

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

**END OF THE YEAR SUMMARY  
2007**

*Animal Training  
&  
Research International*



## Research

### Molting Dynamics:

Data collection continued throughout 2007 to study the molting patterns and dynamics of the California sea lion. Nancy Wenkel continued monthly sampling each of 4 adult animals: Beaver, Sake, Nemo, and Jonah, as well as collected the first full year of data on our youngest female, Cali. Having the data on Cali enables us to compare data on a wide range of ages (4 years old up to 29 years old). We look forward to collecting a second full year of data on Cali in order to fully analyze her molting cycle. Our second juvenile, Ariel, is still learning to tolerate the sampling but will take part in the study through the collection of qualitative data with the use of photographs. We will continue to photograph and collect shed hairs from a collection of 3 males and 3 females to continue observing the molting patterns and time periods in regards to age, season and body condition for years to come. Meanwhile, Heather Yeager, finishing off her senior capstone thesis, is continuing to finalize the initial 3yrs of data analysis for presentation in May 2008.

### Growth and Morphometrics:

With the addition two years ago of two new juvenile sea lions (Cali and Ariel) to our collection, we continue to add weekly data collection on weight and monthly length measurements for our on-going, long term morphometrics data collection. Coupled with data collected in past years on our juvenile male sea lions, these efforts comprise a long term study on growth dynamics in California sea lions, contrasting male and female development.

### Testing Electronic Barriers as a Deterrence Method with California sea lions:

In the fall, SLEWTHS was approached to collaborate on an investigation to test the effectiveness of underwater electronic barriers (DC current) to deter pinniped predation on endangered river spawning fish species (salmonid mainly). Overall, it is currently estimated that sea lions consume over 4 percent of the salmon at Bonneville Dam in the Columbia River on an annual basis. Seals were estimated to have consumed 1,161 adult salmonids in the Alsea River, Oregon in 2002, with an inferred consumption of 21% of the returning coho salmon (*O. kisutch*) in upriver locations. Adult male California sea lions were responsible for 98.4% of the observed depredations of hooked salmon in the 1997 to 1999 commercial and recreational fisheries in Monterey Bay, with an economic impact to commercial fisheries of about \$500,000.

Various harassment techniques have been deployed by government agencies in efforts to deter fish predation by marine mammals in the Pacific Northwest. Such programs have been time consuming and expensive to implement. Although salmon runs have declined for various reasons over time, predation by marine mammals may affect the ability of fishery managers to recover listed salmon and steelhead runs. These difficult conservation issues have led NOAA to approve site-specific management authorities to allow *lethal* pinniped removals where necessary. New and alternative technologies must be researched to help reduce the pressure to use lethal methods of deterrence and supplement lethal deterrence methods.

Underwater electric barriers are non-lethal deterrent devices that show great promise in excluding marine mammals from established fish predation areas, and in blocking the upstream movements of pinnipeds that follow Pacific salmon runs in search of prey. Electric barriers have been safely used for decades to restrict the movements of animals and fish, and to control invasive species.

In 2007, SLEWTHS developed a collaboration with the leading electronic barrier company in the country, Smith-Root, Inc to evaluate the use of electronic barriers to deter California sea lions with and without food present. In November Dr. Zeligs-Hurley traveled to Oregon to meet with the investigators at Smith-Root and began designing and planning laboratory testing on SLEWTHS animals. This investigation will require a custom facility for the research and new permitting from NMFS and IACUC. We anticipate conducting the laboratory phase of this investigation in mid 2008 and pending the results, continuing to be involved on a consulting basis for field trials the following year. SLEWTHS is proud to be involved with helping to solve such an important conservation issue for both pinnipeds and endangered fishes.

## **Publications, Presentations, Proposals and Permits (P<sup>4</sup>)**

### Publications

- The staff as a whole wrote and published two volumes of our *Inspiring Minds* Newsletter (5/07 and 11/07).
- The final formatting, page fittings and photographic enhancements were completed on alumni, Jackie Rifkin's children's book based on the life of our sea lion Sake, entitled "The Fabulous Life of Sake the Sea Lion" and we published the book in Dec!!!

### Presentations and conference participation

- Dr. Zeligs-Hurley coauthored a presentation with Dave Lichman "Bridge and Target Training, How to Use Positive Reinforcement to Motivate Your Horse to Learn" on Feb 1 at the Pomona Horse Expo.
- Dr. Zeligs-Hurley and Allison Reesh attended the 7<sup>th</sup> annual Animal Behavior Management Alliance meeting January 14- 20
  - Dr. Zeligs-Hurley presented a formal paper at the meeting entitled "(Unusual) Conditioned stimuli as tools for enhanced communication resulting in increased reinforcement opportunities"

### Proposals

- SLEWTHS prepared a joint proposal to the Bonneville Power Administration to fund research to deter pinnipeds from salmonid spawning area. The proposal is pending as of the close of the year 2007.

### Permits

- Renewed our APHIS public display license.
- Renewed IACUC protocols #863, 887, 783
- Submitted new IACUC permit proposal for electronic barrier research and approval is pending for 2008

-Submitted a modification and extension to NMFS permit # 1021-1658 -00 to include electronic barrier research and approval is pending for 2008.

## **Education and Public Outreach**

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

Conducted 17 Sea Lion Stewards half-day programs for over 522 participants who collected over 322 lbs of garbage from our local beach in the process.

### Sea Lion Encounters Public Outreach Program

Based on daily performance tallies an estimated 16,480 people attended 29 performances of *Sea Lion Encounters* in 2007.

*Sea Lion Encounters* was featured at

- The California Speedway Fontana, California February 23-25
- The Marin County Fair, June 30- July 4
- The Santa Clara County Fair, August 1-5
- The California Speedway Fontana, California August 31-September 2

### Tours for MLML, CSU, and other academic institutions

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

- 3/18/07 Coastal Living Reporter and Husband
- 4/3/07 K. Coale and new SJSU Staff tour
- 4/3/07 K. Coale and Friends of MLML Director Candidate tour
- 5/31/07 J. Douglas and S.J. safety people tour
- 7/13/07 Fish and Game tour
- 8/7/08 K. Coale new MLML Staff tour
- 8/22/07 MLML New Student tour
- 10/11/07 M. Martin tour
- 10/11/07 Provided a half day tour and elaborate training demonstration for Moorpark college's Exotic Animal Training and Management Program's class of 07.
- 11/19/07 MLML Staff tour for Pilar and Gege
- 12/11/07 K. Coale tour

### Classes

-A total of 28 undergraduate students from the US and Canada attended 2 intensive immersion classes in marine mammalogy through CSUMB extended education department

## Internships

- 44 adult internships were conducted
- 13 Jr. Internships were provided for aspiring future marine mammalogists
- 8 Certificates of Completion in Marine Mammalogy were earned by people who successfully completed both classes and a week-long internship.

## Student projects

- IA, SC, CEN, ANL, and HY all performed service learning work with the project
- Heather Yeager finished analysis of data collection for her CSUMB capstone thesis on molting dynamics in California sea lions and will be presenting her thesis next May.
- Nancy Wenkel took over molting research from Heather Yeager to continue the project for another year with the addition of two new baby sea lions in the data collection.
- Siobhan Crosby completed and presented her capstone thesis entitled “A promotional video for the Sea lion Stewards Program”
- Coll Perske began working on designing and testing his capstone research to investigate the eye-sight of our aged, semi-blind sea lion, Beaver. Data collection will begin in 2008.

## Media

- Four episodes of the BBC series “Wild on the West Coast” featuring Stefani Skrovan and our sea lions aired in the UK in Feb and March.
- Allison Reesh did an interview about our Sea Lion Stewards Environmental Outreach Program that aired locally on Santa Cruz TV on 5/14/07 and is available on the internet: <http://www.communitytv.org/programs/online/community-express-5-14-07-pt-2>
- Dr. Jenifer Zeligs-Hurley was honored to be featured in a Coastal Living Magazine biographical article in the September 07 issue. The photo and article occupied the complete last page of the magazine.
- The New Yorker Magazine came to shoot a photo of world record extreme swimmer Lynne Cox with Sake. The photo and article will be published in 2008.

## **Consulting and Contract Work**

- In June ATR was hired to shoot an episode of the Disney channel’s show “Cory in the House”. The episode entitled “The Presidential Seal” aired on Nov 17<sup>th</sup>.
- Dr. Zeligs-Hurley was hired as the marine mammal consultant for Smith-Root, Inc.

## Facilities

### Projects

- Cleaned, primed, painted and trimmed both the staff trailer and the fish kitchen.
- Installed new decorative lattice to the staff trailer skirting.
- Applied new grip strips to FK stairs.

### Acquisitions

- Purchased a replacement pool for T3
- Designed and purchased permanent aluminum facility signs for our exterior entrance at Norte.
- Researched and designed a custom 34ft towable sea lion encounters trailer. Financed, insured it, and purchased it, then painted and customized the exterior with quick snaps and cleats for tarps and signs. We installed a fish kitchen with sink, bucket racks, plumbing, new floor, water proof walls, cabinets and a freezer. We also developed and installed a built in filter and pump hook ups for the water system and added shelves and racks within the trailer cargo area. Phew....
- Financed and purchased a 2004 Chevy Silverado dually to tow the above trailer, added custom engine and brake modifications for towing.
- Designed new differences between sea lion and seal signage for encounters, redesigned many older signs and purchased a complete new set for encounters and stewards as well as a transport bag for them.
- Purchased new light weight aluminum barricades and all new aluminum stages and stage carts!!!!
- JZH donated a new stereo to the fish kitchen
- Purchased 3 new printers and a new digital camera and camera cards.

## 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*.

### Beaver

Beaver is in retirement where maintaining medical and husbandry behaviors are his primary objectives (and happiness)

- Started eye research
- Working on tooth brushing
- Learned X-ray desense
- Working on look

### Sake

- Working on yes
- Working on breast stroke swim
- Working on down spin
- Working on slowly concept
- Working on walk
- Learned tooth injections and mouth x-rays

### Nemo

In March we successfully anesthetized Nemo and removed a necrotic bone fragment from his jaw.

- Working on balance handstand
- Working on water work
- Working on not
- Finished seal
- Finished tuck up
- Finished throw
- Finished tongue

### Jonah

- Working on spin-jump
- Working on balance handstand
- Working on not
- Working on Sea Lion Encounters Performance
- Working on transport training
- Working on tongue
- Working on water work
- Finished seal

### Cali

- Started clap
- Started look
- Working on pillar
- Working on harness
- Working on diving
- Working on handstand
- Working on porpoise
- Working on stomach tubing
- Working on blood stick desense
- Working on multiple animal work

- Working on tooth brushing
- Working on balance
- Learned truck
- Learned 2<sup>nd</sup> person vet
- Learned shoulder targets
- Learned head targets

- Finished seat
- Finished throw
- Finished molting research
- Finished wave

### Ariel

- Started look
- Started think
- Started flip
- Started lengths research
- Working on diving
- Working on water spirals
- Working on molting research
- Working on compound

- Working on Sea Lion Stewards performance
- Learned dance
- Learned left tumble
- Finished backup
- Finished heeling
- Finished left wave
- Finished put

### Fluffy

- Started retrieval
- Started “Coo”
- Working on wing lift
- Working on foot hold
- Working on hold

### Smitty

- Started line-up to fence
- Started “butt” target
- Working on Stand
- Working on bow
- Working on podium work
- Working on level 2 riding
- Working on bit training
- Working on Spanish Walk

## **Staff**

5 new people were hired into *Animal Care*

(Ryan Thompson, Nicole March, Brandi Dolph, Jessica Arvidson, Rachel Daggett)

4 people left the project after an average longevity of 2.5 years

(Anna Hild (1.0yr), Jamie Mullins (5.25yrs), Jenny Pimentel (1.25yr), Isis (2.5yr))

4 people became *Senior Animal Care*

(Sophie Darling, Shelby Peters, Ryan Thompson, Nicole March)

4 people became *Assistant Trainers*

(Chantel Todd, Allison Limbaugh, Sophie Darling, Shelby Peters)

0 people became *Trainers*

1 person became *Senior Trainer*

(Nancy Wenkel)

2 people received their *Multi-year Senior Trainer* anniversary Badges

(Heather Yeager, Gina Paolini)

Gina was hired in a full time temporary position Feb- Oct.