2018 Sitka Steller Sea Lion Response: Hazing, Rescue, and Relocation

Photo courtesy Sitka Fire Department.

Kate Savage
Kim Raum-Suryan
National Marine Fisheries Service
Protected Resources Division
Juneau, Alaska

Executive Summary

On the morning of Friday, August 30, 2018 the National Marine Fisheries Service stranding team in Juneau was notified of a large, male Steller sea lion observed on the grass on the Southeast Alaska Regional Health Consortium campus in Sitka, Alaska, approximately 200 m from the shoreline. For four days, including Labor Day, attempts to get the animal back to the water evolved from simply allowing the animal time to relocate itself, to hazing, and finally to sedation and relocation using heavy equipment. The event was a synergy of complications and challenges involving animal behavior, human behavior, and the physical environment, but a successful resolution was possible through tremendous collaboration and cooperation by a variety of groups and individuals. It is unclear what prompted the stranding in the first place, and disease or health issues were a consideration. However, no evidence of ill health was apparent throughout the time the sea lion was on land, and he has subsequently been satellite tracked to a haulout >600 km away with no indication of restranding. This event provided important lessons learned that could be applied to future stranding events of this nature.

Acknowledgements

A sincere thanks to the following groups and individuals without whom a successful response would not have been possible.

For their participation:

Alaska Department of Fish and Game (ADFG)/ National Oceanic and Atmospheric Administration (NOAA) Steller Sea Lion Disentanglement Team (Kate Savage, Kim Raum-Suryan), NOAA Office of Law Enforcement (Robert Marvelle, Al Duncan, Tim Coffey, Ted Hasty); Sitka Marine Mammal Stranding Network Members (Jan Straley , Madison Kosma, Cheryl Barnes, Ellen Chenoweth, Lauren Wild, Jen Cedarleaf, Pat Swedden); Southeast Alaska Regional Health Consortium (SEARHC) Grounds Crew (Wyatt Ojala, Thomas Anderson) and SEARHC Security; Sitka Tribe of Alaska (Mike Miller); Pets Choice Veterinary Hospital (Victoria Vosburg); Sitka Fire Department (Chief Dave Miller, Craig Warren); Sitka Police Department (Mitchell Means, Jason Christner).

For their expertise:

Alaska Department of Fish and Game (ADF&G) Steller Sea Lion Program (Justin Jenniges, Lauri Jemison); NMFS Marine Mammal Stranding Program (Kim Raum-Suryan, Kate Savage); Alaska SeaLife Center (ASLC) (Brett Long, Carrie Goertz); Alaska Fisheries Science Center's Marine Mammal Laboratory (Tom Gelatt); NMFS Northern Fur Seal Program (Michael Williams).

Other Assistance:

Mt. Edgecumbe School District Superintendent (Janelle Vanasse); Mt. Edgecumbe High School (Michael Mahoney); US Coast Guard; Videography courtesy of M. Kosma.

I. History/Response

The first indication of an unusual live stranding event involving a Steller sea lion (SSL) in Sitka, Alaska, arrived through a hotline report received by the National Marine Fisheries Service (NMFS) Alaska Region's Marine Mammal Stranding Program the morning of Friday, August 31, 2018. The report had been phoned in at about 3:00 am by a Southeast Alaska Regional Health Consortium (SEARHC) security guard, who described a 1500 pound Steller sea lion on the SEARHC campus with foam around the mouth, breathing hard, but with no other sign of injury. This was followed by an email from NOAA Office of Law Enforcement (OLE) which included several still images of a large SSL caught in the beam of a flashlight or camera flash taken at 2:13am, as well as video footage of what was likely the same animal running down the road away from a moving truck sometime between 2:30 and 3:00 am (thus explaining the respiratory effort and foam of the initial report). Both the video footage and stills had been taken by SEARHC Medical Facility staff as they were departing the campus, uploaded to Facebook, and captured by NOAA OLE. The photographer of the still photos described the sea lion as "like a statue" on the grass next to a tree near a deserted building on the SEARHC campus, Pendon Hall (*above*) (See #2, Fig.1).

Photo courtesy V. Rothgeb

By 9:00 am, NOAA OLE officers in Sitka had responded to reports and located the animal in the bushes south of Pendon Hall *(right*) (see #3, Fig. 1). NOAA OLE cordoned off the area and after discussion with the NMFS Marine Mammal Stranding Program team in Juneau, decided to wait and see if the animal would return to the water with a possibility of hazing later in the afternoon.

Photo courtesy NOAA OLE.

Photo courtesy NOAA OLE.

Throughout the afternoon the SSL moved deeper into the woods to a more eastern location with buildings and a large school parking lot between the animal and the water (see #4, Fig 1). The decision was made to wait and see if the animal would move back to the water once the parking lot was cleared of school traffic. Instead, the animal moved back to the west and settled into the doorway of Pendon Hall where it remained overnight (*left*) (see #5, Fig. 1). By this time, word of the animal had spread and the SSL had become a public spectacle. On Friday night, Tongass Drive was full of hundreds of cars, dogs and people making noise, trying to get close to the animal, yelling at the animal, and taking "selfies" with the SSL in the background. Crowd control by NOAA OLE and the Sitka Police Department became a significant challenge.

On the morning of Saturday, September 1, 2018, the decision was made to haze the animal from the doorway of Pendon Hall to the waters of Sealing Cove, where it was thought to have first come ashore (see #1, Fig. 1). Members of Sitka's Stranding Network (SN) were called in to assist and members of the Alaska Department of Fish and Game (ADF&G) Sea Lion Program and the ADFG/NOAA SSL Disentanglement Team provided telephone expertise on SSL behavior and methods of hazing. The Sitka Fire Department used a firehose to haze the animal out of the doorway (*above*) and

Photo courtesy M. Kosma.

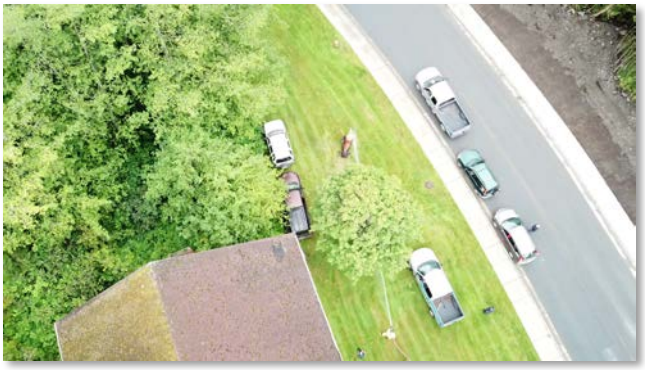

Photo courtesy M. Kosma.

a rolling corridor of vehicles kept the animal moving in the desired direction (*left*). The strategy proved effective until the SSL sped in front of one of the vehicles and veered back into the bushes where it remained through most of Sunday, September 2 (see #6, Fig 1). A similar strategy was attempted again with cars in place on Sunday but, due to the animal's location, involved noise measures rather than a fire hose as a hazing device. The animal did not respond. By Sunday afternoon, with the animal exhibiting signs of exhaustion and lethergy, it became apparent that sedating and relocating the animal with heavy equipment would be the best option as further hazing, especially with the animal in the woods, was not likely to be successful. Logistics of the plan commenced, including discussions with Alaska SeaLife Center (ASLC) staff on technical details of moving large sea lions; identification and collection of gear needed to dart and monitor the animal, collect samples, and place flipper tags; and garnering qualified support staff to assist with the relocation effort. The SEARHC donated a backhoe, a flatbed and ground crew/equipment operators; the United States Coast Guard donated a cargo net; and permission was granted by Mt. Edgecumbe School District for use of their boat ramp.

Photo courtesy NOAA OLE.

On the morning of Monday, September 3, ADF&G/NOAA SSL Disentanglement Team members Kate Savage and Kim Raum-Suryan and Juneau-based NOAA OLE officer Robert Marvelle flew to Sitka and assessed the feasibility of darting and relocating the SSL. On Sunday evening, the SSL had come out of the brush, crossed Tongass Drive, and moved to a location near short term parking (see #7, Fig.1). On Monday morning, Sitka-based NOAA OLE officer Al Duncan was able to track the animal to the middle of a thick stand of small alders adjacent to a large clearing (*right*) (see #8, Fig. 1).

A plan was formulated and team members were apprised of the plan and expectations, including an explanation of sampling and flipper tag placement once the animal was sedated (*right*). The Sitka SN members created herding boards, and brought 2" x 4" planks and a come-along for wedging and moving the animal, tarps, and noise making gear in case the animal required hazing.

Photo courtesy NMFS PRD.

Photo courtesy NMFS PRD.

Raum-Suryan, Savage, and Marvelle circled the animal and approached from the west. At 12:27 pm, Savage darted the animal in the left shoulder. At 12:44 pm the SSL was sufficiently sedated for the backhoe to begin clearing a path through the vegetation to the animal. The team was able to roll and hold the SSL until the backhoe bucket was in place and then roll the animal back into the bucket (*left*). Once the SSL was secure in the bucket, the backhoe transported the animal to the waiting flatbed truck, where it was gently rolled onto the cargo net lining the flatbed, monitored by Savage and Raum-Suryan, and watered down to stay cool (the animal's temperature was monitored while in the flatbed and remained stable at 101 – 101.3^{o} F) (*right*). The animal was transported on the flatbed truck to the Mt. Edgecumbe School boat ramp (see #9, Fig. 1). The cargo net was secured with large carabiners and the cargo net with the animal secured in it was gently lifted

Photo courtesy NMFS PRD.

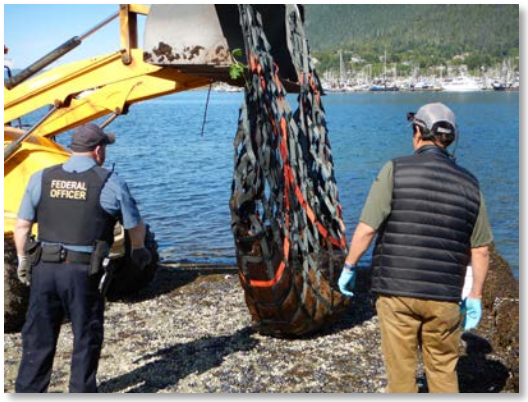

Photo courtesy NMFS PRD.

off the flatbed and placed on the ramp next to, and facing, the water (*left*), where it was then rolled to a sternal postion (*below)*. In this position and while the animal was still sedated, skin and whisker samples were collected, a white Allflex plastic flipper tag was placed along the caudal edge of the left flipper, the number 105 was applied to the left and right sides of the body with temporary hair dye for identification, and a SPOT-6 location-only satellite tag was attached to the right foreflipper to monitor post-release movements and survival (*right*). The reversal agents for the sedatives were administered on both sides of the lower neck at 1:45 pm and all responders then moved back up the ramp behind a line of vehicles serving as a blockade in case the animal moved up the ramp instead of into the water. At 2:04 pm, water was poured on the animal for cooling, after which the SSL lifted its head, moved into the water (*below*), promptly caught a fish, and swam away by 2:05 pm. The animal was subsequently satellite tracked to haulouts along the outer coast of Chichagof Island, south of Sitka, in late September, and to aaulout>1100 km away near Kodiak Island by October 26, 2018 (see Fig. 2), with no indication of restranding in the interim.


Photo courtesy NMFS PRD.


Photo courtesy NOAA OLE.

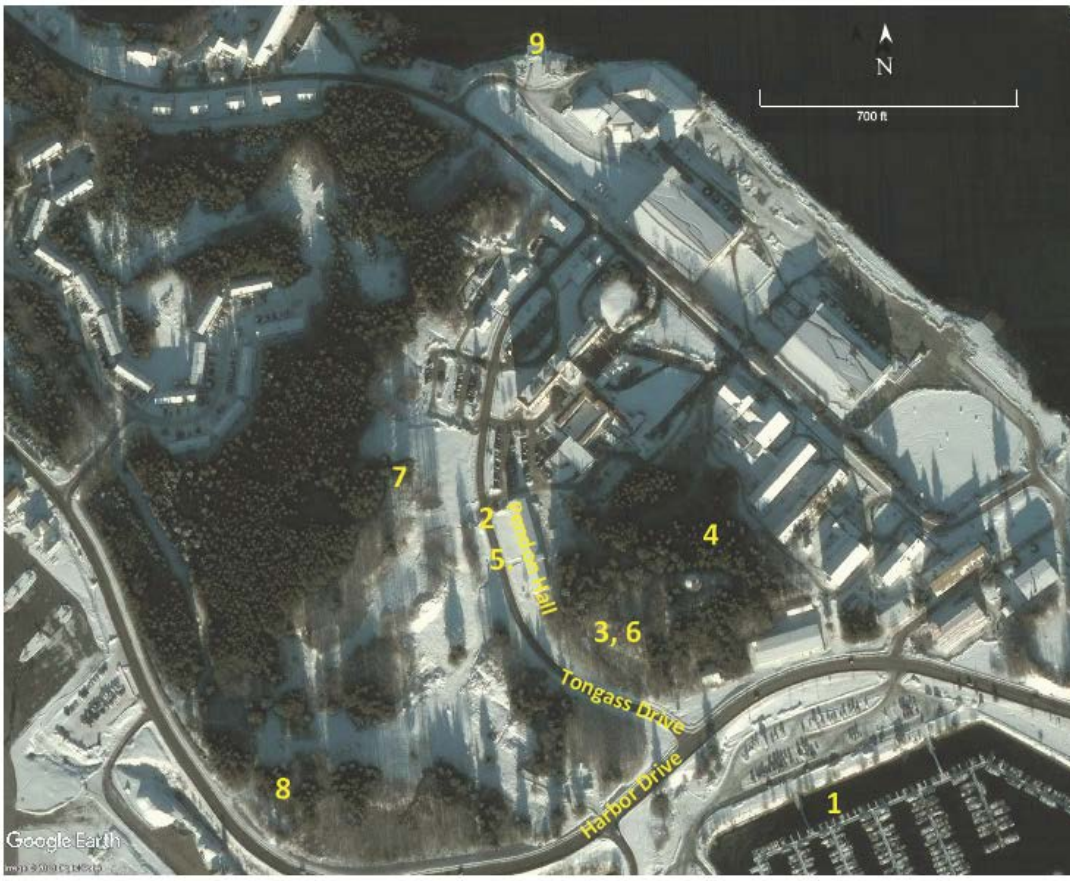

Figure 1. Locations of SSL movement on land and release site

1. Sealing Cove.
2. Location where the SSL was observed by a passerby at 2:13 am on Friday, August 31, 2018.
3. Thick brush where SSL hid Friday morning.
4. SSL moved to the east Friday afternoon.
5. SSL stayed in the doorway of Pendon Hall from Friday evening until it was hazed out mid-day on Saturday.
6. SSL moved ahead of the rolling corridor of vehicles and veered back into the bushes. It remained in the brush until Sunday.
7. Location of the SSL Sunday night.
8. Location of the SSL Monday morning, where it was sedated for relocation to the release site.
9. Ramp where the SSL was released on Monday September 3, 2018.

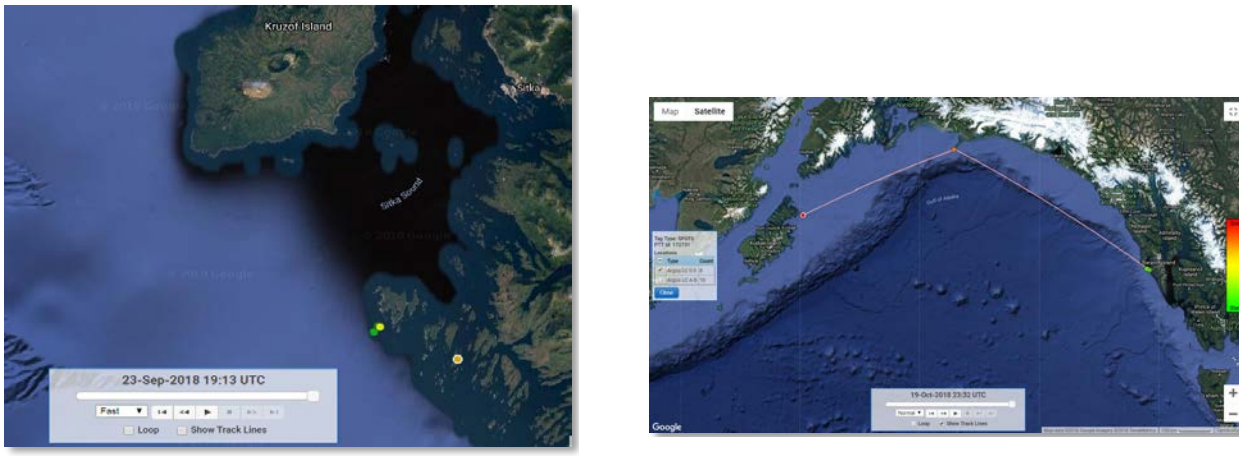

Figure 2. Locations of SSL satellite tag signals post-release, from the outer coast September 23, 2018 *(left*) to Kayak Island on October 11, 2018 and Marmot Island near Kodiak October 26, 2018 (*right*)

II. Evaluation of response and lessons learned

The response concluded successfully. The SSL was returned to the water efficiently, humanely, and safely. While the process was a synergy of complications and challenges involving animal behavior, human behavior, and the physical environment, the successful resolution was possible through tremendous collaboration and cooperation between a variety of groups and individuals. This event may provide important lessons applicable to future stranding events of this nature. With this in mind, participants provided their comments and suggestions which are included below.

Specific challenges, comments, and suggestions for improvement provided by team members, include:

1. **The reasons for stranding were unknown and lead to an element of uncertainty in response.**

   It was unclear why the animal moved to the location where it was first observed. Due to flattened vegetation in the vicinity, it was thought the SSL first moved on land from Sealing Cove (#1, Fig. 1). He likely crossed the very busy Harbor Drive, which serves the airport, the hospital and the USCG station, early Friday morning when traffic was at a minimum. Once across the road, it mainly sought cover in dense brush throughout the day, sticking its head out occasionally and then moving back into the brush. It was

suggested that the sea lion behaved like it did not want to cross the road, possibly because there was not a clear and quiet path to the water, and possibly as an aftermath of the animal running down the road away from a moving vehicle following it during the early hours of Friday morning. The SSL tended to be more mobile in the evening, perhaps because human activity in the area was less intense during that time.

There was also concern that the health of the animal was responsible for the stranding. The primary differential was domoic acid toxicity which, in California sea lions, has been associated with a chronic neurological manifestation that includes stranding in atypical locations (Goldstein et al. 2007[1]). Although no other neurologic symptoms of algal toxicity were apparent, the team was prepared to necropsy the animal and seek diagnostic imaging for pathological changes associated with domoic acid toxicity had it died. Other behaviors attributed to ill health may have been inherent to the species, age, and sex of the animal. At various times, the SSL was described as lethargic, with possible medical issues because it appeared to be "an animal with zero energy" refusing to move. However, these characteristics may have been indicative of normal behavior rather than ill health. According to Justin Jenniges, ADF&G Steller Sea Lion Program, "Moving these big guys can be incredibly rewarding, mostly because of how difficult it is. They are stubborn!" Mike Williams of NMFS's Northern Fur Seal Program also described how northern fur seal adult males will simply "not budge" and cited research that a "resolute, unyielding bearing" was found to be an essential behavior of adult male fur seal fighting success rather than the ability to inflict injury (Gentry 1998[2]). As a closely related species, this SSL may have also been displaying a "resolute, unyielding bearing" consistent with its species, age and sex.

[1] Goldstein, T. et al. 2007. Novel symptomatology and changing epidemiology of domoic acid toxicosis in California sea lions (*Zalophus californianus*): an increasing risk to marine mammal health. Proc. R. Soc. B Biol. Sci 275: 267–276.

[2] Gentry, R. L. 1998. Behavior and ecology of the Northern fur seal. Princeton University Press: Princeton, NJ.

2. **A massive animal stranded at a challenging time and in a challenging location.** The weight of the animal was estimated at between 1500 and 1700 lbs. Moving an animal of that size involves specialized expertise as well as the mobilization of resources not normally within the realm of the marine mammal stranding response program in Alaska. Alaska SeaLife Center staff with experience in moving large Steller sea lions provided suggestions, including the use of a cargo net, and necessary attention to maintaining open airways. The donation of flatbed, backhoe, and cargo net were essential, as were skilled operators and at least 8 people to maneuver the sedated animal into the bucket.

   Although the first notification of the SSL came on a Friday, a full day was dedicated to simply allowing the animal to get back to the water on its own, which meant that an active response started on the Saturday of a long holiday weekend. Implications included participants relinquishing their weekends, an increased difficulty in locating key support personnel such as experts in SSL hazing techniques, and the presence of many more uninvolved spectators than had the stranding response occurred during typical business hours. The weather over the weekend was sunny and dry. While the lack of rain was helpful in the response, it also may have attracted more bystanders to the scene.

   The location of the stranding was also difficult. Most of the time the animal was in thick brush, separated by the water from a very busy road. The difficulty was two-fold. The thick brush provided cover for the animal and possibly a sense of safety relative to crossing a road with frequent traffic in order to get to the safety of water. The brush also limited hazing techniques. Suggested and attempted hazing techniques relative to this event included:

   - *Establish a clear and quiet path, do not get between sea lion and the water.* The road, and frequently intense human presence or activity, precluded a clear and quiet path to the water.

- *Have agile people with herding boards gently herding.* It is likely that this tactic would not be effective when the animal was in thick vegetation. During the time the SSL was in the open, NOAA OLE was concerned for human safety and understandably did not want participants without SSL handling experience to approach the animal.

- *Use an air horn or high pitched metallic, screeching sounds, e.g. rubbing or scraping pots.* An air horn was used to no effect.

- *Use a power washer or fire hose, maybe two fire hoses at once*. The fire hose was effective in moving the animal when it was in the open, but not when it was in the brush. The suggestion also arose of pressure washing the animal into a horse trailer, which was not attempted.

- *Create rolling chute using box trucks.* This suggestion was also effective until the animal scurried around the lead car and returned to the brush. More cars and better instruction would have helped.

The brush could also have proved tremendously challenging in moving a sedated animal. Fortunately, the vegetation surrounding the animal when it was darted consisted of many young, thin and easily moveable alder trees. Had the vegetation not been moveable, suggestions for moving the animal through the vegetation included the use of a plastic sled with 4 wheeler, or possibly towing the animal with a strap under the flippers to the back of backhoe.

3. Communication between participants was often not clear.

Neither of the two main groups on Sitka Island (Sitka SN and NOAA OLE) that worked with the SSL had significant experience in pinniped behavior or hazing techniques. The expertise of the Sitka SN, which included both the University of Alaska and the Sitka Sound Science Center, was primarily focused on cetaceans. The primary consideration of NOAA OLE was public safety. Members of each group communicated at various times with the NMFS Marine Mammal Stranding Program

team in Juneau, ADF&G, and ASLC experts in SSL behavior and hazing techniques. Consequently, while each group communicated with each other, there was not a formal, designated lead or consistent communication. Comments and suggestions for improvement included:

- *Adopt an incident command system (ICS) for clear communication.* While the Sitka SN initially had the lead, the structure dissolved as more people arrived on scene. Both the Sitka SN and NOAA OLE were very appreciative of the other's presence and there was a definite spirit of collaboration, but neither group was familiar with the capabilities, experience, and gear of the other. An ICS system would allow for individual and group strengths to be optimally utilized and would improve communication and coordination. In the future, because the potential for the two groups to work closely always exists, introductions would be beneficial when a new NOAA OLE officer comes to town or a new member joins the Sitka SN.

- *Hold a group meeting early in the process to discuss roles and expectations. Meet each day to discuss plans.* During one of the hazing efforts, when the SSL was being moved via the rolling corridor of vehicles, there was no plan for what to do when the animal got to road, which was a substantial barrier to water access. More cars would have been helpful, with more room between them for SSL movement, and more comprehensive instructions to the drivers. On Monday, it was very helpful when the NMFS Marine Mammal Stranding Program staff gathered the group together prior to the action to explain what was expected to happen, especially with respect to activities on the ramp. The outcome was a smooth event with everyone pitching in.

- *Have good quality, functional, encryptable, hand held VHF radios on hand.* Communication was a problem during the hazing. Radios were either not in sync or died at a crucial moment.

4. The impacts of social media were mixed.

The SSL was first observed on Friday morning. The information spread quickly through social media and its presence was soon community knowledge. On Friday evening, as the animal postured in the doorway of Pendon Hall, OLE described a procession of "hundreds or cars, dogs and people" taking selfies, making noise, and getting close, even as the Sitka PD, SEARHC security, and NOAA OLE officers worked on crowd control. The attention prompted attempts to address the harassment, also via social media (Fig. 3). NOAA OLE had significant concerns about attempting to haze the animal while an audience was present and that the animal might charge someone, which would then necessitate lethal action having to be taken against the animal for public welfare.

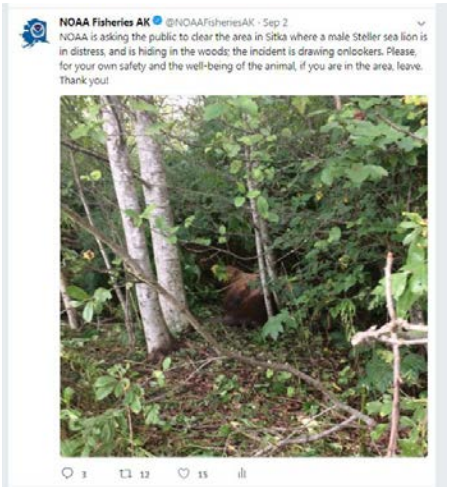

Figure 3. NMFS Twitter Posting

At the same time, it was also very apparent that the SSL had captured the interest and enthusiasm of the community. The public was widely invested in the event as well as the outcome, as evidenced by the newspaper ad (Fig. 4) and Facebook posting (Fig 5), and rejoiced when the animal was successfully returned to the water.

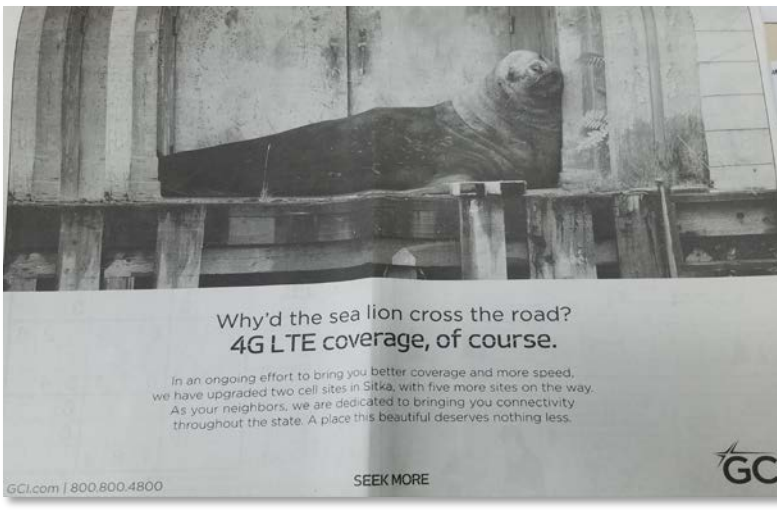

Fig. 4. Ad in the Sitka Sentinel, October 24, 2018

All I'm saying is I can't explain it but I felt personally invested in the well-being of that sea lion.
Like haven't you ever been 1500 pounds and shy
and all your feelings were lost
and you were high functioning but like also not making v good choices
but you know, doing pretty well all unnatural things considered
tryna go home but also not go home
tryna be a better version of yourself but also not do anything at all whatsoever
having no end game but stubborn af
I will not be moved! -internal mantra
flops around -external mantra
Anyway I heart that sea lion so bad.
And I also heart the many folks in Sitka who spent days helping him return to the water.
We all lose our way sometimes.
We all need community.

Christy NaMee Eriksen

Figure 5. Facebook posting, September 4, 2018

Comments and suggestions for improvement included:

- *Have official response participants wear vests or tee shirts to denote affiliation.* Many nonessential people were present that complicated the event. It would have been more efficient and safer to only allow authorized people in the area.

- *Plan the hazing during times when few people are in the vicinity.* Scheduling the hazing during early morning hours would have helped with crowd control and there would also be less traffic for a road crossing.

- *Use lots of social media messaging early.* There was a great deal of harassment to the SSL by members of the public, even with NOAA OLE working to minimize the harassment. While social messaging was used to communicate to the public (*left*), it

would have been better if the messaging had started earlier with a wider exposure. Social media, Sitka Chatter, local radio, etc., could have been a significant avenue for educating the public on animal behavior, the dangers to both the animal and humans as a result of the stranding and by humans or their pets getting near, and the need to stay away to allow for a safe response, for the responders and the animal. It would have also been helpful if signs had been posted.

- *Community messaging after the event would have been both good public relations and an opportunity for education.* The community response was overwhelmingly positive. Members of the public were very engaged in the event and wanting the best for the SSL. A public announcement describing the outcome and, later, that the animal was at a haulout south of Sitka would have been greatly appreciated.

5. Other comments.

- Even with the challenges listed above, response participants thought the event was handled with patience, intelligence, and professionalism.

- The two local groups (NOAA OLE and Sitka SN) listened to each other and were respectful. This courtesy was also extended to the Juneau team when they arrived on Monday.

- It was clearly beneficial having gear on hand and the Sitka SN did an amazing job getting the gear together quickly and efficiently. They also made sure enough people were available to help, which included a local veterinarian who helped to monitor the animal.

- NOAA OLE did an excellent job in preparing for Monday's efforts, including organizing the truck, backhoe, and operators, collecting the cargo net, and getting permission to use the ramp.

- Before the Juneau team arrived on Monday, both local groups did an excellent job monitoring the animal and relaying information to the NMFS Marine Mammal Stranding Program team in Juneau. It was also extremely helpful for NOAA OLE to track the animal on Monday morning after it moved during the night.

- It was all unchartered territory!

Photo courtesy NMFS PRD

Above: Response Participants on Monday, September 3, 2018, after the sea lion swam away. Back row, left to right: Mike Miller, Robert Marvelle, Ted Hasty, Al Duncan, Tim Coffey, Lauren Wild, Kate Savage, Jan Straley. Front row, left to right: Cheryl Barnes, Madison Kosma, Ellen Chenoweth, Kim Raum-Suryan.