Summer Internship Opportunities
Cetacean-Human Interaction Lab (CHIL), Sitka, AK

Location: UAS Sitka Campus

Supervisor: Professor Jan Straley, Whale Biology

Mentors: UAF Ph.D. candidate Lauren Wild & UAF Master’s candidate Madison Kosma

Contact: Lauren – lawild@alaska.edu, 907-747-7789; Madison – mmkosma@alaska.edu, 907-747-7789

Background:
UAS Professor Jan Straley runs a whale research lab at UAS (University of Alaska Southeast) Sitka Campus. Students and employees in this lab work with humpback, sperm, killer, and grey whales, in addition to some pinniped work. Recently, much of the focus of the lab has been evaluating interactions between marine mammals and fisheries in the Gulf of Alaska.

UAF Ph.D. candidate Lauren Wild works with Professor Straley as part of a collaborative project called the Southeast Alaska Sperm Whale Avoidance Project (SEASWAP, www.seaswap.info) that works with sperm whale removal (depredation) of sablefish (black cod) from commercial longline fishing gear. There are many aspects to this project including: (1) working with whale acoustics to learn more about sperm whale population dynamics; (2) using go-pro cameras to film whale-gear interactions; (3) using satellite tag tracks to observe whale movement (using GIS); (4) photographic identification and management of sighting histories and databases; and (5) stable isotope analysis to study trophic relationships and diet of whales, fish, and squid.

UAF MS candidate Madison Kosma works with Professor Straley on a project that investigates humpback whale predation on juvenile salmon at salmon hatchery release sites around Southeast Alaska. There are a variety of components to this project including: (1) working with hatchery to record and document behavior and feeding mechanisms of whales at the hatchery (using drones, videos and photography), (2) stable isotope analysis to study the difference between hatchery salmon feeding whales and other whales in the area not feeding on this human introduced food source, (3) stable isotope analysis of different prey of humpback whales, and (4) photographic identification and movement tracking of humpback whales around the study site during release season.

Project timeline:
These projects are designed to be completed over the summer; they can take place over the entire summer (Jun-Aug), or just a portion of the summer (1 or 2 months). Students that are located in Sitka can contact the lab about internships part-time during the school year. Students that would like to travel to Sitka to participate in one of these opportunities should contact Madison or Lauren and we can work with you to find housing and generate a timeline.

Salary:
Students that would like to receive funding for these projects can apply for a UAF BLaST Undergraduate Research Experience (URE) which any UA student is eligible for. This URE provides up to 20 hours per week in salary, which varies depending on experience. UREs can be fall/spring semester or summer semester. Visit https://alaska.edu/blast/blast-undergraduate-resea/ for more information.
Potential projects:
Both Lauren and Madison have openings for undergraduate student mentees to work in the lab and gain experience in this field.

For sperm whales, squid, and groundfish:
1) Stable isotope analysis of market squid in Sitka Sound
   a. Learn methods to cut squid tissue, dry, lipid-extract, grind, and weigh out small aliquots to process for stable carbon and nitrogen isotope ratios as a proxy for diet and trophic position.
   b. Compare stable isotope ratios with seasonal, size, and annual trends using basic statistical analysis.
   c. Learn graphical representation of trophic niche
2) Stable isotope analysis of groundfish in the eastern Gulf of Alaska. Groundfish species include: spiny dogfish, skates, sablefish, rockfish, and grenadier.
   a. Learn methods to cut five species of groundfish tissue, dry, lipid-extract, grind, and weigh out small aliquots to process for stable carbon and nitrogen isotope ratios as a proxy for diet and trophic position.
   b. Compare stable isotope ratios to length, weight, species, and regional area using basic statistical analysis.
   c. Learn graphical representation of trophic niche for all species to compare similarities and differences in foraging habits. Can also compare to sperm whale trophic niche.
3) Photographic identification, sighting history summaries, and database management of sperm whales in the Gulf of Alaska
   a. Use existing database information to summarize number of whales in the catalog, how often each whale has been sighted, how many new whales are seen each year, how much effort is extended each year, and other summary statistics.
   b. Mapping locations of sightings over time using GIS or a similar mapping program
   c. Printing updated fluke photos of sperm whales to update photographic identification catalog.
   d. Populating and entering sighting data into a database (using Microsoft Access or a similar database program).
   e. Potential for some field work taking photographs and assisting with biopsy of sperm whales offshore of Sitka during July, pending funding.
4) Potential Project: Programming and managing go-pro filming project of longline gear
   a. This project is pending additional funding for summer 2018
   b. Learn to program and maintain go-pro cameras with time delays, external batteries, circuit boards, and deep-water housings.
   c. Pre-program and check out cameras to commercial fishermen to set on their fishing gear.
   d. Collect cameras after fishing trips from fishing vessels and clean, download data, and maintain cameras.
   e. Review go-pro footage from fishing trips for groundfish, sperm whale interactions with gear, and other interesting biological phenomena.
   f. Compile a video at the end of the season highlighting interesting footage gathered over the course of the summer.
   g. Potential to go out in the field on one of the fishing trips for 2-3 days to deploy go-pro cameras from the fishing vessel and get at-sea experience with field work, including photographic identification of sperm whales that may be around the vessel.
Humpback whale & salmon hatchery projects:

1) Photographic identification, sighting history summaries, and database management of humpback whales in Chatham Strait, around Hidden Falls Hatchery.
   a. Entering sighting data into a database (using Microsoft Access or a similar database program).
   b. Use existing database information to summarize number of whales in the area during hatchery releases, how often each whale has been sighted, how many new whales are seen each year, how much effort is extended each year, and other summary statistics.
   c. Mapping locations of sightings over time using GIS or a similar mapping program.
   d. Potential for some field work taking photographs and assisting with biopsy of humpback whales offshore of Sitka.

2) Stable isotope analysis of hatchery salmon and other humpback whale prey
   a. Learn methods to tissue, dry, lipid-extract, grind, and weigh out small aliquots to process for stable carbon and nitrogen isotope ratios as a proxy for diet and trophic position.
   b. Compare stable isotope ratios with seasonal, size, and annual trends using basic statistical analysis.
   c. Learn graphical representation of trophic niche.

3) Potential Project: Stable isotope analysis of hatchery salmon versus wild prey
   a. Learn methods of stable isotope analysis; dry, lipid-extract, grind, and weigh out small aliquots to process for stable carbon and nitrogen isotope ratios as a proxy for diet and trophic position.
   b. Compare stable isotope ratios to length, weight, species, and regional area using basic statistical analysis.

4) Potential Project: Study the humpback whale distribution, behavior, and movement during the crucial period of hatchery releases. Compile sighting history of individual humpback whales feeding at the hatchery.
   a. Use photo identification to identify the individual whales.
   b. Use a geographic information system (GIS) to map the position and movement of whales over the field season.
   c. Use database to compare individual’s location and movement to previous years and other locations they have been sighted.

Dietary project with humans and their environment using stable isotope analysis:

1) Interview local members of the community from a variety of subsistence and non-subsistence dietary backgrounds.
2) Collect food items and fingernail samples from a variety of human subjects including store-bought foods and wild foods such as salmon and venison.
3) Conduct stable isotope analysis lab work to process samples.
4) Analyze similarities and differences between subsistence and non-subsistence users and how changes in traditional lifestyles may impact people in rural communities and their connection to the environment.