experienced beluga animal care experts from Georgia Aquarium, Shedd Aquarium, and SeaWorld, that not only he made it that long but almost more



importantly that we provided him with a good quality of life during that time. He often became quite playful with enrichment toys and staff in the pool, having varied vocalizations and behaviors associated with a 'happy' animal which still bring a smile to my face. It was also heartwarming to watch his swimming ability develop, not so different from watching a child learn to walk, starting with awkward head up movements when he came to the surface to breathe and slowly transforming into smoother arcs through the water. It will be an experience that I cherish forever.

Case Study: Juneau Humpback Entanglement

Kaili Jackson, NMFS

NMFS staff received a call on May 1, 2012 from a commercial pilot who reported seeing a humpback whale just south of Juneau towing an orange buoy during an overflight. A response was mounted by trained responders Kate Savage, John Moran and Kaili Jackson aboard a NOAA Office of Law Enforcement vessel.



Humpback cow and calf swim side by side while an orange buoy bobs along behind them.



Several photos were taken of the back and tail areas, but no gear was ever seen on the whale itself. It's attachment to the whale still remains a mystery, but fortunately, the lack of full body loops likely lended itself for this whale to shed the gear on its own, perhaps with the help of the added weight of the telemetry buoy.



The gear recovered with the drifting telemetry buoy- this medium, sized orange polyball, 320 feet of line and the broken bridle.

Initial assessment on the scene revealed that the entangled whale was a calf accompanied by its mother. The calf was towing a medium sized, orange polyball about 30 feet behind the animal, but no gear could be seen on the animal. Both whales appeared to be in good condition and did not seem hindered in anyway by the entanglement. Attempts to document the origin of the entanglement were made using an underwater pole cam and still photography gear but the details of the entanglement remained elusive. Without being able to confirm the source of the entanglement, the team opted not to attempt any disentanglement efforts that day. After considering the weather forecast, availability of trained responders and appropriate resources, the team decided to attach a telemetry buoy to the gear trailing the whale with the plan to begin efforts early the following day.

The following morning, the telemetry path suggested that the pair of whales had travelled approximately 50 nm over the night but had circled back to the area of the original sighting. While Savage and Jackson prepared the OLE vessel for a full days effort, Moran joined JJ Vollenweider in the Auke Bay Laboratories' research vessel to relocate the animal on the scene. Moran and Vollenweider were able to recover the telemetry buoy, orange buoy, and 320 feet of line, which were all discovered drifting free of the whale. A "bridle" was found at the end of the line, which is a simple two part setup used to connect to pot gear. It's unclear whether the pot was present at the time of the entanglement, picked up and towed by the whale before eventually breaking free or if only the line and buoy were part of the original entanglement. The crew suspected the former was the case and that the pot broke free possibly due to the addition of the telemetry buoy. In any case, the presence of the bridle in the retrieved gear suggests that no line or gear was still on the whale.

Using the numbers that were printed on the buoy, attempts were made to determine the origin of the gear and to obtain details such as date and location set, target species and date last tended. The gear owner said that he had not used the gear since 1999 and wasn't aware of it being borrowed or taken. A call to ADFG confirmed that the gear had last been registered in 1999. However, there was no growth on the gear, suggesting it was set recently and probably actively being fished. While the gear history may still remain a mystery, it's safe to say this calf is free of gear.

****Response and photography took place under permit number 932-1489-10.****

2013 To Date: Looking Forward

Kaili Jackson, NMFS

To date in 2013, we've had 5 events reported. Here is a brief review of what the network has reported to date.

Killer whale, Ketchikan

On January 10th, the spot for first stranding of the year was claimed by an adult, female killer whale that washed ashore near Ketchikan. A necropsy crew was rounded up and led by Dr. Stephen Raverty. Cause of death is yet to be determined but photo id confirmed this animal as resident whale, A11 (aka Yakat). Yakat belonged to the northern resident community of whales that frequented the waters of Vancouver Island and as far north as southeast Alaska. Mother of four, grandmother of seven and great-grandmother to five, Yakat was thought to have been born in 1958.



Steller sea lion, Hoonah

NMFS personnel received a report via the online reporting system on January 22nd that a seal had been observed floating in a bay near Salt Lake Bay. During follow up, photos revealed that the animal was actually a Steller sea lion that appeared relatively fresh. Unfortunately, the location of the floating animal was unknown and no resights were reported.

Steller sea lion, Tenakee

The following day network members from Tenakee reported a Steller sea lion carcass in Tenakee Inlet. The animal was examined for signs of human interaction or gear ingestion but was too far decomposed for a complete necropsy.

Steller sea lion, Sitka

On February 15th, a female, adult Steller sea lion washed ashore at the south end of the Sitka runway and was quickly discovered and collected by the wildlife crew. Necropsy was conducted by NMFS staff and volunteers. While no obvious cause of death was determined, necropsy revealed that the sea lion was pregnant fully developed fetus. The animal appeared thin and the stomach was empty.



Dalls porpoise, Angoon

On February 18th, a mass stranding of dalls porpoise was reported to NMFS. The report entailed of 5 dead dalls porpoise ashore, all within a half mile of each other. Response teams on the site and found most of the animals had been heavily scavenged upon but one was intact enough to be collected and necropsied. No apparent signs of trauma or cause of death were present. The team is considering the possibility of a self stranding event to avoid orca predation, but are working to rule out other HABS or etiologies for a mass stranding.

Announcements

Save the Date!

Alaska Marine Mammal Network Annual Meeting April 1st and 2nd

The Alaska SeaLife Center will be hosting the annual Alaska Stranding Network meeting this spring in Seward, AK. Please mark your calendars for April 1st /2nd and stay tuned for more information.

Pending Reports

Please send any outstanding level As, pictures and reports to Kaili.Jackson@noaa.gov.

Thanks for another successful year!

Congratulations, Aleria!

Please welcome our newest Stranding Network Member, Nayeli.



Please look for another AK Marine Mammal Stranding Network Newsletter in summer of 2013. Submissions, comments and suggestions welcome, please send to Kaili.Jackson@noaa.gov