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November 14, 2022

Dear Marine Resource Committee Members,

On behalf of the Pacific Marine Mammal Center, we are writing to present our experience regarding the negative impact gillnets have on marine animals off the California coast. Our organization is responsible for providing care for sick and injured wild marine mammals in Orange County, California and entanglement in 8" monofilament gillnet is the most common type of entanglement reported in our region. Our organization has seen the pain and suffering associated with these chronic entanglements and we appreciate the Marine Resource Committee's prioritization of this important issue. As a veterinarian for these animals I have taken an oath to alleviate suffering, which is that reason I am submitting written and oral comment regarding this issue in an attempt to prevent and end the suffering of our patients that these gillnets inflict.

Marine Mammal Fisheries Observers report incidents of fatal marine mammal bycatch entanglements associated with gillnet fishery, but marine mammals that manage to escape before drowning but still retain life threatening gear are not included in the impact assessment. The 8" monofilament mesh size of this fishery is just large enough for most pinniped species to get their head partially entrapped, most often getting stuck just behind the ears or around the neck. Unable to free themselves from this gear, the monofilament slowly cuts through the soft tissue of the neck muscles and into vital structures including the trachea, esophagus, blood vessel, nerves and even bone, eventually leading to infection, sepsis, pneumonia, starvation and death. We have documented cases of pinnipeds suffering from these gillnet entanglements for months to years prior death, highlighting the prolonged suffering sustained by these chronic life threatening injuries. Please see the patient cases presented in Appendix 1 showing just a small sample of some of the pinniped patients we have rescued, some of which we able to be treated and others died as a result of their chronic entanglements.

Rescuing these entangled pinnipeds is exceptionally challenging and expensive, costing thousands of dollars in labor, gas and boat time per rescue attempt. These interventions often require large teams of skilled rescuers with more than 20 people and 5 boats to safely deploy remote sedation via dart gun to facilitate capture of these large pinnipeds. There is significant oversight of these rescue operations from NOAA/NMFS that are responsible for assessing the risks and benefits of both animal and human safety when deploying these challenging and potentially life threatening rescue techniques. Attached (Appendix 2) is a document called an "In Action Report" that we submit to NOAA/NMFS to obtain evaluation and permission for remote sedation disentanglement rescue attempts and all remote sedation attempts are performed under NOAA/NMFS permits and oversight. The purpose of including this document is to highlight the labor intensive effort necessary to help these chronically entangled pinnipeds. Due to the inherent risk of a marine mammal drowning following

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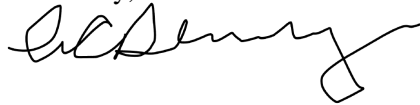
**Rachel Stanaland**, DVM

sedation administration, deployment of this rescue technique cannot be approved until the entanglement injury is deemed life threatening. This can necessitate prolonged monitoring periods of entangled pinnipeds, and when these injured pinnipeds frequent marinas or nearshore buoys draw significant attention and outcry from the public demanding something be done to help these animals with these very graphic and progressively worsening entanglements.

Pinnipeds are not the only marine mammals that have negative interactions with these 8" monofilament gillnets. Our team has recently assisted NOAA with disentanglement of a juvenile grey whale with monofilament gillnet entangled around the peduncle and flukes (tail region). The whale was severely emaciated and the compromised the flukes of the whale.

We commend the Marine Resource Committee for looking deeper into the bycatch impacts of these gillnet fisheries. The Pacific Marine Mammal Center is in full support of sustainable fisheries and recognize the challenges in sustaining the needs of commercial and recreational fisheries and their impact on marine life. We hope our statement encourages the committee to not only take into account the acute deaths of marine mammals that drown when they are entangled in these gillnets, but also the marine mammals that are successful at freeing themselves from the nets, only to suffer from the retained gear that slowly results in their prolonged suffering and death.

Sincerely,



Alissa C. Deming, DVM, MS, PhD  
Pacific Marine Mammal Center  
Vice President of Conservation Medicine

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**Appendix 1:** Examples of several cases of chronic gillnet entanglements in pinnipeds and a whale that have presented to the Pacific Marine Mammal Center. Details of each case are given below the photos.



Van Gogh was rescued by the Pacific Marine Mammal Center on April 2<sup>nd</sup>, 2019 from Huntington Beach. His gillnet entanglement was so severe that it cut off a portion of his ear.



Berry was rescued from Newport Beach in December of 2006. Along with his entanglement, he was also very malnourished. With the way that the gillnet was wrapped around his neck and face, he likely was unable to eat.



Loki was rescued in April of 2021. He was too large and alert to safely capture with a net, so he was remotely sedated and brought back to PMMC for treatment. This remote sedation required a team of about 25 people, with 5 boats in the water. His gillnet entanglement was so tight that it lacerated his esophagus and cut into his oral cavity, causing detachment of his tongue from his esophagus. He had to receive multiple surgeries in order to close the wounds and reattach his tongue to his esophagus. He was released a few months later, but will forever have the scars from his entanglement.





Bolt was first sighted in February 2021. He was reported for multiple months, but would only show up on the docks for a few days, then leave for multiple weeks. This made it very difficult to get a team together, as we would arrive to the docks and he would already be gone. Our team was able to remotely sedate and rescue him on July 24th, 2021. He had a severe gillnet entanglement injury and was malnourished- our team noticed him losing weight over the months of monitoring him. We were able to successfully remove the gillnet, but he later died while under anesthesia due to complications from pneumothorax.



“Stubby” is a sad example of what can happen if a gillnet is not able to be removed from a marine mammal. Stubby was sighted for over a year by our team in 2021-2022. Our remote sedation team met together multiple times to attempt to rescue this animal. On some occasions, our team would arrive, and Stubby would not be on the dock that he was often spotted on. Additionally, since the area that he hauled out on got crowded during the day time, it severely restricted our ability to safely remote sedate this animal. There were many occasions when this animal was reported, but could not be remotely sedated due to large crowds in the harbor causing a public safety concern. In August, our team received a call about a deceased sea lion floating in the Dana Point Harbor, with an entanglement that matched Stubby’s. Upon necropsy, our team found that the gillnet had gotten so tight around his head, that it cut through his skull and into his brain.



This animal, nicknamed “Peachie” by our team, has not been rescued by PMMC. She was first sighted in March of 2022. Rescue attempts have been made, however she is very alert and aware of our team, and jumps off the buoy as soon as a rescue team approaches.

**Appendix 2:** Examples of “In Action Report” outlining the planning and approval processes for remote sedation rescue attempts of pinnipeds that are chronically entangled in 8” monofilament gillnet. This plan highlights the massive effort required to attempt rescue of these large marine mammals. The case highlighted below was monitored for over a year, with three separate, unsuccessful rescue attempts. Later this animal was found deceased and necropsy findings confirmed death was the result of the monofilament entanglement cutting through the skull of the sea lion, resulting in his death.

# Dana Point 2022 Sea Lion Entanglement Rescue

## Event/Incident Action Plan



Operational Period

05/11/2022 to 09/01/2022



INCIDENT OBJECTIVES (ICS 202)	Incident Name	Date Prepared	Time Prepared
	Sea Lion Entanglement Rescue	05/10/2022	1400
Operational Period From To			
05/11/2022 0700		09/01/2022 0930	
General Control Objectives for the Incident (include Alternatives)			
<p>Human and animal safety will be the priority during sedation attempt. To ensure safety of the responders, the entangled animal, and members of the public, all local, state and federal safety guidelines will be followed, including travel and social distancing guidelines related to COVID-19.</p> <p>Safe deployment of remote darting sedation, rescue and disentanglement will be attempted while ensuring safety of all PMMC staff, volunteers, accompanying assistants and members of the public (see attachment below for detailed plan).</p>			
Weather Forecast for Operational Period			
<p>Weather will be monitored daily before the attempt is made. The operation will only be conducted in favorable weather conditions that account for the safety of both the personnel and the target animal. The "Go, No Go" of the operation will be determined by the Incident Commander, Operations Chief and Safety Officer.</p>			
General Safety Message			
<p>Follow all recommended safety precautions for the COVID-19 response as practical (restricting large group gatherings, face/hand protection and proper hygiene/sanitation measures).</p> <p>Follow established PMMC safety protocols for responding to on the water sea lion rescue. Wear weather appropriate clothing and PPE while in the field.</p> <p>Stay hydrated.</p>			
Attachments (check if attached)			
<input type="checkbox"/> Organization List (ICS 203) <input checked="" type="checkbox"/> Incident Map <input type="checkbox"/> Assignment List (ICS 204) <input checked="" type="checkbox"/> Coms Plan (ICS 205) <input type="checkbox"/> Medical Plan (ICS 206) <input checked="" type="checkbox"/> Coms List (ICS 205 A)			
Prepared by (Planning Section Chief)		Approved by (Incident Commander)	
Wendy Leeds		Dr. Alissa Deming	

# SAFETY MESSAGE

Incident Name	Sea Lion Entanglement Rescue	Date Prepared	Time Prepared
Operational Period	05/11/2022 0700 - 09/01/2022 0930	05/10/2022	1400
Major Hazard and Risks			
➤	Accidental injection with sedatives; animal bite; injury during rescue attempt		
➤	Exhaustion, fatigue, dehydration, lacerations, infectious disease		
➤	Weather and water exposure		
➤	Slips, falls, lifting injuries		
➤	Injuries from heavy equipment		
Narrative:			
<p>Please report all accidents to the Safety Officer. Follow all instruction given at pre-procedural meeting on what boat to be on, what role you will be participating in and be responsible for keeping yourself out of harm's way.</p> <p>Follow all local, state and federal restrictions for the COVID-19 response, including but not limited to required travel bans, group size limitations and PPE/sanitizing practices.</p> <p>Wear appropriate PPE for the job, including weather appropriate gear, i.e., sun screen. Field responders: protective gear, personal flotation devices.</p> <p>Look up, down, and around. Survey the scene and use caution.</p> <p>Lift with knees and have enough lifters.</p> <p>Stay hydrated.</p> <p>If you don't know, ask.</p> <p><b>Safety is everyone's responsibility, stay safe (see attachment below for detailed safety and medical emergency procedures).</b></p>			
Prepared By		Wendy Leeds	



<b>ORGANIZATION ASSIGNMENT LIST (ICS 203)</b>		<b>1. Incident Name</b>	<b>2. Date Prepared</b>	<b>3. Time Prepared</b>
		Entangled Sea Lion Rescue	05/04/2022	1400
<b>Position</b>	<b>Name</b>	<b>4. Operational Period</b>		
		<b>From</b>	<b>To</b>	
		05/05/2022 0700	09/01/2022 0930	
<b>5. Incident Commander and Staff</b>		<b>9. Operations Section</b>		
Unified Command	N/A	Chief	Wendy Leeds	
Incident Commander	Dr. Alissa Deming	Deputy	Dr. Alissa Deming	
Deputy	Wendy Leeds	<b>a. Animal Care Team</b>		
Safety Officer	Bill Lackey	<b>Group Name</b>	Capture Boat "Blue"	
Information Officer	Krysta Higuchi	Supervisor	Bill Lackey: Driver/Safety Officer	
Liaison Officer	Justin Viezbicke NOAA	Name/ Role	Mia Giunta: animal capture / vet assistant	
<b>6. Agency Representative</b>		Name/ Role	Lindsey VanSchoick: animal capture	
<b>Agency</b>	Pacific Marine Mammal Center	Name/ Role	Kelly Hawkins: animal capture	
		Name/ Role	Dr. Kaylee Brown: Veterinarian	
		<b>Group Name</b>	Sedation Boat/ Spotter Boat 2	
		Name/ Role	Dr. Alissa Deming/ marksman	
		Name/ Role	Steve Shook: Boat Driver	
<b>7. Planning Section</b>		Name / Role	Malena Berndt: vet assistant/animal handler	
Chief	Wendy Leeds	Name / Role		
Deputy	Bill Lackey	<b>Group Name</b>	Medical Boat / Harbor Patrol	
Resource Unit		Name / Role	Dr. Alissa Deming / marksman	
Situation Unit		Name / Role	Malena Berndt: Vet assistant / animal handler	
Documentation Unit	Wendy Leeds	Name / Role	Krysta Higuchi: PIO/ animal handler	
Demobilization Unit		Name / Role	Wendy Leeds: logistics/planning	
		<b>Group Name</b>	TOW: Spotter Boat 1	
<b>Specialty (Technical Specialists) Name</b>		Name / Role	Patty Morton: Boat Driver	
Orange County Sheriff Harbor Patrol Dana Point		Name / Role	Stra Stefanovic: drone operator	
		Name / Role	Scott Riedl: spotter (captain)	
		Name / Role	Dr. Elyse Wurster: Veterinarian	
<b>Note: Dr. Deming will be mobile during the operation and is listed on different boats, based on the needs of the incident</b>		Name / Role	Skylar: spotter	

8. Logistics Section		Group Name	Spotter Boat 3 / Strut Dinghy
Chief – Wendy Leeds		Name / Role	Scott Struthers
Deputy – Bill Lackey		Name / Role	Jay Pitt: spotter / whaler captain
a. Support Branch		Name / Role	Dan Baskin: spotter
Director	NA	Group Name	Land Observers
Supply Unit	NA	Name / Role	Christine Fontaine: land spotter
Facilities Unit	NA	Name / Role	Shawn Abbey: land spotter / animal handler
Ground Support Unit	NA	Name / Role	Emma Newcomb: land spotter
		Name / Role	Dena Hernandez: land spotter
b. Service Branch		Name / Role	Darren Purcell / Land Drone
Director	N/A		
Communications Unit	Bill Lackey		
Medical Unit	N/A		
Food Unit	N/A		
c. Staging/Base/Camp			
Staging 1	Dana Point Marina Harbor Patrol Parking lot		
Staging 2	N/A		
Staging 3	N/A		
Base	Pacific Marine Mammal Center: P Hunter (triage center)	IC Michele	
Camp	N/A	10. Finance Section	
			Michele Hunter

Medical Plan (ICS 206)	1. Incident Name		2. Date Prepared		3. Time Prepared		4. Operational Period			
	Entangle Sea Lion Rescue		05/04/2022				05/05/2022 0700		09/01/2022 0930	
5. Incident Medical Aid Stations										
Medical Aid Stations	Location				Phone		Paramedics			
							Yes No			
Harbor Patrol	25005 Dana Dr., Dana Point				(949) 248-2222		X			
6. Transportation										
a. Ambulance Services										
Name	Address				Phone		Paramedics			
							Yes No			
OCFA					911		x			
b. Incident Ambulances										
Name	Location						Paramedics			
							Yes No			
N/A	N/A									
7. Hospitals										
Name	Address	Travel Time		Phone	Helipad		Paramedics			
		Air	Ground		Yes	No	Yes	No		
Mission Hospital, Mission Viejo	27700 Medical Center Rd, Mission Viejo (Trauma Center)	n/a	30 mins	(949) 364-1400	X		X			
Mission Hospital, Laguna Beach	31872 Coast Hwy, Laguna Beach, (Basic Emergency Services)	n/a	30 mins	(949) 499-1311			X			
8. Medical Emergency Procedures										
Call 911 for all emergencies; be sure injured party is accompanied to hospital (see #10 and #12 in below attachment for detailed description of medical emergency contingency plans)										
9. Prepared by					10. Reviewed by (IC Officer)					
Bill Lackey (safety officer)					Dr. Alissa Deming					



**1. Criteria for determining an entanglement is a serious injury as outlined in the Serious Injury Protocol (meets SI criteria via photos/description or on-scene veterinary assessment or expert external veterinary/biologist consultation prior to disentanglement attempt).**

This adult male California sea lion (estimate 110kg-120kg; BCS=2/5) has a circumferential loop of monofilament gill net with trailing netting embedded just cranial to the ears/pinnae encircling the head caudal to the ramus of the mandible creating a deep laceration through the skin, blubber and muscle.

This entangled sea lion was first reported to PMMC in Dana Point Marina February 2022. Since then, the animal has been sighted periodically in Dana Point Marina, with him remaining in the marina for 2-4 days, then not observed for 7 days, then re-sighted for several days with progressively worsening embedded entanglement.

Over the past several weeks, the entanglement has progressed to a deep laceration and he appears to be losing weight. It is not possible to determine if the oropharynx, esophagus, trachea or larynx is impacted with the photos submitted by reporting parties, however based on the rapid progression of the wound, the trachea/larynx will likely become impacted soon, if not already involved. Veterinary evaluation concludes this is a life threatening entanglement and without intervention this animal will be unable to free itself and will slowly succumb to this injury.

Initial sedation attempt was made on April 29, 2022. Injection of the medication was successful but the animal only received a partial injection. Over one hour period, the animal was tracked and was observed swimming in a normally. Animal was not sedate enough for approach and rescue. Efforts that day were called off and animal has been re-sighted at Dana Point marina several time since attempt.

Herein we request approve for remote sedation deployment to expedite safe rescue of the entangled sea lion. If the best approach for delivery of sedative is via remote delivery of sedative via dart gun we will attempt remote sedation. If the sea lion is positioned in a way where pole syringe can safely and more effectively be deployed this will be the method for safe sedation delivery.

**2. Number of staff to be used at one time for remote sedation captures.**

**PMMC staff members (12, based on availability):**

Dr. Alissa Deming (Veterinarian, Marksman)  
Dr. Kaylee Brown (Veterinarian, Drug Handler)  
Wendy Leeds (Logistics / Planning / Documentation)  
Lindsey VanSchoick (Animal Handler)  
Mia Giunta (Animal Handler / Vet assistant)  
Christine Fontaine (Land Spotter)  
Krysta Higuchi (Information Officer, Animal Handler)  
Malena Berndt (Vet Assistant / Animal Handler)  
Shawn Abbey (Land Spotter / Animal Handler)  
Emma Newcomb (Land Spotter)  
Kelly Hawkins (Animal Handler)  
Elyse Wurster (Veterinarian, Drug Handler)

**PMMC Animal Care Volunteers and others/observers (13, based on availability):**

Bill Lackey (Capture Boat driver; Safety Officer / Drone operator / Animal Handler)  
Rachel Stanaland (Veterinarian, Drug Handler)  
Dena Hernandez (Land Spotter)  
Darren Purcell (Drone from Land)  
Patty Morton (Spotter Boat 1 - TOW: Captain)  
Stra Stefanovic (Drone operator)  
Skylar (Spotter on TOW)

Steve Shook (Sedation Boat / Spotter Boat 2: Captain)  
Daniel Baskin (Spotter /Drone)  
Jay Pitt (Whaler: Captain /  
Spotter)  
Brett Murphy (Spotter / Drone)  
Scott Riedl (Spotter / TOW driver)  
Scott Struthers (Spotter Boat 3: Strut Dinghy Captain)

### 3. Location of capture – off of docks, off of haul-outs, etc.

The entangled sea lion has been reported in Dana Point Marina (public marina in Dana Point, California) multiple times over the past 15 months. The sea lion is most consistently hauled out on Harbor Patrol Docks. On days we have a complete response team on standby, we will scout the docks at 730am for the animal as able. If the entangled animal is spotted, an assessment will be made if to determine if conditions are safe (weather, ocean conditions, how busy the harbor is, etc.) and we have the appropriate team available to deploy a remote sedation rescue team after notifying RSC that we would like to attempt a rescue. A go/ no-go will be determined following RCS approval and all safety criteria described below (#8) are met.

### 4. Capture boats, boat types, number of personnel per boat and roles of personnel, etc.

We will have a team on stand-by and we will either be scouting the docks for the entangled animal on days when we have a complete response team available or waiting for a report that the animal has been spotted by members of the public, and if conditions are safe (weather, ocean conditions, how busy the harbor is, etc) and we are able to deploy an appropriate rescue team available we will deploy after notifying RSC that we would like to attempt a rescue...etc.

Once the team arrives at the marina, the team will assemble at Harbor Patrol parking lot in Dana Point Marina for pre-procedure meeting, safety talk, and review roles. Teams will get into position on boats or in assigned areas on land and remote sedation will be attempted when human and boat traffic have been cleared from the area and deemed safe to deploy the dart.

Spotter boats, medical boat and Harbor Patrol boat will go to assigned positions inside the harbor as shown on map below. Prior to sedation, drone will be launched from spotter boat to track target animal if /when he retreats to the water following sedation deployment. All team members on all boats will act as spotters. Spotter Boat 2, (after transferring Dr. Deming & Malena Berndt to Medical Boat) will move into position by the bait barge.

Capture Boat "Blue" and Medical Boat will be in position where needed. If animal is on Harbor Patrol docks, Harbor Patrol boat (Medical boat) will remain in slip until after remote darting sedation is deployed and Dr. Alissa Deming will be transferred to Harbor Patrol boat to meet and receive animal from Capture Boat "Blue" once collected.

The sedation will be delivered from approximately 10-20 meters. We anticipate the animal will enter the water following remote sedation. The animal will be tracked via spotting boats, land spotters and drone from a distance as sedation takes effect.

Once appropriate sedation is reached, Capture boat "Blue" will approach animal. Hoop nets will be used to capture and bring the animal alongside capture boats. All boats will be prepared to recover the animal and have necessary reversals and emergency drugs. Reversal agents will be administered as needed. The target animal will be held in the hoop net and stretcher and Harbor Patrol boat will

come to capture boat to transfer the animal into a transport cage and safely transport back to Harbor Patrol docks administration of reversals and medications as needed. The target animal will be brought to PMMC for gear removal and wound care, or disentangled in the field and immediately released based on veterinary assessment of wounds and animal condition.

**Medical Boat (Harbor Patrol)**

Dr. Alissa Deming: Veterinarian; Marksman, Drug Handler  
Krysta Higuchi: PIO / Animal Handler  
Malena Berndt: Vet Assistant; Animal Handler  
Wendy Leeds: Logistics / Planning / Documentation

**Capture Boat "Blue" (soft hull large whale disentanglement boat)**

Bill Lackey: Boat Driver / Safety Officer / Drone  
Mia Giunta: Animal Handler / Vet Assistant  
Lindsey VanSchoick: Animal Handler  
Kelly Hawkins: Animal Handler  
Dr. Kaylee Brown: Veterinarian

**TOW: Spotter Boat 1**

Patty Morton: Boat driver  
Stra Stefanovic: Drone  
Dr. Elyse Wurster: Veterinarian  
Skylar: Spotter  
Brett Murphy: Spotter / Drone  
Scott Riedl: Spotter / TOW Captain  
Jay Pitt: Spotter / Whaler Captain

**Steve Shook / Sedation boat / Spotter Boat 2**

Steve Shook: Boat driver  
Dr. Alissa Deming: Veterinarian; marksman  
Malena Berndt: Vet assistant / Animal Handler

**Strut Dinghy/ Spotter Boat 3**

Scott Struthers: Boat driver  
Dan Baskin: Spotter / Drone

**5. Species, size and age class of pinnipeds that would be pole syringe sedated.**

California sea lion (*Zalophus californianus*), approximately 110-120kg, adult male, moderately underweight (BCS=2/5)

**6. Type and size of, dart delivery device (air-gun, crossbow, etc.), type and size of dart, including if sonic darts are available.**

We will attempt darting with a Dan-Inject dart gun, 3mL Dan-Inject syringes and 1-1.5' 16g collared needles (not barbed) will be used by PMMC veterinary team for injections of adult animals.

If animal is in a location more suitable for Pole Darting, A Dan-Inject pole syringe with a 6-8-foot extension pole will be utilized. The Dan-Inject pole syringe, 10cc syringe and 1" to 1.5" (as needed based on visual assessment) 16g needle (not barbed) has been used by PMMC veterinary team for injections of adult animals and is a safe and effective means of administering sedation.



All efforts will be made to ensure minimal disturbance and no incidental lethal takes of any marine mammals. The target animal has been accompanied on the floating dock by non-target sea lions. We anticipate that these companion sea lions will also flush into the water.

7. **Type, concentration, and dose of drugs and drug combinations to be administered via remote sedation attempt. Include procedures to minimize disturbance to other marine mammals in the area.** We will aim to inject the sea lion in the hind end region (gluteal muscles near tibia/femur hips). A shoulder injection will also be considered depending on positioning and approach. If a clear view of the entangled animal is not available or if sea lions are laying on, in front or behind the target shoulder, no attempt will be made. Spotters on all boats and drone observations will be used for monitoring any incidental injuries of non-target animals. If sedation is administered and animal is in water where it cannot be safely rescued or if there is concern in patient's condition, a Dan-Inject dart gun will be available to consider deployment of reversals remotely. If this situation occurs, Veterinarian or Wendy Leeds will contact NOAA RSC for review that deploying dart is safe and approved. If need for intervention of rescue of non-target animal arise, the RSC will be contacted for rescues approval and injured animal will be brought back to PMMC for treatment.

*Type, concentration, and dose of drugs to be administered via remote sedation attempt:*

DRUG	CONCENTRATION	DOSE	VOLUME	ROUTE
MIDAZOLAM	50mg/mL	0.2mg/kg	0.41mL	IM
BUTORPHANOL	50mg/mL	0.2mg/kg	0.48mL	IM
METETOMIDINE	40g/mL	0.02mg/kg	0.06mL	IM
Total volume=			1.02mL	IM

8. **Go/no-go protocols to minimize any risk of incidental injury or mortality to target and non-target animals, including sea state and environmental conditions (wind speed, air temperature) when capture attempts will not be conducted.**
- Weather and sea conditions will be monitored prior to and up to the day of event.
  - Capture attempts will not be conducted if winds are above 10 mph or in an unsuitable direction for the trajectory of the projectile.
  - If waves are too large or choppy to visualize the target animal in-water from a boat, no attempt will be made.
  - If too many sea lions are hauled out on the dock with the entangled animal and there is risk of hitting a non-target animal with dart, no attempt will be made.
  - If there are members of the public near, no attempt will be made.

9. **Type of personnel present at sedation captures – required to have at least one veterinarian or veterinary technician present for emergency medical treatment and administration of drugs:**

There will be 15 experienced animal handlers including (depending on availability):

- 1 veterinarian: Dr. Alissa Deming: previously remote sedated California sea lions in San Diego County and Orange County. Dr. Deming is proficient in operating the Dan-Inject pole syringe, Dan-Inject rifle, pinniped anesthesia and emergency medical care.
- 2 veterinarians: Dr. Kaylee Brown and Dr. Elyse Wurster: proficient in pinniped anesthesia and emergency medical care.
- 1 veterinarian volunteer: Dr. Rachel
- 2 veterinary assistants: Malena Berndt and Mia Giunta: proficient in pinniped anesthesia and emergency medical care emergencies
- 11 experienced animal handlers/spotters Krysta Higuchi, Shawn Abbey, Darren Purcell,
  - Wendy Leeds, Mia Giunta, Bill Lackey, Lindsey VanSchoick, Kelly Hawkins, Malena Berndt, Dina Hernandez, and Christine Fontaine: proficient in sea lion capture, restraint, and assisting with pinniped anesthesia
- 3 licensed drone operator: Bill Lackey, Stra Stefanovic, Darren Purcell
- 1 EMT/safety officer: Bill Lackey

**10. Emergency medical contingencies for sedation capture – reversal darting, emergency medications, equipment, euthanasia criteria, etc.**

Following delivery of sedation, the target animal will be tracked visually and followed while sedation goes into effect. Respiratory rate and character will be monitored. When patient appears sedated PMMC Capture boat, "Blue", will safely approach the animal and hoop net out of water into the boat or hold animal on side of boat ensuring head is above water. If too big or not sedated enough to land on Capture Boat, the Medical Boat (Harbor Patrol) will then come to the location of the Capture boat and the sea lion will be brought aboard for assessment and transport to Harbor Patrol docks. Plan will be adapted as needed depending on situational environment so that it is safest for people and the animal.

Veterinarian will assess condition by checking vitals and administer reversals when safe. Atipamezole will be given first to alleviate any bradycardia associated with Medetomidine; +/- Naltrexone reversal for Butorphanol; +/- Flumazenil reversal for Midazolam as needed for stabilization. If patient is stable, attempts may be made to remove the gear and evaluate the wound on site. As possible, entanglement will be removed and flipper tagged will be placed on both front flippers, and patient will be transported in crate via boat then truck back to the Pacific Marine Mammal Center for assessment and follow-up care as needed. Should veterinary assessment determine injuries associated with the entanglement or complications with rescue are too severe for remediation, it may be elected to humanely euthanize on-site.

**11. Mitigation and Response contingencies – evaluation of entanglement (vet or vet assistant), evaluation of sedation and ability to reverse sedation (including monitoring during, after sedation and release criteria post-sedation), ability to track the animal if it flushes into the water (sonic**

dart), ability to dart reversal if animal flushes into water, ability to recover carcass from water if flushes and drowns, ability to bring animal to rehabilitation if entanglement is too severe for in field removal, ability to euthanize on-site if most humane option and bring carcass back for necropsy and disposal, placement of gear with NMFS, etc. Include mitigation plan if injury to a non-target animal with the boat, net, etc.

- PMMC veterinarian, Dr. Alissa Deming and Dr. Kaylee Brown, have assessed the entanglement via photos, video provided by members of the public. The entanglement and resulting injury has been deemed life threatening by PMMC veterinarians and unlikely to be removed without intervention.
- On the day of remote sedation an infield assessment will be made to ensure the entanglement is still present and life threatening prior to and sedation attempt.
- If necessary and approved by NOAA RSC to deploy remote reversal medications in the event of an emergency, the dart will be labeled with "Hazardous contents – call (949) 494-3050"
- If the animal appears too sedated and there is concern for drowning and/or the animal is in a place that it is unable to be retrieved, approval from NOAA RSC will be obtained to attempt a remote reversal (Flumazenil, Atipamazole and Naltrexone) delivery via dart to try and prevent drowning.
- Reversals will be drawn up before sedation and available on all boats with veterinarians and veterinary assistants.
- The goal of this sedation is to sedate, capture and bring to rehabilitation hospital for treatment or disentangle in field if deemed acceptable by veterinary team.
- If the animal aspirates and drowns or dies for any reason, every effort will be made to safely retrieve the carcass and the carcass will be brought back to PMMC for necropsy.
- Should the injuries associated with the entanglement are deemed to be too severe by the onsite veterinarians, in-field euthanasia may be elected. The carcass will be brought back to PMMC for necropsy and disposal, and the entangled gear will be collected and submitted to NMFS.
- If a non-target animal is inadvertently injured or sedated, attempts will be dart the non-target animal with reversals for up to 1 hour with approval by NOAA RSC. If animal becomes sedate before then, it will be captured for assessment, reversal and brought to PMMC for monitoring.
- If non-target animal mortality occurs the carcass will be recovered and brought back to PMMC for necropsy.

**12. Emergency medical contingencies for human exposure to concentrated drugs from pinniped pole syringe sedation or injuries during captures.**

- A list of sedatives and sedative volumes (in ml) and amounts (in mg) will be provided to the EMT and the rescue coordinator before pole syringe sedation.
- All reversals will be drawn up prior to drawing up sedation. Each boat will have appropriate reversals on-board.
- If inadvertent human exposure to sedatives occurs, 911 will be notified and the EMT/Safety Officer (Bill Lackey) will deliver first aid as needed, and the Harbor Patrol boat will bring the exposed person and the EMT/Safety Officer to the dock.
- Orange County Fire Authority will be notified prior to the planned rescue event.



13. Provide detailed report after each sedation attempt documenting the drug effects (time to effect, time of effect, sedation depth, time to reversal, etc.).

A detailed report will be submitted after any sedation attempt that includes the drugs used, success/failure of deployment of sedation, time of delivery, time of effect, depth of sedation, and how the animal responded to delivery (i.e., retreated to water, stayed in place, etc.). In addition, time of reversals, response to reversals and monitor of vitals once animal is in hand will be reported.


14. Post-release monitoring – application of flipper tags, other markings (bleach), radio or satellite tags, follow-up photo-id or boat-based surveys:

The target animal and non-target animals that become inadvertently involved in the operation will be brought back to the PMMC hospital, where they will be monitored, rehabilitated, tagged and released following standard NOAA practices.

15. Provide copies of supporting documentation for additional local, state or federal permits needed in proposed geographic areas of work (ex: Special Use Permit from NPS or FWS). N/A

<b>1. Incident Name:</b> Entangled sea lion rescue		<b>2. Operational Period:</b> Date From: 5/11/2022 Date To: 09/01/2022 Time From: 0700 Time To: 0930	
<b>3. Basic Local Communications Information:</b>			
Incident Assigned Position	Name	Method(s) of Contact (phone, pager, cell, etc.)	
Vet / Marksman	Dr. Alissa Deming		
Vet Assistant / Animal Handler	Malena Berndt		
PIO / Spotter contact	Krysta Higuchi		
Logistics / Planning	Wendy Leeds		
Capture Boat "Blue" driver/safety	Bill Lackey		
Animal capture	Kelly Hawkins		
Animal capture	Lindsey VanSchoick		
Animal capture	Mia Giunta		
Vet / Drug Handler	Dr. Kaylee Brown		
Spotter Boat 3: driver	Scott Struthers		
Spotter Boat 1: spotter / captain	Scott Riedl		
Spotter Boat 1: driver	Patty Morton		
Spotter Boat 1: drone	Stra Stefanovic		
Spotter Boat 1: spotter	Skylar		
Spotter Boat 1: drone	Brett Murphy		
Whaler or on 1: spotter/	Jay Pitt		
Spotter Boat 1: Veterinarian	Elyse Wurster		
Spotter Boat 2: driver	Steve Shook		
Spotter Boat 3: spotter / drone	Dan Baskin		
Spotter from land 1	Christine Fontaine		
Spotter from land 2	Shawn Abbey		
Spotter from land 3	Emma Newcomb		
Spotter from land 4	Dena Hernandez		
Land Drone	Darren Purcell		
Liaison Officer	Justin Vierzicke		
<b>4. Prepared by:</b> Wendy Leeds  ICS 205A IAP Page	<b>Position/Title:</b>  Animal Care Coordinator	<b>Signature:</b>  <b>Date/Time:</b> 05/06/2022	

## INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

<b>1. Incident Name:</b> Entangled Sea Lion Rescue - Dana Point				<b>2. Date/Time Prepared:</b> Date: 5/04/22 Time: 1000				<b>3. Operational Period:</b> Date From: 5/5/22      Date To: 9/01/22 Time From: 0700      Time To: 0930			
<b>4. Basic Radio Channel Use:</b>											
Zone Grp.	Ch #	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N or W	RX Tone/NAC	TX Freq N or W	TX Tone/NAC	Mode (A, D, or M)	Remarks	
N/A	69	Marine Radios	N/A	Incident	N/A	N/A	N/A	N/A	N/A	Comms. for Darting, Tracking, Drones and Capture	
N/A	1-1	White Cobra	N/A	Land Spotters	N/A	N/A	N/A	N/A	N/A	Report animal movement and location	
N/A	16	Marine Radio	N/A	Incident	N/A	N/A	N/A	N/A	N/A	Emergency Channel	
N/A		Zello	N/A	Land Spotters	N/A	N/A	N/A	N/A	N/A	Back-up communications for land spotters	
<b>5. Special Instructions:</b> Marine radios will be main form of incident communication, channel 69 primary, channel 71 backup. White Cobra radios will be used by land spotters to report animal movement to group. Zello phone app used by land spotters as a back-up form on communication (Krysta Higuchi is Land Spotter coordinator)											
<b>6. Prepared by</b> (Communications Unit Leader) Name: <u>Lackey</u> Signature: 											
ICS 205			IAP Page _____			Date/Time: 5/4/22					