

Ocean Chronicles

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Summer 2003



**Alaska
SeaLife
Center®**

windows to the sea

EDUCATION

New programs from ASLC

The Director's Perspective

As summer ends, thoughts and activities turn towards the start of the school year. At the Center, as the hectic summer season passes, the researchers come in from the field to begin compiling and analyzing the data they collected, the rehabilitated animals that received care return to the wild or new homes, we turn our attention to offering education programs to K-12 students.

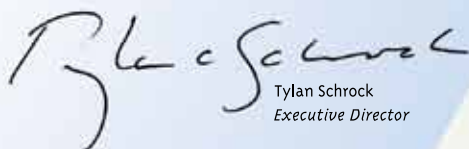
All of our education programs that are offered at the Center and offsite conform to State of Alaska science curriculum standards. Students have an opportunity to learn about science in a fun, hands-on way. We have greatly expanded our outreach program and I encourage you to read about our education opportunities in the Ocean Chronicles.

Please contact our education department at education@alaskasealife.org or check out our website at www.alaskasealife.org to learn more about the exciting SeaLife Center educational opportunities.

In other summer activities, the Rescue and Rehabilitation Program had one of our most exciting summers ever, caring for our first-ever walrus calf, two baby sea otters at the same time, plus several harbor and ringed seals that came from all over the state.

Our Bering Sea exhibit, which debuted in March, attracted a lot of attention from visitors as they learned more about the Bering Sea. Our resident birds, sea lions, harbor seals and critters in our aquarium tanks also attracted their share of visitors. Since all of our animals are species found in Alaska's frigid marine waters, a visit to the Center provides a unique opportunity to observe animals that few people ever get to see.

On September 2, our hours changed to 9 am to 6 pm. We are open daily year round and we encourage you to come down and visit the Center. You can enjoy our exhibits and displays with fewer crowds. Remember, when you visit the Center, stop in our Discovery Gift Shop where you will find wonderful gifts and educational materials and you will be helping us further the Alaska SeaLife Center mission.


Tylan Schrock
Executive Director

About the ASLC: The Alaska SeaLife Center is a marine science facility that combines a research mission with an animal rescue and rehabilitation program and public education. The Center incorporates exhibits that immerse the visitor in the marine ecosystems of Alaska and provide opportunities to watch animals in naturalistic habitats and research settings.



Photo by Clark James Mishler

Current Events at the Alaska SeaLife Center

PACIFIC COMMON EIDER The Center currently houses eight juvenile Pacific Common Eiders. The recently hatched ducks, nicknamed Sunny, Brant, Yukon, Delta, June, July, Summer, and Solstice, now weigh about 1700 grams each. Once the ducks reach maturity, they will participate in a study that will evaluate the accuracy and long term physiological effects of a new generation of transmitters. After the one year study is over, plans will be made for the Pacific Common Eiders to participate in further behavioral and physiological research with the resident Steller's and Spectacled Eiders.



COMPARE YOUR WEIGHT A new exhibit has been added to our Underwater Viewing area. Visitors can pile onto the 'How do you compare' scale to find out how many people it takes to equal the various weights of our resident animals. Make room on the scale for the whole family to equal the weight of Woody, the Center's resident male Steller sea lion, who currently weighs about 1,300 pounds.

MEMBERSHIP APPRECIATION DAYS The ASLC will host its 5th annual Membership Appreciation event October 4 & 5 at the Center from 10 am - 5 pm. SeaLife Society members can participate in numerous member-only activities such as assisting with feeding the Center's small animals and special Behind-the-Scenes tours. Crafts, special presentations and local vendors will add to the festivities.



Photo by Clark James Mishler

Feature Creature

Atka Mackerel (*Pleurogrammus monopterygius*)
The ASLC's Atka mackerel performed a second round of spawning in early July, on schedule with the normal timing of these Aleutian fish. The male mackerel, distinguished from the duller females with their yellow tones on a greenish-gray background, frantically attempt to attract females to the nesting site. In the wild, the bright green eggs are laid in a cluster in a rock crevice and hatch in about two and a half months. The mackerel larvae then drift in surface water and feed on plankton.

New at the Discovery Gift Shop

Beach Explorations: A Curriculum for Grades 5-10 is an easy-to-use and lavishly illustrated curriculum that enables any teacher — novice to expert — to help students understand basic seashore relationships. Includes a set of 86 Pacific Coast Information Cards. \$26.95
To order call 1-800-224-2525
or visit our website at www.alaskasealife.org



Photo by Clark James Mishler



Photo by Clark James Mishler




DISCOVERY EDUCATION

Students of all ages can gain a deeper understanding of science at the Alaska SeaLife Center!

The Alaska SeaLife Center's (ASLC) Discovery Education Department has loads of exciting onsite and outreach programs for educators and their students! Developed in accordance with Alaska's Math/Science Framework and the National Science Education Standards, our programs connect your classroom activities with hands-on, below-the-surface adventures in a world class research and rehabilitation facility.


There are three options for participating in our educational programs:

① DAY VISITS

The SeaLife Center staff will greet your group with an orientation and start you and the students on a self-guided tour of the facility. Check our website, www.alaskasealife.org, to download our exhibit-based scavenger hunt to help your students get even more out of their self-guided tour. After an hour of exploring the Center, your group will come together for one of our hands-on, science-based programs. Look at the list of exciting program choices on the following pages to see what offerings are available during our day visits, marked by the  symbol. Each program is one hour long, unless otherwise stated in the program description. Day visits are available every day between 9 am and 4 pm.


Cost: \$12.00 per student (minimum 15 students) unless otherwise stated in program description. One chaperone at no charge for every 10 students, \$7.00 per extra chaperone. Day visit costs include admission to the SeaLife Center.

② NOCTURNE SLEEPOVERS

Join the evening escapades at the ASLC! Students can tour the Center and spend an evening honing observation skills and participating in hands-on marine science programs, then bed down between the seabird, Steller sea lion and harbor seal habitats. Each Nocturne sleepover includes your choice of two of the programs listed on the following pages. These programs are marked by the  symbol. Offered every night of the week, Nocturnes start at 5 pm and last until 9 am the next morning.

Cost: \$40.00 per student (minimum 15 students); includes dinner and a light breakfast. One chaperone at no charge for every 10 students, \$16 each for extra chaperones. Nocturne costs include admission to the SeaLife Center.

③ OUTREACH

Let one of our dynamic staff members come to your school and present one of our exciting programs marked by the  symbol. Call (800) 224-2525 or e-mail education@alaskasealife.org to get more information and learn how to book one of these crowd-pleasing favorites.

Program choices listed on the next two pages →

Program Choices

● Marine Investigators ☀️🌊

Recommended for grades K - 3

Be a junior scientist for a day! Does blubber keep seals warm in icy waters? Can a sea star flip itself over? How fast does a hermit crab move? Students will work in teams to observe and record data to test the insulating properties of blubber, investigate the mobility of sea stars, and look at hermit crab body parts. Put on your observer eyes and let's find out together!

Academic Standards: Math A3; Science A4, 12, 13, 14ab, B1, C1, 2, 5, 7

● Marine Mammal Adaptations ☀️🌊🚌

Recommended for grades K - 6

How are marine mammals designed to live in Alaska's cold waters? What keeps them warm? What does "hydrodynamic" mean? How are these animals able to stay underwater so long? A variety of hands-on programs will allow students to discover the answers to these questions and more. Activities may include exploring mammal furs and skulls, discovering the insulating properties of blubber, creating a clay harbor seal, and dressing up a classmate in our marine mammal costume.

Academic Standards: Arts A1, A2, C4, C5; Science A12, A13, A14a, B4

● Birdbrains ☀️🌊🚌

Recommended for grades K - 3

Visit our avian habitat to observe seabirds flying above and below the water, and let Alaska SeaLife Center staff guide your students through lessons designed to make real "birdbrains" out of them! Learn about seabird structure and adaptations through the creation of clay Tufted Puffins that become great souvenirs for each participant. Activities may include hands-on exploration of seabirds, games, and dressing up a student as a bird. Avoid losing your egg in our fox and kittiwake game!

Academic Standards: Math A2, 6; Arts A 1, 5

● Meet an Aquanaut ☀️🌊🚌

Recommended for grades K - 12;

Available as an outreach assembly program

How do scientists observe marine mammals underneath the chilly Alaskan waters? Get ready to welcome a fully-suited SCUBA diver who will demonstrate the equipment and techniques the Alaska SeaLife Center utilizes to study the underwater world. Compare these scientific tools to marine mammal adaptations, and see who's better suited to take the plunge. It's "Darth Vader meets Flipper" in this entertaining demonstration!

Academic Standards: Science A8, 12, 14a, B6, D2

● Fabulous Fishy Fun ☀️🌊

Recommended for grades K - 4

How do fish swim? Students will learn about the cool features that help fish move effortlessly through the water and hide from predators. Through observation of unique fish at the Alaska SeaLife Center, students will identify the basic parts of a fish and explore differences between various types. Activities may include hands-on fish observation and fish printing.

Academic Standards: Science A14abc, 15, B6

● Bioluminescence ☀️🌊🚌

Recommended for grades K - 8

How do ocean animals navigate, interact, and communicate beyond the reaches of sunlight? What is bioluminescence, and how are scientists using bioluminescent animals to better understand the marine environment? Students will have the opportunity to become a bioluminescent creature through a series of tactile night-light activities. This program is offered year round, regardless of outside light levels!

Academic Standards: Science A14ab, 15, B6

● Seashore Survivors ☀️🌊

Recommended for grades K - 3

Come see and feel the unique adaptations that seashore animals use to brave the pounding surf and changing tides. Students will interact with a variety of tide pool animals and use role playing to experience first hand how these wonderful and wacky creatures survive in the harsh intertidal environment.

Academic Standards: Language Arts B1, B2,

C2ab; Math E; Science A12, 13, 14, B, C5; Arts A6, C4, 5

● Think Thermal ☀️🌊

Recommended for grades 4 - 6

How do marine animals stay warm in Alaskan waters? Using the scientific process, we will add adaptations of fur, blubber, and feathers to a gelatinous organism and test which insulators are best for keeping animals warm. Will your organism survive the cold waters of the Alaska SeaLife Center?

Academic Standards: Science A8c, 9, B1, 2, 3, 6, C1, 2

● Cephalopods: The Jet Set ☀️🌊🚌

Recommended for grades 4 - 8

This laboratory class includes a squid dissection and discussion focusing on the cephalopods of Alaska and their value as research subjects. Students will learn the ins and outs of squid anatomy. This program invites students to use all of their senses!

Academic Standards: Science A 2, 6, 8, 12, 13, 14ab



● Seabird Scientists 🌞🌍

Recommended for grades 4 - 8

Dance the "Seabird Salsa" as we learn about the fascinating world of seabird science. Activities may include acting out seabird interactions, gathering seabird behavioral data, and recording seabird dive times. Don't miss your chance to be a wildlife biologist for a day!

Academic Standards: Math A2, 6; Arts A1, 5

● Connecting With the Past:

Coastal Archaeology 🌞🌍🚌

Recommended for grades 7 - 12

Let your students become archaeological sleuths as they dig through layers of coastal sand and gravel to uncover artifacts and bones from an ancient culture. Students will learn how archaeologists interpret the past through objects, how past coastal cultures of Alaska depended on marine resources, and how investigating the past is fostering a cultural rebirth on the Kenai Peninsula and elsewhere.

Academic Standards: Cultural B1, D4, E2, 5, 6; Geography A1, 5, B1, 4, 6, D1, E1, 3; History A1, 2, 4, 5, B1b, 3, 4, C1, 2, 3, 4; Science A14a, 15, B3, C3, 4, 6

● Marine Science Careers Class 🌞🌍🚌

Recommended for grade 8 - 12

Ever wondered what it takes to become a marine scientist? Come learn about different pathways that can lead to a career in marine science. Students will develop an understanding of the many different job skills necessary to operate a research facility like the Alaska SeaLife Center through a multimedia experience and video interviews with researchers, marine biologists, aquarists, marine mammal trainers, and others. Classes at the SeaLife Center for groups of 25 or fewer include a behind-the-scenes tour.

Academic Standards: Language Arts E2; Science 14a, B3, B4, B6, C5, D6; Employability A2, 5, B1, 4, 5

● The Scoop on Poop 🌞🌍🚌

Recommended for grades 6 - 12

Don't worry, the poop has already been scooped and rinsed clean, now let's learn from it! By sifting through sea lion scat samples, students will understand what types of information scientists analyze and how scat is used in research. Students will sort and classify the fish bones in the sample to find out the types, numbers, and sizes of the fish eaten. Come be a scatologist!

Academic Standards: Science A14abc, 15, B1, 3, 6, C2, 7, D1



* Special Small Group Programs *

The following programs are designed for smaller classes at the middle school and high school level.

● Radio Collar Roundup 🌞🌍

Recommended for grades 6 - 12,
maximum 20 students

Discover how biologists track animals in the wild! Students will learn how scientists use radio and satellite telemetry to study the behavior of marine mammals. Using our Project Master website, we will monitor the locations of previously released rehabilitation animals. Once we've mastered our tracking skills, the group will head outside and use radio telemetry equipment and orienteering methods to locate a "missing animal."

Academic Standards: Science B1, 2, 3, 4, 6, C1, 2, 5, 6;
Geography A2, 6; Technology C1, 2, 3

● Skeletal Articulation: Solving Anatomy Puzzles 🌞🌍

Recommended for grades 6 - 12, maximum 15 students

Reconstruct an actual Steller sea lion skeleton! Students will examine bone structure and its function in animal adaptations as they handle artifacts and piece together the skeleton. A "bone-ified," spine-tingling way to develop teamwork and observation skills. This special program requires two hours, and is priced at \$17 per student (including admission to the SeaLife Center).

Academic Standards: Science A10, 11, 12, 15, B1, 3; Arts A1, 2, 3, 5



Self-Guided Adventures

In addition to our regular education programs we also offer self-guided visits to the Center.

Recommended for any age group.

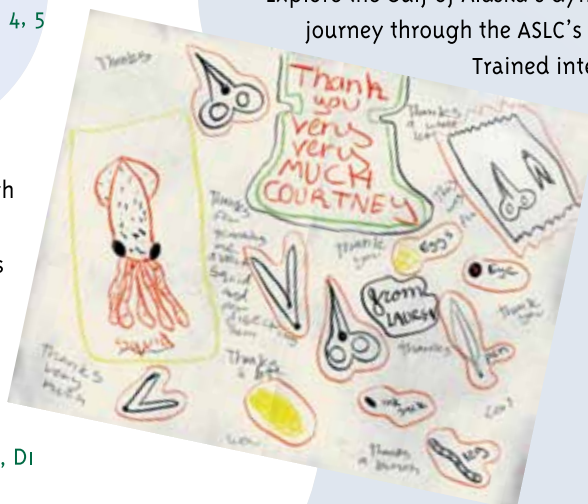
Student admission - \$7.00 per person.

One chaperone required for every ten students.

Explore the Gulf of Alaska's dynamic marine ecosystem while you journey through the ASLC's naturalistic habitats and exhibits.

Trained interpretive staff and docents will be available to answer questions and assist your group. Ask our reservations staff or check the SeaLife Center's web site (www.alaskasealife.org) for copies of exhibit-based worksheets that will guide student exploration.

Academic Standards: Geography C1, 3; E1, 4, 5; Science B1, C5, 7



HOW TO SIGN UP: Start by filling out the Reservation Preparation Guide below. If you would like assistance in choosing appropriate programs, please call our educators at 1-800-224-2525, ext. 339, or e-mail us at education@alaskasealife.org.

TIMEFRAME All programs are available year round. Please reserve programs at least three weeks before your anticipated arrival date and be prepared with an alternate date. Consider dates in the fall, winter, and early spring for greater flexibility!

COSTS Day Visit and Nocturne costs include admission to the SeaLife Center.

- **Day visits:** \$12 per student (minimum 15 students). One chaperone is free for every 10 students, \$7 for each additional chaperone.
- **Nocturnes:** \$40 per student (minimum 15 students), includes dinner and a light breakfast. One chaperone is free for every 10 students, \$16 for each additional chaperone. A \$500 deposit (payable by check or credit card) is required to reserve dates for Nocturnes in March, April, and May.
- **Outreach:** \$100 for each classroom program (maximum 30 students). \$250 for "Meet an Aquanaut" assembly programs (maximum 200 students); \$150 for a second "Meet an Aquanaut," and \$50 for each additional classroom program at the same school on the same day. For locations farther than 50 miles from Anchorage, there will be additional charges for transportation, lodging, per diem, and shipping. Outreach programs will be billed by invoice.

RESERVATION PREPARATION GUIDE

This form is intended as a guide to help you prepare your program choices; it is not an official reservation form. A reservation contract will be mailed to you after you contact us by phone or e-mail.

1 Program choice: (see program descriptions for appropriate grade levels, group size limits and other information)

Day Visit (select one or two programs) 1. _____ 2. _____

Nocturne (select two programs) 1. _____ 2. _____

Outreach •Assembly _____ ("Meet an Aquanaut" only – up to two assemblies per day)
•Classroom Programs (Select up to four programs per day)
1. _____ 2. _____
3. _____ 4. _____

2 Preferred date: ____ / ____ / ____ (arrival date for Nocturnes)

3 Alternate dates: ____ / ____ / ____ or ____ / ____ / ____

4 Number of students: _____ (minimum 15, maximum 75 except where noted)

5 Number of chaperones: _____ (at least 1 chaperone for every 10 students, no more than 85 people TOTAL attending a Nocturne)

6 Contact information:

Your name: _____

Phone number: _____

Alternate phone number: _____

Fax number: _____

E-mail address: _____

Lead teacher's name: _____

School name: _____

School Address: _____

School Phone Number: _____

7 Once you have completed this form, call 1-800-224-2525, ext. 306 or e-mail us at education@alaskasealife.org to make your reservation!



Chignik student learns first hand how sea otters are adapted to the northern marine environment.

OUTREACH: Bring marine education to your group

Can't make it to the Alaska SeaLife Center with your group this year? How about letting us bring a bit of the Center to you! Our new Outreach program can bring a boatload of marine-related fun to your classroom, school or special event. Our hands-on, inquiry-based activities will engage your students as they explore.

Have you ever wanted to explore the mysteries of the swiftest marine invertebrate, the squid? Ever wanted to meet someone who dives beneath the surface of Alaska's frigid seas and see their dive equipment in action? We can bring these exciting programs to you and your students!

Since its official inception last fall, the Outreach program has reached more than 4,000 students. "This is an exciting time for the Education Department," Rich Capitan, ASLC Outreach Education Specialist said. "We're taking our education programs on the road and reaching students who may not be able to come to the Center."

The marine science programs are diverse, interactive, and entertaining. The assembly program "Meet An Aquanaut" is a particularly dramatic experience. "Most Alaskans work very hard to stay in the boat when they venture out to the ocean," said Capitan. "In many areas of the state, students have never been underwater nor met anyone who has been. It's like being able to ask a walrus a question."

"Thank you so much – it was very educational and fun – just outstanding! Keep up the good work!"
– Perryville

"This was a great experience for our students."
– Chignik Lagoon

Home School Days

The Alaska SeaLife Center is pleased to offer two themed home school days this year. We include music, art projects, and puzzle-solving in a day of hands-on science activities that immerse kids ages 5-18 in the marine ecosystem. Students will divide by grade level for classroom or lab programs at 11am and 2pm, and there will be interactive learning stations set up throughout the Center. **Advance reservations are recommended; please call (907) 224-6306 or e-mail education@alaskasealife.org to sign up or get more information.**

\$20 per student includes admission, exhibit activities, and all programs; parents admitted at the special rate of \$7 per person.

DATE: Wednesday, November 5, 2003, 9am to 4pm

THEME: Creature Features

Learn all about the features that allow marine animals of all shapes and sizes to live below the surface, find food and shelter, and keep warm in Alaska's freezing waters!

DATE: Wednesday March 3, 2004, 9am to 4pm

THEME: Sea Searchers

Students will become junior marine biologists and interact with working scientists as they follow the methods we use to study the marine environment and meet research challenges!

We educate teachers too!

Exciting opportunities for teachers to learn and earn professional development credits are coming to the ASLC! Workshops and courses will help teachers integrate marine science into their curriculum with new course material and interdisciplinary methods. Teachers will also be able to prepare for upcoming science benchmark testing and find out how the ASLC can help!

This fall the ASLC will work with the Alaska Staff Development Network to develop a 3-credit graduate course for teachers. This course for K-6 grade teachers will give teachers tools to achieve the new science goals and standards.

If you have any questions about these programs or want to be included on our mailing list for upcoming workshops and grant opportunities, please contact the Post Secondary Education Coordinator, at (907) 224-6338, or e-mail education@alaskasealife.org.

Dive in Deeper

Programs for families and small groups

Every visitor to the Alaska SeaLife Center can enjoy the naturalistic habitats and see interesting fish, marine mammals and seabirds on display. But sometimes the exhibits aren't enough to satisfy the curiosity of explorers who want to learn more about our research and rehabilitation efforts, and what it takes to run a state-of-the-art marine science facility. **Behind-the-Scenes tours**, offered year round at least once a day and up to three times a day in the summer, have consistently filled to capacity with guests who take the hour-long tours of our research corridor and aquarium holding areas.

But for those who want even more depth and individual attention, the SeaLife Center now offers new "backstage" programs that give participants an unforgettable and unique perspective on two of our most popular exhibits. The **"Puffin Encounter"** and **"Octopus Experience"** allow groups of up to four people to participate in a private hands-on educational program, followed by a chance to interact with resident animals and the scientists who take care of them.

The **"Puffin Encounter,"** which can be adapted for visitors of all ages, begins with an introduction to the seabirds housed at the SeaLife Center for research and education, including Tufted Puffins, Black Oystercatchers, Red-legged Kittiwakes, Pigeon Guillemots, Long-tailed Ducks, and three species of eider ducks. Depending on scheduling and guest preferences, the introduction can include a peek into seabird research areas, interaction with field biologists who study birds, a seabird craft project, or an interactive look at seabird adaptations and behavior. Then participants are paired up with our aviculture staff for a special tour of the husbandry area behind the bird habitat. There they learn about collection and captive breeding of seabirds, and assist keepers with food preparation before heading out onto the rocks to take the lead role in a bird feeding. "Standing among the puffins and other seabirds and looking across the water at visitors is a wonderful and unique perspective that's usually reserved for SeaLife Center staff," said Education Director Amy Haddow. "There's really nothing like it for bird lovers."

Another of the Center's most popular and charismatic animals is made accessible to visitors in the **"Octopus Experience."** The program starts with a fascinating lesson on octopus and their cousins in the cephalopod family, such as squid, chambered nautilus, and cuttlefish. Participants are lead through a squid dissection—always a crowd-pleasing favorite—by a SeaLife Center educator before joining an aquarist to visit our resident octopuses in their tanks behind the scenes. "Very few people ever get to touch a live octopus and feel the incredible power and agility of their arms and suckers," said Aquarium Curator Richard Hocking. "People may get squirted with water from the octopus siphon or receive a gentle 'octopus hickey' on their arms, but they're invariably thrilled with the experience."

Behind-the-Scenes tours, which can accommodate up to 12 participants, cost \$5 per person plus admission to the Center, and may be reserved in advance by calling 800-224-2525. The **"Puffin Encounter"** and **"Octopus Experience"** (both approximately 1 to 1 1/2 hours) are limited to a maximum of four participants per group, cost \$50 per person including admission to the Center, and must be reserved at least one week prior to the program.



Visitors to the Center enjoy an "Octopus Experience."



High-tech gizmos reveal the underwater lives of Steller sea lions

Steller sea lions are large, gregarious animals, a fact that might lead some to believe that they are easily studied. And in fact, with innovations such as the remote video monitoring project at Chiswell Island, observing and studying Steller sea lions when they are on land is getting easier. Studying sea lions when they are out in the ocean, where they spend about 50 percent of their time, however, remains a difficult task. Sea lions

can dive as deep as 1500 feet in pursuit of the fish and cephalopods. This makes visual observation of their foraging behavior almost impossible. Therefore their underwater lives largely remain a mystery.

Biologists are interested in learning more about the underwater foraging of Steller sea lions because there is some evidence that

a possible cause of their population decline is nutritional stress. One can learn what Steller sea lions eat by examining their scat and identifying the small fish bones or

cephalopod beaks that are left behind. This provides a good idea of what Steller sea lions are eating in the wild, but it does not indicate how much they are eating, or where they are getting their food. For this, researchers must rely on remote-monitoring instruments that can be glued to the sea lion's fur, which allow biologists to hitch "virtual rides" on their backs.

One type of remote-monitoring instrument that has been used is a stomach temperature transmitter combined with a satellite-linked datalogger. Because sea lions are endothermic, or warm-blooded, their stomach temperature stays high until they eat an ectothermic, or cold-blooded, fish from the cold North Pacific Ocean. By satellite tracking sea lions and recording their stomach temperature, scientists can learn when and where sea lions feed. However, additional information is needed, such as the exact size and species that was eaten. For this, ASLC researchers have decided to turn the sea lions into cinematographers!

In 1994, Don Calkins, (former chief Steller sea lion biologist with Alaska Department of Fish and Game, and now ASLC Steller sea lion program manager) and Dr. Russ Andrews (ASLC Scientist and UAF Assistant Research Professor) helped Greg Marshall, from National Geographic Television, deploy the first underwater video camera ever attached to a Steller sea lion. This "crittercam" provided footage that was featured in a National Geographic documentary entitled "Silence of the Sea."

...scientists continue to look for the smallest devices possible that will help them to discover more about sea lion biology and possibly lead to greater understanding of the population changes that have occurred.

The original camera, however, was too large to apply to juvenile sea lions, the age class that is now receiving the most attention in the search for clues to the population decline. Also, it could only record for three hours of a foraging trip that might last over 48 hours. Fortunately, a new, animal-borne digital camera system has been developed that is much smaller and can take over 1000 still images or four hours of video before its memory card fills up. This summer, the animal-borne camera has been carried by our two captive Steller sea lion females, Sugar and Kiska, to learn more about how Steller sea lions forage and to determine the best way to use the camera on wild Steller sea lions.

The animal-borne camera allows researchers to obtain an unobtrusive view, from the sea lion's perspective, of underwater foraging. Images recorded by the camera not only provide information on the species and size of prey that are eaten, but also lead to a better understanding of the tactics that sea lions use to search for and capture their prey. The camera is controlled by a time-depth recorder, so it can be set to take still images or video once a sea lion reaches its preferred foraging depths. Although this helps save the limited memory and battery capacity of the camera, many images are filled with nothing more than water. Dr. Russ Andrews is attempting to develop new indices of foraging that could be recorded and used to control the camera so that it is more likely that images will be recorded during actual prey capture events.

Stomach temperature recording is very useful, but once the stomach temperature transmitter is covered up by ingested fish, additional fish that enter the stomach do not cause a temperature change, and therefore go undetected. By watching Sugar and Kiska in the ASLC Steller habitat, researchers have noticed that when the sea lions capture live fish, their heads often lunge out, which is possible because their necks are somewhat telescopic. In order to record this head lunging behavior, researchers attach dataloggers that record dive depth, forward acceleration, and the acceleration of the body moving up and down. By attaching two different dataloggers researchers can compare the difference in acceleration between the head and the back to determine the point in time that the sea lion actually captured the fish.

Other sensors that are under development and will soon be tested on the ASLC captive sea lions include a device that records the opening and closing of the mouth, and one that uses ultrasound to measure changes in the diameter of the throat. This research and development process is greatly facilitated by the captive sea lions at the ASLC. In order to make sure that this research is as unobtrusive as possible when applied to wild sea lions, the ASLC captive sea lions were trained to jump into their pool and glide from one end to the other, both with and without instruments attached. By measuring how fast the sea lions slow down during their glide, it is possible to determine whether the attached device adds a significant amount of drag that might make it harder for the sea lions to swim.

Preliminary results suggest that the camera is not a burden to the sea lions. However, scientists continue to look for the smallest devices possible that will help them to discover more about sea lion biology and possibly lead to greater understanding of the population changes that have occurred.

Chiswell Island rookery experiences baby boom

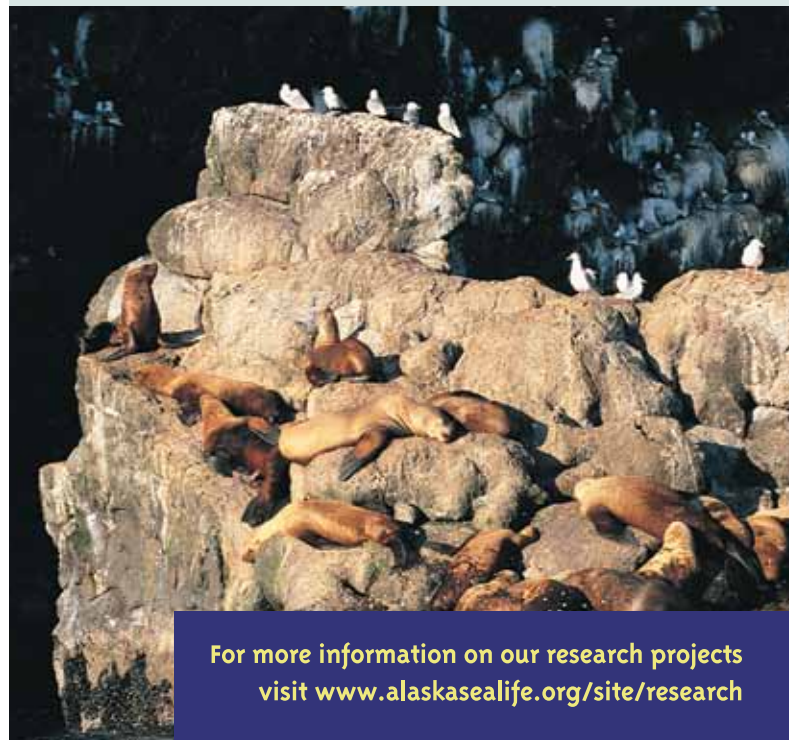
Chiswell Island 35 miles south of Seward and home to a small Steller sea lion rookery, has seen an increase of live births this year in comparison to previously monitored years. With 71 live births, this season has surpassed observations from 1999 through 2002, when the live-birth numbers were 54, 64, 52, and 65 respectively. The Alaska SeaLife Center has been observing the wild population of Steller sea lions on Chiswell with a remotely operated video system since October 1998.

Researchers are monitoring behavior and conducting censuses of Steller sea lions, a population which has declined in south-central and western Alaska by approximately 80 percent since the mid-1970s. In addition, the western stock of Steller sea lions has recently been declared an endangered species. Observations focus on the Chiswell population as a whole looking at long-term trends of maternal investment to provide information about the general health of the population, the prey availability, and a baseline of data for this particular rookery.

Sea lion males return to Chiswell Island in late April and early May to claim breeding territories and wait for the females to arrive in mid-May and early June. The large breeding bulls weigh up to 2,000 pounds and some of the males will stay on the rookery without feeding for up to two months.

During recent years of observation, about 60 females have mated with eight to ten bulls and given birth from late May into the first few days of July with a peak around the second week of June.

Photo by Clark James Mishler



**For more information on our research projects
visit www.alaskasealife.org/site/research**

REHABILITATION

The summer of 2003 has proven to be the busiest season to date for the Alaska SeaLife Center's (ASLC) Rescue and Rehabilitation Program. In early July the Center added another "first" to its rehab program — its first walrus calf. The 7-day-old male walrus calf, nicknamed Nereus (Old Man of the Sea), arrived at the Center after being stranded for over 24 hours near Barrow.

Nereus was observed stranded for almost a full day before Barrow residents picked up the walrus on July 5. The calf was taken to the Barrow Veterinary Clinic where it received supportive care. The calf was flown to Anchorage and then driven to the ASLC for treatment and long-term care. In addition to being emaciated, the walrus also arrived with puncture wounds, abrasions, an open umbilicus, and sea lice.

During his two-month stay at the Center, Nereus learned to suckle from a bottle and continued to gain weight. Nereus arrived at the ASLC weighing just 115 pounds, more than 35 pounds under what a healthy newborn walrus should weigh at birth. ASLC rehabilitation staff and volunteers spent nearly 24 hours a day with the calf, giving Nereus the necessary socialization and supportive care a young walrus needs to thrive.

After almost two months of nursing the calf back to health, Nereus was transferred to the Indianapolis Zoo. He joined two female walruses, allowing him to socialize with his own species.

"Walruses are social, gregarious animals that do not thrive on their own," said Dr. Natalie Noll, ASLC Rehabilitation Manager. "Because the SeaLife Center does not have resident walruses and does not have a habitat equipped to permanently house them, it was in Nereus' best interest to relocate him to a facility that is better suited for his long-term care."

Nereus could not be released back into the wild because walrus calves depend solely on their mother for at least two years. Because of intense mother-calf rearing time, young walruses, like sea otter pups, imprint heavily upon humans while under care. Nereus is one of just 10 captive male walruses in the United States.



April Muse, Rehab Program Intern, feeds Nereus, the young walrus calf from Barrow. Photo by Clark James Mishler

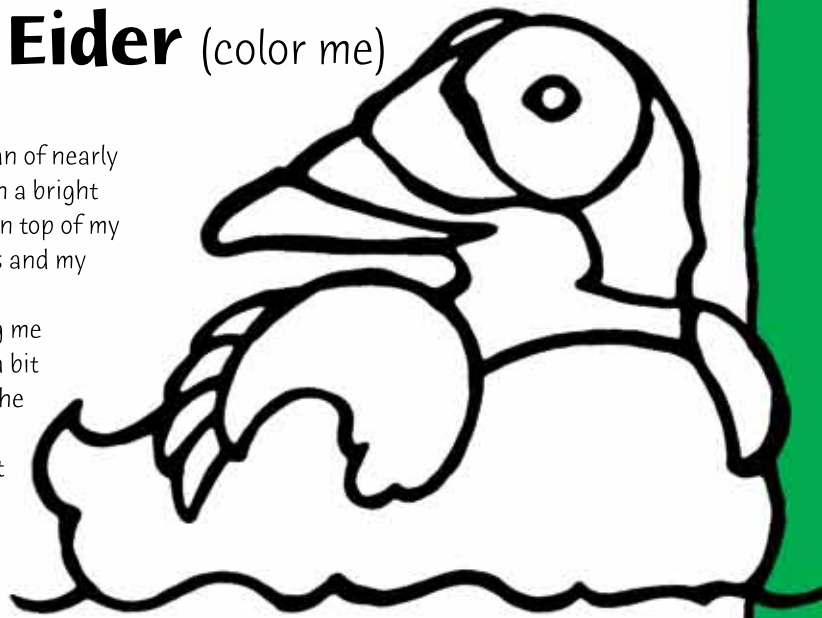
Hi! I'm a Spectacled Eider (color me)

My scientific name is *Somateria fischeri*

I am a large diving sea duck about 15 inches long with a wingspan of nearly 36 inches. Being a male Spectacled Eider, I am very colorful with a bright orange bill, black chest and green head. I have white feathers on top of my wings and back. Black feathers cover the underside of my wings and my belly. I am called a Spectacled Eider because the white circular patches around my eyes are rimmed with black feathers making me look like I'm wearing spectacles. Female Spectacled Eiders are a bit smaller and brown with black bar markings on their feathers. The patches around their eyes are light brown instead of white and their bills are a blue-grey color. We both have bright yellow feet and our feathers grow down to the nostrils on our bills.

Spectacled Eiders can be found nesting near ponds along the Arctic coasts of Alaska and Russia and along the coast of the Yukon-Koskokwim Delta in Alaska. We feed mostly on aquatic invertebrates such as shrimp but also nibble grasses on both land and at sea. Each year my new mate will construct a nest of grass and down in the high grasses near a pond or lake. Once our clutch of five to seven eggs has been laid, I will leave to spend the rest of the summer and winter at sea while she incubates them. Once our chicks leave the nest, she will also head to sea.

Unfortunately, Spectacled Eiders are a federally threatened species. Currently, scientists are investigating why there is a decline in our numbers. Some of the studies focus on reduced food supplies, pollution, lead shot poisoning, increased predation, and other causes. Scientists are also trying to discover where Spectacled Eiders go in the winter suspecting it is somewhere in the northern Bering Sea. Knowing where we spend the winters will allow scientists the opportunity to study the habitat for reasons that may be contributing to our decline in the wild.



WORD SCRAMBLE

1. INRBEG ASE
2. SHENGIT
3. TACLESPECS
4. THERAEFS
5. NRETEDAHT IESSCEP
6. TSMAAREIO SHICREIF

SPECTACLED EIDER CROSSWORD PUZZLE

ACROSS 2. The color of a female's eye patches

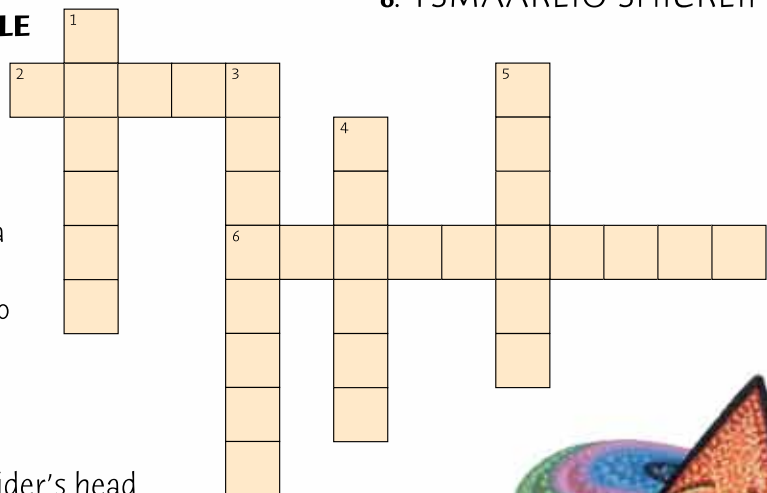
6. Unfortunately, the Spectacled Eiders are a federally _____ species

DOWN 1. The color of a male's bill

3. The feathers grow down to the _____ on a Spectacled Eider's bill

4. Scientists speculate that Spectacled Eiders go to this sea during the winter

5. The coasts where nesting takes place



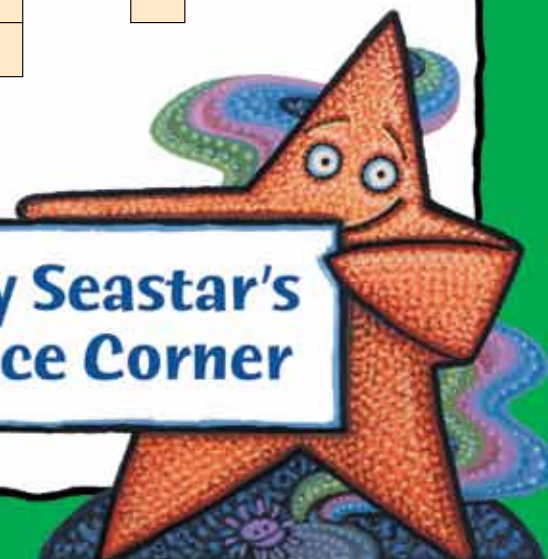
MATCH THE NUMBER

- | | |
|--------------|--|
| 1. 15 inches | A. Color of a male Spectacled Eider's head |
| 2. green | B. Length of a Spectacled Eider |
| 3. 36 inches | C. Color of Spectacled Eider's legs |
| 4. yellow | D. Wingspan of a Spectacled Eider |



ANSWERS: CROSSWORD Across: 2. brown 6. threatened
Down: 1. orange 3. nostrils 4. Bering 5. Arctic
MATCH THE NUMBER 1.B 2.A 3.D 4.C
WORD SCRAMBLE 1. Bering Sea 2. Nesting 3. Spectacles
4. Feathers 5. Threatened Species 6. Somateria fischeri

**Sandy Seastar's
Science Corner**



Join the Alaska SeaLife Center SeaLife Society and help support our mission of understanding and maintaining Alaska's marine ecosystem through research, rehabilitation and public education. Membership includes one year admission and other Center discounts.

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Name: _____ Spouse: _____

Address: _____ Apt. #: _____

City: _____ State: _____ Zip: _____

Day phone (Please include area code): _____ Evening Phone: _____

E-Mail address: _____

Membership Levels & Annual Dues: ☐ Individual \$36 ☐ Student \$28 ☐ Couple \$70

☐ Family or Grandparent \$110 (please include a list of all children names between ages 6 and 18, including birth dates)

☐ Additional donation to the Center's mission of research, rehabilitation & public education \$ _____

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PAYMENT METHOD: ☐ Check (Payable to ASLC) Total amount: \$ _____

☐ Visa ☐ MC ☐ Discover ☐ AMEX

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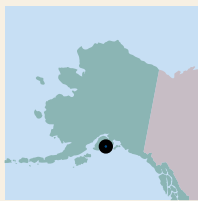
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