Summer Internship Opportunities at NOAA - 2024
(National Oceanic and Atmospheric Administration)

CONDUCT RESEARCH WITH SCIENTISTS AT THE MARINE MAMMAL LABORATORY

The Marine Mammal Laboratory (MML) of NOAA's Alaska Fisheries Science Center (AFSC) and the University of Washington's School of Aquatic and Fisheries Sciences (SAFS) request applications for student summer internships. Internships will be for about 10 weeks (during the period of June to September 2024; 40 hours per week) working on a marine mammal research project. ***Each internship will be supported on a stipend of $5,850, provided in partnership by the School of Aquatic and Fishery Sciences, the Marine Biology Program, and MML/AFSC.*** Now in its fifth consecutive year, this popular internship program has been successful in giving undergraduate students an opportunity to be involved in active research programs focused on marine mammal ecology, behavior, and assessment. This year, MML is planning to welcome interns to in-person project settings at NOAA's Seattle campus as well as in the field in Alaska and California. At present, plans call for the interns to participate in MML projects conducted: 1) at MML's offices at NOAA's Sand Point campus (just north of Magnuson Park, Seattle), or 2) through fieldwork in Alaska or California (specific plans depend on final funding availability). Successful applicants will be provided with a scientific mentor and online access to research resources associated with their projects.

The following marine mammal research projects may be available for internships during summer 2024 at the Marine Mammal Laboratory:

1. **Steller sea lion remote camera imagery and food habits** *(two positions)*
   MML/AFSC mentor: Katie Luxa (katie.luxa@noaa.gov) with Molly McCormley
2. **Estimating aerial survey detection rates of seals on Arctic sea ice** *(one position)*
   MML/AFSC mentor: Erin Moreland (erin.moreland@noaa.gov)
3. **Assessment of California sea lions and northern fur seals at San Miguel Island, CA** *(one position)*
   MML/AFSC mentor: Tony Orr (tony.orr@noaa.gov)

SAFS values the strengths and professional experience that students, faculty, and staff bring to our community. We are committed to providing an excellent education to all of our students of every race, gender, class, nationality, physical ability, religion, age, or sexual orientation. We are proud of the different roles that our students, staff, and faculty play in the community of the School and the College of the Environment. Science is richer and the SAFS and MML/AFSC communities are more vibrant when a diverse group of people participate in research. We are especially interested in candidates who can contribute to our programs' diversity through their life experiences, scholarship, and/or service to the institutions. People of color, women, people with disabilities, and veterans are encouraged to apply.

ELIGIBILITY

Must be a currently enrolled UW undergraduate student graduating in Spring 2024 or after

HOW TO APPLY

Please submit the following by the deadline:

- Online Application: https://forms.gle/1644d2NCHVw1AxiAA
- Application Materials - upload (using form linked above) the following materials in one pdf. Save as "LastnameFirstname_MML2024.pdf" (where Lastname and Firstname are your name):
  - Recent resumé
  - Unofficial UW transcript
  - Letter of interest (maximum of four pages) – include the name of the project that most interests you and why; tell us about yourself and your research interests; explain how the internship will further your studies and career; include other information the selection committee should be aware of, such as what it means to you to have a commitment to diversity, equity, and inclusion.

DEADLINE FOR SUBMISSION: 15 March 2024

DECISIONS: Award notifications will be made by 15 April 2024

Project 1: Steller sea lion remote camera imagery and food habits

Mentors: Katie Luxa (with Molly McCormley), Marine Mammal Laboratory, AK Fisheries Science Ctr., NOAA

Location: Seattle and Alaska

Length: Approximately 10 weeks (June - August 2024)

Project Description: <u>Work at MML in Seattle</u>: This is a joint project focusing on Steller sea lion remote camera work and our food habits program. Part of the intern's duties will be focused on manually processing our Steller sea lion remote camera imagery data, the overarching goal being to assess the efficacy of our machine learning model to manual observations for all of our Steller sea lion rookery sites. The intern will also contribute to our long-term food habits program by washing Steller sea lion or northern fur seal scats in the lab, inventorying and organizing samples, and caring for our fish and cephalopod reference collection.

<u>Possible field experience (pending available funding)</u>: MML's Alaska Ecosystems Program (AEP) conducts a variety of studies at pinniped rookeries in Alaska. A student eager to participate in observational and hands-on animal studies would join AEP for a 2-3 week ship-based Steller sea lion research project in the Aleutian Islands conducting surveys using unmanned aerial systems, visual observations to identify previously-marked animals, and visits to remote camera installations for servicing. The trip may include two days of challenging work to hot- brand new pup cohorts and collect samples for health and condition analyses.

Required Skills:

- In-office work will require familiarity with Microsoft Office and basic photographic image reviewing software.
- This project's fieldwork is physically demanding. Intern candidates should be confident that they could be an effective member of the field teams in light of the reality that:
  - Conducting research from a small research vessel and small boats in the North Pacific Ocean and Aleutian Islands can involve operating in rough seas and inclement weather.
  - Steller sea lions are large, fast, and potentially aggressive mammals.
  - The project may involve capturing and handling this species.
  - Members of field teams work together closely and need to be able to follow instructions and get along with their fellow team members – both for safety and for team harmony.

To learn more at the Steller sea lion project: https://videos.fisheries.noaa.gov/detail/videos/seals-sea-lions/video/3953114845001/investigating-steller-sea-lion-populations?autoStart=true

Project 2: Estimating aerial survey detection rates of seals on Arctic sea ice

Mentor: Erin Moreland, Marine Mammal Laboratory, Alaska Fisheries Science Center, NOAA

Location: Flexible

Length: 10 weeks (June - August 2024)

Project Description: The Polar Ecosystems Program at the Alaska Fisheries Science Center's Marine Mammal Laboratory is responsible for estimating the abundance and distribution of ice-associated seals (ringed, bearded, ribbon, and spotted seals) and coastal harbor seals of Alaska. We conduct large-scale fixed-wing surveys over the sea ice in the Bering, Chukchi, and Beaufort seas in a collaborative effort with the U.S. Fish and Wildlife Service and international researchers to estimate the abundance of transboundary pinniped populations. These surveys result in the collection of hundreds of thousands of aerial images of the sea ice from airborne color, thermal infrared, and ultraviolet cameras. Machine learning models help to evaluate the imagery to identify seals and polar bears photographed on the sea ice.

The successful intern candidate will help estimate how well the seal detection models find and classify animals on the sea ice. In order to evaluate the performance of detection and classification models, a subset of color images will be reviewed for the presence of seals and polar bears. Bounding boxes will be drawn around each animal found in the images using VIAME software and species and age class will be assigned to each animal. These manual detections will be used to test the performance of detection and classification models and determine the detection rate used in the final abundance estimation analysis. The intern will be responsible for the color image review for animals on the seal ice. A staff biologist and image analyst will provide secondary review for the species and age class determination as well as training and assistance with the software. The intern will compare the model output to the visual detections and calculate the detection rates for each species.

Desired Skills: The image review process can be taxing and requires strong attention to detail and focus. This work requires comfort with technology, learning to work with custom software, working independently, participating in and initiating meetings with mentors and other biologists in the program when needed. Training will be provided and regular check-ins will be scheduled to ensure appropriate support is provided throughout the internship.

Computing resources will be provided. Work location is flexible based on student needs. We can establish whether the internship will be remote, hybrid, or in-person through conversation with the selected intern.

To learn more about ice seal research in Alaska and our aerial surveys:
https://www.fisheries.noaa.gov/alaska/marine-mammal-protection/ice-seal-research-alaska

Project 3: Assessment of California sea lions and northern fur seals at San Miguel Island, CA

Mentor: Tony Orr, Marine Mammal Laboratory, Alaska Fisheries Science Center, NOAA

Location: Seattle and San Miguel Island, CA

Length: Approximately 10 weeks (June-August 2024) (field: 6-7 weeks, Seattle: 1-2 weeks post field)

Project Description: Long-term monitoring of the abundance and demography of California sea lions and northern fur seals has been conducted at San Miguel Island (SMI), CA since 1972. California sea lion and northern fur seal pups are marked each year and then monitored in subsequent years throughout their lives to estimate survival and natality. The program focuses on recording behavior, survival and reproduction of the marked animals and conducting an annual pup census. These data are used in demographic models that help to explain the role of environmental and anthropogenic factors in the population trends. _In the field:_ 1) collect data on marked California sea lions and northern fur seals using spotting scopes, binoculars, cameras, and uncrewed aerial systems (UAS) for mark-recapture studies of marked animals; 2) participate in ground counts or UAS surveys of live and dead pups for the annual pup production estimates; 3) collect fecal samples and tissues for dietary studies; 4) weigh northern fur seal pups for growth rate estimates. _In Seattle:_ 1) help with processing field samples for further analyses; 2) help with population counts from images acquired using UAS; edit data acquired in the field.

Field work description: Field work occurs at a remote field station on uninhabited SMI in Channel Islands National Park. Work is conducted every day (including weekends) for 8 hr per day regardless of weather. The work requires physical stamina. The intern must be able to hike up to 19 km (12 miles) a day with a 10 kg (20–25 lb) backpack and must be able to work outdoors for prolonged periods of time in intense sun and high winds. The hiking can be strenuous with repeated 120 m (400 ft) vertical climbs from the colony to cliff tops. After a one week training period, the intern will work independently, often spending entire days hiking alone to different areas. The intern will be responsible for recording and editing their data each evening and assisting with chores around the research station including cooking meals, cleaning, and preparing gear. The field crew is small, usually 2-3 people. The housing is a small cabin with communal living quarters. There is no running water at the research station. Facilities include an outhouse and a solar shower. There is limited internet service (but spectacular scenery!).

Desired skills: The intern must be able to work alone and with limited supervision after the training period. Experience at isolated field camps or an enjoyment of camping and hiking is preferred. Experience in the outdoors such as hiking, biking, running, rowing or climbing is ideal. The intern must work well with others. A pleasant, flexible and cheerful temperament is beneficial. A strong interest in animal behavior and population biology is preferred and will make the experience more integrated with academic studies. The intern must be patient and have excellent observation skills and attention to detail; a focus on data quality is essential. Data management skills are useful particularly Microsoft Excel and Access. The intern should be certified in First Aid and CPR.

To learn more about this internship opportunity:

- California sea lion research: https://www.fisheries.noaa.gov/alaska/marine-mammal-protection/california-sea-lion-research
- Sea lions at San Miguel Island (with video): https://www.fisheries.noaa.gov/feature-story/california-sea-lion-population-rebounded-new-highs
- Channel Islands National Park: https://www.nps.gov/chis/index.htm
- Tony Orr: https://www.fisheries.noaa.gov/feature-story/meet-tony-orr-research-biologist