**Introduction**

Marine Mammal Rescue facilities can be called upon to respond to pinnipeds with life threatening entanglements and/or severe injuries in remote locations where traditional netting and capture methods are unrealistic and dangerous. In these situations, remote darting with chemical sedation can be an effective method for capture and examination, but carries risk of over dosing, drowning, and darting injuries. Also, due to the infrequency of these cases, hands-on training with sedation protocols and operation of remote darting rifles can be lacking at some facilities.

To address these concerns, a 3-day remote darting training event was lead by the National Oceanic and Atmospheric Administration (NOAA), from October 9 – October 11, 2018, veterinarians and marine mammal rescue personnel from SeaWorld San Diego, the Pacific Marine Mammal Center, the Marine Mammal Center in Los Angeles, Marine Animal Rescue, NDAA, and the Marine Mammal Center in Sausalito came together for both classroom and field training on the remote darting of pinnipeds in Newport Harbor.

**Objectives**

- Unite the California Marine Mammal Stranding Network to address the growing chronic life threatening entanglements of pinnipeds during a 3-day training event.
- Disentangle life threatening entanglements from pinnipeds in the harbors within Orange, Los Angeles, and San Diego counties.
- Have everyone return safely.
- Do no harm.

**Procedure**

October 9th: A classroom session lead by the Marine Mammal Center in Sausalito focused on sedation protocols for the various pinniped species with concentrated compounded drugs, best methods for darting, loading, and operating a Dan inject rifle, estimating animal weights, operation of the remote darting hydrophone and ping system, and ICS set up of responsibilities. The decision was made to focus on Newport Harbor on the first day due to 4 entangled California sea lions that had been observed repeatedly on an early reconnaissance trip and the high probability of re-sighting those animals. Roles of each participant were planned and an IAP was formed for the next day.

October 10th: 4 boats (a primary darting boat, a primary rescue boat, a primary recon and recovery of animal boat, and a media boat with drone operator), 2 transport vehicles, and 21 participants with all equipment rendezvoused at the Newport boat ramp. After launch, all teams met at the Newport Sherrifs, Harbor Patrol, and Coast Guard Dock. Recon trips were conducted throughout the harbor and out to the Newport can buoy, but no entangled animals were observed. All teams then rendezvoused out at the can buoy outside of Newport Harbor with the veterinarians on the darting boat doing health assessments on the animals and going through all of the procedures and motions of distance assessment and sighting the target animal. The afternoon was spent learning to use the acoustic dart and hydrophone system and locating them in the harbor. Also, observations were done on boats throughout the harbor looking for illegal seal deterrents such as nails and screws embedded in plastic and photographed pre NOAA.

October 11th: As there were no reports of entangled animals in the LA basin harbor, nor San Diego, the team decided to stay in Newport Harbor. The team gathered at Harbor Patrol and all boats were on the water searching for entangled animals. At approximately 11:00 am, the team received a call from PMMC in regards to an entangled adult California sea lion on one of the boats in the inner harbor. The animal was located and assessed, and plans were made ready to dart the animal who had multiple hooks and a flasher coming from a fishing line on the left side of his mouth. As plans were being made, the animal jumped back in the water and soon disappeared. The afternoon was spent, with the harbor master/sheets permission, target practicing with the Dan-ject rifle at varying distances and angles. At the end of the day, it was decided that operations would cease and that the 4th day of darting was cancelled. Demobilization was instituted and all organizations returned safely to their home organizations.

**Results**

Successful completion of the first Southern California pinniped disentanglement training with 5 organizations from the State of California and NDAA which convened and:

- Updated marine mammal rescue methodologies for consistency and interchange of personnel for all of California
- Updated procedures and technologies for the safety of animals and rescue personnel including:
  - Updating medical and operational procedures of remote darting including drug combinations with concentrated drugs and dosage for each pinniped species as well as the safe loading and operation of a Dan-ject rifle
  - Training and usage of the new acoustic dart and hydrophone pinging system and locating fired darts in the field
  - On the water experience including: estimating weights and distance training to the target animal, aiming with the Dan-ject rifle on a moving boat, and accessing go/no-go situations for firing the darts
- Strengthened relationships in Newport Harbor with the Sherrifs department, harbor patrol, and harbor masters
- Strengthened relationships with other organizations in California.

**Conclusions**

Even though no pinnipeds were disentangled during the two-day course of field training, it was a success because the training:

- Increased the knowledge and hands-on experience in a real world setting of all personnel involved
- Highlighted the need for the acoustic dart and hydrophone system to quickly locate pinnipeds after darting to prevent drowning
- Re-sighted an adult male California sea lion that SeaWorld had attempted to dart and capture the week before with nails embedded in his ventral chest: animal was alive with no nails present
- Increased PMMC’s presence in Newport Harbor and relationships with Harbor patrol which could open doors to discussions on current and future sea lion deterrents

Finally, all team members returned safely and no harm was done during training.

**Acknowledgements**

- Justin Vizebicke, Justin Greenman and NOAA
- Dr. Shawn Johnson and Dave Zahrner of the Marine Mammal Center in Sausalito
- Dr. Lauren Palmer of the Marine Mammal Care Center of LA
- SeaWorld in San Diego
- Marine Animal Rescue
- Keith Matassa, Wendy Leeds, Lindsey Van Schoick, and Krysta Higuchi of the Pacific Marine Mammal Center