

*Animal Training and Research,
International
&
SLEWTHS Project
Science, Learning, and Exploration
With the Help of Sea lions*

**END OF THE YEAR SUMMARY
2019**



Research

Sea Lion Maneuverability Study

Early 2016 1.3 of our sea lions participated in a pilot study to digitize and quantify sea lion maneuverability and physical characteristics working with Dr. Frank Fish of Westchester University. This work was submitted to the Office of Naval Research as a pilot study, requesting funding as part of a three year investigation. The grant was awarded in 2017 and research began seasonally in 2018.

In 2019, we continued to collect data using 1.2 California sea lions during three separate one-week periods, progressively refining and expanding the scope, training and equipment. The study initially consisted of passively recording the sea lions with video photography while they swam under trained control or free swim conditions. This helped create a digital database of sea lion locomotion focusing on steady, fore flipper driven forward motion, which sea lions use to generate the majority of thrust while swimming. However, it also included data on accelerating from rest, turning (sea lions are highly agile and maneuverable), and station holding (hovering). In 2019, indirect measurement of force production was calculated using the sea lions trained to swim through a sheet of microbubbles. The microbubbles were generated from a compressed air source that was forced into a finely porous hose laid along the bottom of the tank approximately 2m away from the side-wall. Animals were trained to swim over the hose so that the bubble sheet oriented along their dorso-ventral midline and the behavior and resultant bubble movement was captured with underwater and surface mounted cameras. The animals were also filmed turning under a plexiglass box to capture hind flipper control of lateral turns.

In a parallel investigation on terrestrial location, 3 (1.2) animals were also trained to walk through both wet and dry sand while their movements were recorded. Using zinc oxide, small dots were placed on certain parts of the sea lions' bodies to help digitize their movements. This data is to be used to compare phocid and otariid terrestrial location and efficiency.

When completed, this data, which will be the most extensive and highest quality in existence, will be used to develop models for hydrodynamic testing.

Publications, Presentations, Proposals and Permits (P⁴)

Publications

- Numerous overhauls and edits were made to the SOP manuals for the Encounters and regular laboratory operations.
- The staff as a whole wrote and published 2 volume of our *Inspiring Minds* Newsletter (2/19, 9/19) and Dr. Zeligs produced a 2017 end of year report.
- Dr. Zeligs began working on her second book: *Mindful Partners*

Presentations and conference participation

The project participated in a local Moss Landing Craft fair by offering paintings made by our sea lions.

Proposals and Permits

- Renewed our APHIS public display license.
- Renewed IACUC protocols #1009, 887

Education and Public Outreach

Sea Lion Stewards Environmental Education Program and Beach clean-up activities

SLEWTHS conducted 14 Sea Lion Stewards half-day programs for over 450 participants who collected over 50 lbs of garbage from our local beach in the process.

Sea Lion Encounters Public Outreach Program

Based on daily performance tallies, approximately 63,080 people attended performances of *Sea Lion Encounters* in 2019.

Sea Lion Encounters was featured at:

- Pima County, Arizona: April 18th-28th, 2019
- Oregon State Fair in Salem: August 23rd- September 2nd, 2019
- Arizona State Fair in Phoenix, Arizona: October 4th-27th, 2019

Tours for MLML, CSU, and other academic institutions

10 private tours and/or demonstrations were provided on-site by SLEWTHS.

- 1/13/19: Tour for Bree Wheeler's family (4 guests)
- 1/22/19: Tour for Kenneth Coale and 3 guests
- 4/7/19: Tour for Jana Martin's Family (2 guests)
- 5/14/19: Tour for David Lichman and guest
- 7/13/19: Tour for William Cochran and family
- 7/26/19: Tour for Haley Booth's family
- 7/26/19: Tour for Scott Lucas and son
- 8/20/19: MLML new student orientation, 19 people
- 9/12/19: Demonstration for Road Scholar program, 21 people
- 11/29/19: Sea lion experience for family of 5

In fall 2019, we implemented a new program called Sea Lion Experience where small groups of the public can pre-book a private experience/tour and a 45 minute demonstration with the sea lions.

Classes

-A total of 19 undergraduate students from all over the US attended 2 intensive immersion classes in marine mammalogy through CSUMB extended education department representing 4 different universities.

-16 students from around the world took the full 3-part Animal Training 101 online classes, and 2 students took part of the class. 3 students earned General Behavior Modification Certificates and 1 student also earned Live Animal Certification.

Workshops

- In June 2019, Ewa Rumistrzewicz and Warsaw University Life sciences in Poland partnered with Dr. Zeligs who gave a 3 day workshop titled *Mindful Communication: Advanced Targeting & Bridging!* Approximately 75 people attended the lectures at Warsaw University and 20 people attended a private workshop at the Warsaw Zoo.

Internships

- 19 day-long internships for class students were conducted
- 5 multi-day adult internships were also provided
- 2 seasonal internships were provided for the summer season
- 7 Jr. Internships were provided for aspiring future marine mammalogists
- 1 Certificate of Completion in Marine Mammalogy was earned for successfully completing both classes and a week-long internship.

Student projects

Rhiannon Russell, Joshua Garbarino, Alyssa Anderson – undergraduates did their Service Learning for CSUMB spring semester.

Enrique Gamez, Jasmine Gtierrez Sirnes, Grace Fairbourn, Danielle Lawrence- undergraduates did their Service Learning for CSUMB fall semester.

Cooper Baldrige (a reoccurring junior intern) created toys for the sea lions and assessed their preference for his school science fair.

Media

- Numerous interviews for local media were provided by SLEWTHS staff at each of our public outreach events.
- SLEWTHS staff created numerous Facebook and Instagram posts to promote ATR and SLEWTHS activities and programs.

Facilities

Projects

- Repaired leaks in the UV system

-Had to do extensive repairs due to electrical system problems for power coming into the back of the facility. Had to have the power re-wired from the street to our power pole. Resultant power issues caused electrical damage requiring extensive main facility pump repairs and fish kitchen power repairs.

- Replaced the water heater in the fair trailer

-Had to repair one of our sea lion transport trucks due to a break-in

Acquisitions

- Purchased a new fish kitchen fridge
- Bought new tires for the trailer
- made new signage for Sea Lion Encounters
- Got a new file cabinet for the office
- Started an Amazon wish list and received numerous items donated from variety of very generous SLEWTHS supporters!

Animals

Behaviors started but not completed this year are called *started*, behaviors started and completed this year are called *learned*, work in progress behaviors neither started nor completed this year are called *working on*, and behaviors started in a previous year and finished this year are called *finished*.

Nemo

- Working on Yes
- Working on throw/catch

Ariel

- Finished seal
- Finished Sail
- Finished drink
- Learned Walk
- Working on blood stick
- Working on ultrasound training
- Started Tongue

Cali

- Finished Wipe for Wildlife
- Finished 2nd person swim
- Working on Upset

Gaia

- Finished seat
- Finished 2nd person vet exam
- Finished shoulder target
- Finished compound landing training
- Working on Flexible

- Working on balance
- Working on gating
- Started put
- Started pc open mouth
- Started 2nd person Interactions
- Started side compound training
- Learned think
- Learned wave
- Learned PC front fippers

Freya

- Finished Rollover
- Finished Put
- Finished seat
- Finished 2nd person vet exam
- Finished shoulder
- Finished Compound landing training
- Learned Think
- Learned Wave
- Learned PC front flippers
- Working on gating
- Working on hold fish
- Working on balance
- Started flexible
- Started catch/throw
- Started PC open mouth
- Started side compound training

Spot

- Finished remote target
- Finished tactile
- Working on retrieve
- Working on land hold
- Working on 2nd person work
- Working on foot present
- Working on being toweled

Staff

10 new people were hired into *Managed Care (a new lower position with flexible commitments)*
(Kali Prescott, Caitlyn Swe, Danielle Kendrick, Rebecca Ragland, Aaron Williams, Haley Booth, Cody Roberts, Max Rudelic, Alicia Del Toro, Emily Urrutia)

7 people left the project after an average longevity of 3.3 years
(Kaitlyn Kirkland (2yrs), Elliot Singleton (0.6 yrs), Krista Yerena (1.6yrs), Melodie Lawicki (7.0yr), Rebecca Ragland (.5yr), Kerissa Eslick (4.8yr), Austin Raymond (6.3yr))

2 People became Animal Care
(Caitlyn Swe, Haley Booth)

2 people became *Senior Animal Care*
(Cheyenne McGregor, Kali Prescott)

2 people became *Assistant Trainers*
(Jessie Rodriguez, Kat Weinmeister, Cheyenne McGregor)

Bree Wheeler became an *Assistant Trainer level 2*

2 people became *Trainers*
(Taylor Ott, Bree Wheeler)

2 people received their *Multi-year Senior Trainer* anniversary Badges
(Austin Raymond-Sr. Trainer Level 3, Jana Martin- Sr. Trainer Level 2)

Paid contracts:

Single event contracts were given to Austin Raymond. Single event contracts were also given to Valerie Dong and Hermione Sanderson who we hired from outside. Melodie Lawicki had a seasonal contract. Michelle Jones continued in her role as Head Trainer.