



**NOAA Teacher at Sea
Clare Wagstaff
Onboard NOAA Ship JOHN N. COBB
June 1 – 14, 2008**

NOAA Teacher at Sea: Clare Wagstaff

NOAA Ship JOHN N. COBB

Mission: Alaskan Harbor Seal – Pupping Phenology & Critical Habitat Study

Geographic Area: Southeast Alaska – Tebenkof Bay and Little Port Walter

Date: June 2, 2003

Contact Information

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Weather Data from the Bridge (information taken at 1200)

Weather: Overcast

Visibility (nautical miles): 10

Wind Speed (knots): 12

Wave Height (feet): 1

Sea Water Temp (⁰C): 7

Air Temp (⁰C): 10.5

Science and Technology Log

Late last night the JOHN N. COBB reached our anchor site at Tebenkof Bay (56⁰ 23'N 134⁰ 10'W). Situated just off the southern end of Chaptam Strait, the gentle rocking of the boat and the dull drone of the ship's engine and generator had sent me off to sleep very quickly the night before. Keen to start the day though, and with the early morning sun shining in through my room's porthole, I got up to a hearty breakfast and made ready to depart the COBB for a day of exploring. Around 06:30 the Chief Bosun (Joe), Dave, and I boarded the small skiff, referred to as the JC-1. The objective was to go visit known seal haulout sites that Dave had visited the year before. At each site the aim was to count the number of harbor seals present focusing particularly on the number of pups.

Equipment Required

All of us on the JC-1 were dressed in cold weather and rain gear, even though it appeared to be a nice day, rain is always likely around this area! Dave kindly lent me his insulated Mustang survival gear to wear and I was very grateful! For conducting his research, Dave has certain pieces of equipment that he always brings when observing seals. To find the location of a known haulout site or to record the location of a newly discovered one, he has a handheld GPS that can

accurately log coordinates. To observe the seals more closely Dave uses a pair of gyro-stabilized binoculars. These are essential as being on the water for most observations means the images produced through these binoculars are much clearer not as wobbly. For safety reasons, he also carries a satellite phone in case of emergencies and an PEPiRB in case of emergencies. A PEPiRB or Personal Epirb is a device that when activated, immediately notifies the US Coast Guard of your exact position by satellite. The data Dave collects is recorded on site in a waterproof notepad and through photographs that he regularly takes of the animals he observes.

An Ideal Site?

The harbor seals typically haul out at low tide and seem to prefer sunny and warmer periods during the day, roughly between 11:00 and 16:00 hours. Unfortunately today, because of the tide cycle we were venturing out as the tide was gradually rising and much earlier in the day than is optimal to see the seals on land. However, there were a few seals present but their numbers were greatly reduced when compared to last year's data. Dave did not seem overly concerned though because of the time of day we were making the counts.

What was surprising was that certain sites we past looked like ideal locations for the seals to haulout on to. Seals like a variety of substrate (rock or sand), a reef with a steep drop off into the water, wind speed not above 35-40mph and good visibility to be able to see predators. We saw a number of sites that fit this description but there was a distinct lack of seals to be found at them, with no real explanation why. Researchers still have more to learn about seals and hopefully this cruise will add more data to help understand their behavior and choices.

Sea Otters

One of the most interesting animals we observed today was a large number of sea otters. The otters regularly haul themselves out on to the rocks, like seals do, and seem to frequently be in the same area as the seals. While watching them in the water, a large number of the females were floating or swimming with a youngster on their stomachs! Otters, unlike seals, have little



Sea otters around Tebenkof Bay. Note the female in the center of the photograph carrying a baby on her stomach (blue arrow). Photograph courtesy of Dave Withrow.

insulation so this technique demonstrated could be a method to protect the young from the elements and keep them safe near the parent.

The key to making good observations of any of these wild animals is to approach them slowly and avoiding doing so head on. As we got closer, Jon would switch off the engine so as not to frighten or startle them. Unfortunately, when they do feel threaten, both the sea otters and harbor seals retreat back into the water. This happened on a number of occasions when we got a little too close for their comfort. This obviously makes the observations, identification and assessment of population numbers more challenging.

Biological Field Station – Little Port Walter

After approximately two and a half hours of observations we returned back to the COBB. The ship then set course for Little Port Walter, a NOAA Biological Field Station. It is a remote location but manned all year round. “Our nearest neighbors are only six miles away,” comments caretaker, Brad Weinlaeder. Access to this area is via boat or seaplane, so when the COBB docks here with a shipment, possibly four or five times a year, it receives a welcoming reception. Set in a beautiful bay off Chatham Strait, the residents say it gets the most rain anywhere in North America: and it is not hard to believe as a downpour starts as we arrive! The beautiful temperature rainforest around the bay is thanks to the plentiful rainfall it receives each year. But there’s a reason to have a research station in this location, and that reason is salmon. Each year the hatchery on site breeds a variety of fish for release into the wild, the most recent fish to be released where king salmon.



The entrance to Little Port Walter harbor. The 'White House' is where the researchers and seasonal workers live. Photograph courtesy of Dave Withrow.

Tagging a Fish

Although king salmon are not native to this particular section of water (the water is not cold enough), being the biggest and most rare specie of salmon gives them reasons to be studied. The eggs and sperm are collected from trapped king salmon when they reach sexual maturity and return to Little Port Walter, four to five years later. The fertilized eggs, the size of a pearl, are then incubated in early August for nine months until they are released. Unfortunately, that means that we had missed their release by just a few weeks. The process of producing these fish requires a variety of steps including identifying the fish by visual methods and internal tagging. The adipose fin (located between the dorsal and caudal fin) is simply cut off before the captive bred fish is released. Apparently this does not give the fish a survival disadvantage, but is a visual sign that it has been bred in captivity. Each fish released from the hatchery also has a small, stainless steel, identification tag placed in its nose. When this fish returns to Little Port Walter at sexual maturity, the fish is collected and the tag removed. So small is this tag that that Brad comments, “it’s like trying to find a needle in a hay stack!” Yet this tag gives vital background information about the fish that is then used in selecting the best fish to breed with.

Unfortunately removing the tag is fatally invasive.

There are other methods for tracking fish that would allow it to survive such as using a small



Brad Weinlaeder showing the incubation trays for the salmon eggs at the Biological Field Station at Little Port Walter.



View of the hatchery where the salmon are placed when they are approximately 5-6cm long. Here they are fed and fresh water from upstream constantly flows into these holding tanks.

microchip, just like the ones used in identifying cats and dogs today. However, at ten times the price and requiring much more precision to insert it into the fish, is not a practical option on a large scale here. Especially as the fish are caught on their return migration and are already in the last stages of life.

Held in giant fresh water tanks, the king salmon matures on a high protein pellet diet that not only they like, but so does the local bear population. It is common practice around Little Port Walter to carry a gun with rubber bullets. A wide shot fired is hopefully just enough to scare them away! This year the hatchery released 214,000 king salmon out into the wild. With an average 3% survival rate, only 1.5% will make it through their four to five year life span to return back to Little Port Walter. Fishermen will catch the other 1.5%.

Other Research

There is a great deal of other research going on here at Little Port Walter. Currently in progress is the study of rockfish and their preferred habitat substrate in relation to predation. In the past scientists have also studied slug migration and tree ring analysis for the presence of iodine as it relates to fish populations. What makes this marine research station so important is that it has data going back to 1936, when it first opened. Researcher's come from thousands of miles to compare what they find, to data that is already known and recorded here at Little Port Walter. Pretty fascinating stuff!

Personal Log

Unfortunately, today was the day I experienced my first bout of sea-sickness! I had begun to feel that I had got my 'sea legs'. But I had spoken too soon! After returning from our morning of observations, the COBB departed for Little Port Walter. In the late morning the ship began to cross Chatham Strait. The COBB was hitting 4-6ft high waves and crossing them at an angle called courtering. This means that the boat was yawing, which is a combination of a pitching motion (see-saw action) and rolling (side to side), basically bobbing around like a cork! As the motion got stronger, my stomach got weaker and I ended up out on the starboard deck trying to look at the horizon and stop feeling ill. Thankfully though the effects wore off quickly as the ship's ride became smoother. Hopefully the rest of the cruise will be smoother!

Question of the Day for Miss Wagstaff's Science Class

Research in the field can be very different to research done in a laboratory at school. From the description written above about today's seal study, try to think about the ways they differ. Consider such factors as time, variables, data collection etc.