

Floating Laboratory In Plans For Expanded OSC Oceanography Exploration

Editor's Note: One of a series of articles on the research and public service projects being carried on by the state's colleges and university written for the State System of Higher Education by Mrs. Morrison, longtime reporter of Oregon education.

By WILMA MORRISON

The old gag about yachts—that if you have to ask what it costs to operate one, you can't afford it—holds for the research vessel soon to be built for Oregon State College's new oceanography department.

When this 80-foot floating laboratory—the first to operate full-time off Oregon's coast—starts making its exploratory runs, probing coastal waters up to 300 miles offshore, its operational cost will be \$500 every day it is out.

The \$250,000 vessel which it is hoped will be built before the end of the year is being added to the developmental services of the state through a major investment of the U.S. Office of Naval Research in the educational resources of OSC. The naval research agency provided an initial grant of \$319,500 to pay for the boat and current operational expense. Another federal investment, \$50,000 from the National Science Foundation, will pay for the oceanographic equipment on the vessel.

Like many of the research and teaching projects that have brought federal and foundation money to Oregon's higher education schools, this one came to Oregon State because of the presence there of a recognized expert in the field. The man back of the oceanography department and the research vessel is Dr. Wayne V. Burt who came to the college six years ago, bringing an Office of Naval Research grant with him.

Getting the money for the vessel and the research work of his department is for Dr. Burt the fulfillment of seven years of hard work toward just this goal. He had focused on this long before he came to OSC, was working toward it during his earlier years with the Office of Naval Research and the Oceanography Institute at Johns Hopkins.

What does an oceanographer

do? What is so important a prospect to come from an oceanographic research and teaching enterprise in Oregon that the Navy and science branches of the government will invest substantially in it?

Like many another science research area, oceanography got its great push out of World War II, Dr. Burt said—the crisis discovery that "we knew very little about the oceans." The first oceanography class to be graduated in the nation—15 men of whom Dr. Burt was one—came out of Scripps Institute of Oceanography at La Jolla, California, in 1948. The field is still not loaded. Where there were less than 50 oceanographers in the country in World War II, there are about 500 today.

Oregon has been something of a blank spot on the oceanographic charts of the West Coast. University of Washington cruises the Oregon coast gathering data sometimes in the summer as does the Scripps Institute, but that is all; winter records are lacking.

An ocean is not a homogeneous, uniform mass, Dr. Burt explained. It is a stratified body, layered like a deck of playing cards with water of differing temperature and salinity. Deep circulation currents wind through the sea, pulsed by unknown combinations of forces. It is the job of the oceanographer to measure and estimate the effect of these oceanic movements on the earth's climate and on marine life.

One continuing job of Dr. Burt's staff and students will be the keeping of monthly records of the varied temperature and salinity of waters off Oregon's coast. Salt is the descriptive tag of ocean water. If you know the temperature and the salt content over an area you can estimate the currents. Also the water density can be told, and from the water density the changes in water elevation.

One major piece of equipment on the research vessel tells something of what kind of knowledge is expected. A winch and a high boom carrying 18,000 feet (over three miles) of steel cable will permit scraping the bottom for biological and geological studies of marine life and bottom sedimen-



WHILE WAITING for the 80-foot research vessel which U.S. Naval Research funds will provide for Oregon State's new oceanography department, staff and students make data-collecting trips out of Yaquina Bay on this 45-foot fishing vessel. Here a plankton net is being lowered to get count of microscopic animal and plant life on which larger forms of marine life depend.

tation, Or. with this boom, light trawls may be hauled through the water at any depth to pick up sea life. Coring devices may be let down to bring up samples of sedimentation layers on the ocean's floor.

Fine meshed plankton nets (a five-foot one costs about \$50) will tell the density of these almost microscopic plant and animal forms on which all other sea life depends.

Dr. H. D. Frølander is the plankton authority on the OSC oceanography staff. Contradicting the popular idea that plankton fills the ocean as thick as mustard in an abandoned farm field, he said, one-half part of plankton per million parts of water is a lush crop on the Oregon coast. Three parts per million is a record high on the east coast.

Establishment of the oceanography department will give other educational departments and agencies a chance for a great variety of projects tied in with the research vessel—the geologists who are interested in the ocean floor as well as water content; the fishery experts; the public health people who have the major problem of water pollution, and the biologists and their study of marine life.

The state's investment in the new oceanography department and the research vessel is only in the payment of teaching staff. This year there are three teachers and next fall Dr. Burt hopes to have seven, including a woman, one of the few women in the world who hold doctorates in oceanography.

During his first four years at OSC Dr. Burt worked all Oregon's estuaries. On these he is ready to answer questions, particularly on water pollution. His "Catalogue of Oregon Estuarine Waters" is now being printed for the State Fish Commission. In past two years,

he and his staff and students have made regular short-distance data-collecting trips along the coast, using fishing boats. However, he is not about to offer any findings on Oregon's offshore waters now.

"The public always thinks we know more than we do," he said. "If you know a little it is easy to talk glibly. In this business the more you know, the more you

realize there is to learn . . . it's as though someone looked at the climate for one week and tried to explain it all." He referred again to the unknown layers and movements that made up the ocean and said, "It isn't until you have examined a whole lot of water a large number of times that you can begin to talk about what is happening in this stack of cards."



BRUCE WYATT, instructor in new OSC oceanography department, lowers a Nansen bottle, ingenious device for taking water samples and temperatures at precise ocean depths. Salt is descriptive tag of water. When salt content and temperatures are known, currents and water elevations may be predicted.



A BOTTOM SNAPPER, device that bites into bottom sediment and brings up samples for analysis of ocean floor, is lowered by oceanography student from converted fishing craft off Yaquina Bay. An 80-foot research vessel to be built this year for the OSC oceanography department will be research source for geologists, biologists, health and fishery people.