TO: JOHN MCMANN

Snyder, Kathlyn
4/4/76
MOP Certificate
Candidate

RECEIVED
APR 7 1976
MOP & BML

Marine Skill Report

The skills I developed during my internship at the Naval Undersea Center were varied, some definitely marine skills and others just general work skills. During the first year of my internship I assisted Earl Murchison in his echolocation work. Earl is a marine biologist with a Masters Degree in biology from the University of Hawaii (I think its U.H.) He has been with the Naval Undersea Center for about four years participating in echolocation studies and has published material in the field. Presently he is at the University of California, Santa Cruz, pursuing his PHD in work related to echolocation and marine mammal behavior.

At NUC I was taught how to thaw fish and insert vitamins in them for feeding porpoises. I learned how to feed the animals and how to observe them physically and behaviorally for signs of illness. I worked with an animal named Elua for several months, training her to perform the basic "yes" and "no" responses for a detection task in which the animal was questioned upon the presence or absence of a target suspended in the water. Through working with Elua I developed very basically, the skill of using operant conditioning techniques in the process of training a marine mammal to perform certain tasks. Later on I was to continue developing this skill through running my own experiment on echolocation and collecting the resulting data.

I was responsible for maintaing the condition of our floating pens, experimenter shack, and Boston whaler. I painted decks, learned basic carpentry for constructing useful equipment as storage chests and experimental apparatuses, and for repairing damaged pens and piers.

I learned the process of fiberglass patching and mended holes in our boat at times and learned how to launch, start, and operate the boat.

While at NUC I completed the Navy Scuba Diving course and became a qualified Navy diver. This increased my diving ability and confidence to a greater extent than before. I performed my deepest dives in this course, learned to navigate with a compass, and to do elementary work underwater. After finishing the course I learned to rewire pens, a process involving cutting wire off old pens, hauling it out of the water with a crane, and then preparing and attaching new wire to the pens. I learned to replace worn barrels which keep the pens afloat. As much of this type of work involves the use of tools I increased my capability in using basic hand tools and I learned to use a variety of power tools as saws, drills, and sanders. I was trained to drive and operate trucks and a small forklift.

During the latter part of my internship I was responsible for setting up, running, and collecting data for an echolocation task. The first phase of the experiment involved determining a threshold distance of my porpoise's ability to detect an aluminum sphere $3\frac{1}{2}$ inches in diameter which was suspended $1\frac{1}{2}$ meters beneath the surface 250 trials were run at each distance to be tested and by the time of my termination at NUC the animal had shown himself capable of detecting the target over 100 meters away with 95% accuracy. For this task I had to reshape behaviors that the animal had already learned as this task was different in some ways than were his previous ones. I had to calibrate distance of the target suspension line, build an acoustically opaque screen to stop the animal from echolocating when it was in-

app

appropriate for him to do so, and set up the mechanism whereby I could present the target via a monofilament reel. Phase one of this project was almost completed, lacking only 100 data trials out of a total 2000 when I had to leave NUC.

My experience through the MOP program and NUC was invaluable to me. I enjoyed the program and feel it has really helped me find direction in terms of my future goals of working in a field related to the ocean.

Kathlyn Snyder