



Bob Olson Oral History Interview, November 14, 2014

Title

“Parasitologist and Public Educator”

Date

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Location

Valley Library, Oregon State University.

Summary

In the interview, Olson discusses his upbringing in Minnesota, his early interest in science, his undergraduate years at Concordia College, and his graduate studies at Montana State University.

The primary focus of the interview is Olson's work at and connection with the Hatfield Marine Science Center. He describes his arrival at the Oregon coast, the Marine Science Center facility in its early phases, and some of his initial contacts at the center. He then details his activities in teaching and curriculum development, noting other developments at the center that enabled improved instruction in Newport, and mentioning specific colleagues who were involved in teaching activities. Olson likewise reflects on his research career - including fruitful scientific collaborations in which he engaged - and shares his memories of the forward evolution of HMSC as a facility.

Olson next recalls his activities as HMSC's associate director for education programs, shares the story of the naming of a parasite in his honor, recalls the creation of the Seataqua Program, and comments on the importance of HMSC's public presence and its positive relationship with residents of the central coast. He also lends his thoughts on HMSC's connections with the commercial fishing industry, some specific research projects of which he is especially proud, memorable contacts that he has made with other scientists working in his field, and changes that he has observed in teacher-student interactions over the years.

The session concludes with Olson's personal memories of his family and extracurricular activities, and with recollections of moments in his scientific career that have proved especially gratifying.

Interviewee

Bob Olson

Interviewer

Mike Dicianna

Website

<http://scarc.library.oregonstate.edu/oh150/olson/>

Transcript

Mike Dicianna: Today is Friday, November 14th, 2014, and we are interviewing in the Valley Library Wilson Room. And we have the opportunity to speak with one of the founding fathers, basically, of the Hatfield Marine Science Center, Dr. Robert E. Olson, Professor Emeritus of OSU, of the Fish and Wildlife Department. My name is Mike Dicianna, oral historian for the Special Collections and Archive Research Center. And basically what we would like to start with is kind of a brief biographical sketch. Where were you born, early, early days, early schooling?

Robert Olson: I was born in northern Minnesota, in a town named Thief River Falls, and I lived there till I was six, when we moved to Minneapolis. And so I grew up in Minneapolis, Minnesota, and did my schooling through high school there. What else would you like to know?

MD: Oh, like, family, brothers, sisters, that type of thing.

RO: Okay. I have one sister and no other—and no brothers. And my father worked for Land 'O Lakes Creameries. He was actually in the Ag division that worked on, that sold seed. But growing up in Minneapolis, I went to Roosevelt High School, and, which was quite a large high school, over 2,000 students. So I went to progressively smaller schools for a while after that.

MD: Well, did you plan to pursue a career in biology, specifically marine biology, as a youngster growing up in Minnesota? I mean, there's not many oceans around there. What did you want to be when you grew up?

RO: Well, I actually didn't know what I wanted to be when I grew up, but I was interested in biological things. So my major interest was in biology through school, and I thought maybe teaching biology at a high school or something, or maybe a natural resource agency person, doing something outdoors with biological themes. But I didn't have a firm focus at all on, I certainly did not think of marine biology. I had no idea that's how I would end up.

MD: Now, were you a good student as far as the sciences go? I mean, was that kind of your forte?

RO: Well, biological science was. Science in general was maybe a little above my average, but it was not a shining light, necessarily, in that regard. But it was definitely an interest area.

MD: Now, any significant memories of your childhood, growing up in the Midwest?

RO: Well, you gave me a heads up that you might ask that question, and I tried to think about what really stood out in my mind, and I'm not really sure. When I think back to the '50s, especially, I think of them as being sort of a time when we were, in retrospect, kind of naïve—kind of naïve about what was going on in the country. In Minnesota in those days in the '50s, we didn't think much about civil rights. We considered ourselves all very open-minded and so on, but frankly, we didn't know what was going on in a lot of places in that regard. I think it was sort of a naïve time, when I look back at it, at least, in terms of our concept of the significance of things that were potential around us.

MD: Well, let's move into your educational background, which gave you a basis for your career. I see that you began your college career at Concordia College, graduating in 1962. Major, specialized course work?

RO: I did go to Concordia College in Moorhead, Minnesota, but there are actually a number of Concordias around. The one that I went to is associated with the Lutheran Church, and it's an excellent liberal arts school. Going there was sort of a part of a family tradition. My parents met there in the '30s, and I met my wife there in the '60s, and I had two sons who grew up in Newport, Oregon, but went to Concordia in Moorhead. One of them found his wife there, and the other one tried very hard, but found a wife later.

MD: So what was your major?

RO: My major was Biology, and that's where I got introduced to the idea that parasitology was a discipline. I had a freshman Biology teacher who had an interest in that [0:05:00], and got very enthusiastic when he talked about parasitic organisms, and that struck a chord with me at that time. And then later on I was able to take a course in parasitology at Concordia. But it was all pretty introductory before graduate school.

MD: Now, was that an influence in your choice moving into graduate school? You went specifically into—?

RO: Actually, that's true. I was interested. One of the things the freshman Biology teacher talked about was the lifecycles of digenetic trematodes, which was sort of a subject that not everybody knows about, but I thought it was one of the most amazing things that I ever—I hadn't heard about that kind of lifecycle before, where these parasitic worms that live in vertebrate organisms, primarily as adult worms, but they go through a succession of hosts to get back to the adult host. And I thought that that whole pattern was really pretty interesting, and I did follow up on that in further, later studies.

MD: So you pursued your graduate studies at Montana State University in Bozeman, Montana. Again, you were working in the same field. Not a whole lot of beaches or marine life there. When did marine biology come into play?

RO: Marine biology as such didn't come into play there, but when I went there I worked as a fisheries professor, and they had just received some money to study fish parasites in several places, in lakes in Montana. And they actually turned out to be digenetic trematodes, the one that had piqued my interest when I was a freshman at Concordia. And so I started right out being able to work on one of those kinds of parasites. And the part I studied for my master's degree was how these parasites impacted the fish that they infected. The fish were an intermediate host. The final hosts for the parasite we studied were white pelicans, but the trout in a lake near Ennis, Montana, were infected by the larval stages. And I studied the effects of those larval stages on the fish.

MD: And then the pelicans eat them, and—?

RO: The pelicans eat the fish, and the worms become sexually mature, produce eggs, which pass into the water, where they hatch into a ciliated organism that penetrates into a snail. And it multiplies in the snail numerous times, and releases organisms that swim in the water and penetrate into fish, trout. And then they live in the trout for—they live a long time in the trout if the trout live a long time and don't get eaten. But if the trout get eaten by the pelicans, which they did in this lake, then the parasite would repeat its lifecycle.

MD: Fascinating. Now, you received your PhD in 1968. So, what was your actual dissertation?

RO: Well, at Montana State I finished a master's on the project I just mentioned, and then I needed specialized training in parasitology. I hadn't had really very specialized training, and I had an opportunity to go to Wayne State University in Detroit, and work in a parasite—Parasitology Studies program there. And so I spent one year at Wayne State, and then went back to Montana State in a PhD program where I studied another digenetic trematode in a different lake, that also infected trout, but it infected specifically the heart of the trout, so it had a potential for greater impact. And it was a parasite that nobody knew which snail it used for a host, and nobody knew where the final—in this case it was a gull bird host—was. And those two factors weren't known, so part of my project was to determine the lifecycle, and then take the parasites into a laboratory and manipulate them and infect fish, and then find out what the effects on fish were.

MD: Now, the final result of these studies and stuff, now, are they related to the Fish and Game Department of Montana, and that type of thing?

RO: Right, actually the funding for the project came from the National Institutes of Health, which in those days was supporting graduate students at a higher level than they do now. But the state, Montana Fish and Game was very interested in our projects, and supported us in that regard, and were interested in the results. [0:10:00]

MD: Well, you are kind of a fixture around the Hatfield Marine Science Center in Newport, Oregon, and you have a unique perspective, being there for some of the early years on. The Marine Science Center was opened in 1965, and shortly after, that Professor Ivan Pratt established the Parasitology Library. Now, you were brought in as a research associate in '68, so early, early on in kind of the lifecycle of the Hatfield Center. What were your original duties and research?

RO: Well, it was quite a fortuitous thing for me that the Sea Grant started right about that time that I was finishing up my graduate work. And Oregon State University was one of the first universities to have a Sea Grant program, and the funding for my research associate position was from Sea Grant. So I went to Newport, Oregon, and the new Marine Science Center, Oregon State University Marine Science Center, to become basically a marine biologist without having ever seen the ocean.

So, but it turned out that the biology of the organisms that I was familiar with, in marine fishes has a similar basis. And so I had to learn new types of hosts, and I had to learn the new invertebrate fauna, and so on, of the marine environment. But the biology underlying the kinds of organisms I studied was basically on the same level.

MD: These early days of the Marine Science Center were extremely formative. Now, the facilities were just being built and developed, classroom space, a new library space finally was built. Tell us about how the Science Center was changing during those early years. What were your labs like? Were they well-equipped?

RO: Well, the building, the Marine Science Center original building, was brand new in 1965, and so I was coming in three years later, and it was an outstanding facility at that time, although much smaller than it is now. The original building consisted of two research wings, a Marine Biology-Oceanography wing, and a wing that was mainly Fisheries-related work, where people from the OSU Department of Fisheries and Wildlife, not the state agency but the university department, were working there. And I was in the Marine Biology wing, which Ivan Pratt had his Parasitology program ongoing, and I was brought in to research parasitic organisms that were impacting, or potentially impacting marine, other marine organisms.

MD: So during this time you had dealings with, and collaborations with, some of the early pioneers of Marine Biology here at Oregon State. One of them was Dr. Roland Dimick. Did you work with him?

RO: Actually, Roland Dimick was the head of the Fisheries and Wildlife Department when Ivan Pratt was in the Zoology Department, and I was originally a research associate in Zoology. So I actually did not know Mr. Dimick. He is the one that had started the first marine work at Oregon State University, at a different laboratory site, where they worked on oysters back in the '30s, I guess.

MD: Yes.

RO: But I did not know him.

MD: And early on, I see that only one class was actually offered during those early years, it was a summer course. Now, when did the teaching/research function of your position begin?

RO: Well, actually you mentioned the initial class, which was a summer Invertebrate Zoology class taught by Dr. Jeff Gonor, and he was an excellent marine biologist, and had a very successful class that started about the time the Marine Science Center started, actually. But that was the only class offered. But there was always an interest in developing further marine-related courses, and so the first effort—I was involved in the next effort after that, that summer course they taught, where we taught a team-taught course in Marine Symbiosis. Symbiosis relates to organisms that live together in some physiological relationship, whether it's parasitism, or mutualism [0:15:00], or commensalisms—a variety of levels of relationship between organisms of different species.

Actually, there were a number of people at OSU at that time that researched various aspects of symbiotic relationships, and so we set up a class where students were bused to the Marine Science Center twice a week, and we had professors from the campus teach their specialty on some type of symbiotic relationship. And I basically was one of the organizers of the class, and taught sections of it having to do with parasitology. But a wide range of symbiotic relationships were taught, and the idea was to try and establish more educational programs at the university level at the Marine Science Center, and to make good use of the marine intertidal and marine environment for students to get hands-on experience there. So, it was a course we taught a couple of years, in an initial effort to try to interact with the main campus and the Marine Science Center.

MD: So that basically began the early days of creating a curriculum?

RO: That was the first course. A number of efforts were tried over the course of the early '70s. Joel Hedgepeth was the director of the Marine Biology Wing, Oceanography Wing, and he taught seminars on the history of marine science and marine biology. It was one of his major interests. And there were other courses were tried, but a major impediment became evident early on was the fact that it wasn't, didn't, work very well to have students busing back and forth between campus and Newport to take classes. It became obvious that we really needed to have students in residence for them to

take full advantage of what we had to offer, and what we could develop. And so, there were more efforts tried. A number of different courses were taught in the late '70s.

But another thing that was going on at that point was it became more and more obvious that we needed a resident director. Now, I should back up a little bit here, in that the Marine Science Center had—the original directors of the Marine Science Center were in Corvallis. Wayne Burton, Oceanography, and Tom Scott in Fisheries and Wildlife were the director and associate director, but they were not moving out of Newport, but they were rarely ever there. And so we didn't have administrative support at the level we needed it. And so in 1972, John Byrne, who was in the research office at that time—he's an Oceanography professor—he was designated the director of the Marine Science Center. But he was also located in Corvallis.

So we had a new director with more hands-on approach, but still not in residence in the Marine Science Center. And the importance of that is that we had university faculty members at the Marine Science Center in a variety of departments. They were in residence there, but their departments were on campus. And unless you work with people on some point a daily level, you really don't get well-acquainted, and know what people's strengths and weaknesses are. And so faculty members in Newport found it difficult to interact well enough in their departments at Corvallis, and to aid their promotion and tenure, basically. That's what was really lacking, was that there wasn't a daily contact between professors and their departmental colleagues that allowed them to get well known to each other.

So it was finally recognized on campus that we needed a resident director. So in 1977, Dr. Lavern Weber, who was in the Fisheries and Wildlife Department, was selected to be the resident director. It was a national search that included people we interviewed from a number of different marine laboratory situations, as well as other people from the Oregon State University campus, for director. And Lavern became director, and he turned out to be an extremely fortuitous choice [0:20:00], because he was outstanding at the job, and he provided—he was able to speak for faculty members at the Marine Science Center in their departments as far as promotion and tenure.

Lavern had developed, over a short period of time that he was on campus, great credibility. He was an outstanding researcher. He was well known on campus, and he had credibility, which really, we—those of us at the Marine Science Center needed someone with that kind of standing. And before he went to the Marine Science Center, he was the associate dean of the Graduate School. And so anyway, he was well-known on campus, and having him come to Newport to be our director, and to get to know us, and be able to support us in our home departments, became very important. He also initially wanted—one of his major themes right from the start was we needed an instructional program at the Marine Science Center that has in-residence students.

And so a number of things happened. An apartment and bunkhouse area was built to allow us to have students in residence. And he was able to interest two departments in developing programs. One was Fisheries and Wildlife, and the other was—actually, the Biology Program was in the College of Science, and the Biology Program in the College of Science agreed to sponsor, or help set up, a Marine Biology course, where students came and took one course, Marine Biology, a 15-credit course, where that's all they did for a spring term, and had a very in-depth experience in Marine Biology. So that was one thing, and that required a number of professors on campus to come and teach their specialty.

And so we had invertebrate zoologists come and teach their specialty, fisheries, ichthyologists. Carl Bond initially taught Fishes. Harry Phinney taught Marine Algae; he was from the Botany Department. We had microbiologists. And I taught a Parasites and Diseases course—no, that was in the Fisheries and Wildlife Department, excuse me. I taught a section on symbiosis in the Marine Biology course. I also taught a session on marine birds, which is another area, an interest area of mine. So that was the Marine Biology course, and that started in 1980. It's ongoing today; it's developed into an outstanding course. It started off as an excellent course, and it always has been. And major people involved in that to this day are Jane Lubchenco and Bruce Menge of the Zoology Department.

Okay, the other program that started at the same time was in Fisheries and Wildlife, and rather than having a single 15-credit course, Fisheries and Wildlife taught in the winter term initially, and then eventually in the fall term, a series of courses of marine-related fisheries. Howard Horton taught a Commercial Fisheries course. I taught my Parasites and Diseases course. There were a number of—Jim Lannan taught a Genetics course. Anyway, so students came and took a full load of classes that were Fisheries, that contributed to their Fisheries major. The thing that made both Marine Biology and the Fisheries programs go was that it required students to come to the Marine Science Center and live there. Both

the Fisheries Program and the Marine Biology Program did not allow you to commute back and forth; you had to be in residence. And that was a crucial factor in the success of both of those programs.

MD: Well, this was the nexus of the program that we have to day, which is nationally known. Now, early on with this, did you work with other university fisheries, marine science centers? Did you collaborate at all?

RO: There always were efforts to collaborate, but it was always difficult to get things to mesh, and allow students to come from different universities. [0:25:00] Many students did come from different universities, especially to the Marine Biology Program, but actual cooperative efforts between, for example, the IMB, the University of Oregon's Marine Lab—we were in communication with them. We cooperated on being colleagues, and supported each other's programs as best we could, but in terms of actually interacting with other universities, we didn't initially do so.

MD: Now, how about the research vessels? Did you in your studies get time on the *Wecoma*?

RO: Most of the research that I conducted was estuary or near-shore ocean-located. And we did have vessels that worked in those areas. The *Paiute* was a 35-foot boat that worked in the estuary and near shore. I used that extensively. It was replaced by the *Sacagawea*, which did the same function, and now the ship that does that is the *Elakha*, which I did actually use in the last few years that—I taught after I retired and used it them. The large research vessels that were there when I came were the *Yaquina* and the *Cayuse*. And the *Yaquina* had been a sea plane tender during World War II, and was converted to a oceanographic vessel. And that was replaced by the *Wecoma*, and which was then in the last couple of years replaced by a sister ship, the *Oceanus*, which was the Woods Hole's vessel.

Anyway, so there's been a series of oceanographic vessels. The ship support facility was run by the School of Oceanography, and all scheduling and funding, and these things were done through Oceanography. And Oceanographers—there were some Oceanographers over the years in residence in the Marine Science Center, but basically the oceanographers were based on campus, and came and used the Newport facility as a place to take off from on their oceanographic expeditions.

MD: Yeah, because that was one of the main features of the new Hatfield Center, the new Marine Science Center, at the time, was that there was dock facilities, and it was all just one-stop shopping for marine biology.

RO: Right. So the chemical oceanographers had a lab in the Marine Science Center early on, but otherwise there weren't too many oceanographers in residence. They pretty much came from campus.

MD: Well, you stated the development of the OSU Marine Science Center was different from other marine field stations, in that there was a collaboration with other agencies, such as the Environmental Protection Agency, the National Marine Fisheries Service, the Oregon Department of Fish and Wildlife.

RO: Right.

MD: What are your thoughts on the benefits and challenges represented with this model?

RO: Well, there were lots of advantages. You got to know people from a variety of different agencies and disciplines. In 1969, the year I arrived there at the ODFW—well, it was the Fish Commission at that time, but they built their marine research facility next door to us, and so the marine component of the Fish Commission, and the researchers in that regard were there, and we interacted with them extensively. It was a very good, symbiotic relationship between us there. The Environmental Protection Agency was present right from the start, and it was different named at the time; it was the Federal Water Quality Pollution Control Administration.

MD: Yeah.

RO: Anyway, which became the Environmental Protection Agency. And so they had people onsite, doing research right from almost the start of the Marine Science Center. And that—eventually they built their own building in the '80s, and it became a very large program. In fact, the marine-related people that were located at the Corvallis lab all moved out to the EPA lab at the Marine Science Center. Then, well, there were lots of groups involved. The National Marine Fisheries

Service, through efforts of Senator Hatfield, have two, now three [0:30:00], large research buildings located on campus, with a very large contingent of National Marine Fisheries Service people.

The U.S. Fish and Wildlife Service, the federal Service, has their wonderful facility there. And those people work on sea birds primarily, and their charge is—all of the offshore islands along the Oregon Coast are part of the National Wildlife Refuge, and that's the charge for the U.S. Fish and Wildlife people that are there. So, there have been all kinds of scientists on the same site, getting to know each other on a personal level, and this always fosters good collaborative research and support, basically.

MD: Yeah, so I find it interesting, the development of the Marine Science Center. It was a great idea to start with, and the additions, and the changes, and the development of it—you've seen it all. That's kind of a unique perspective, to see how the Hatfield Center has become what it is today.

RO: Yeah, most marine laboratories have, historically at least, been associated with a particular department on campus. So the University of Washington has Friday Harbor Labs; it's associated with the Zoology Department. So that's what's there, the Zoology Department people, and they don't have agencies, or at least to my knowledge they still don't have agencies there. And the California Marine Labs, most of them were associated with university campus departments, and don't have the interaction of all of the federal agencies, at least initially.

So it was a unique thing that developed, and it developed, it was fostered that way, because the initial Marine Science Center didn't come from a single department on OSU's campus. It came from Oceanography, and from Fisheries and Wildlife, and from science in a variety of areas. So we started off with a number of groups working together, and then with Senator Hatfield's support, federal agencies, these facilities were built, which, again, many, many more researchers all to interact with us.

MD: Well, it's certainly something for OSU to be proud of, really. I noticed that you were kind of unofficially the education coordinator—we talked about this a little bit earlier—from '79 to '85, and then you were actually put in this position. So you served kind of two hats, as a researcher and kind of the coordinator of all of the new educational programs, and the development of those. And so, were you officially—when did you officially become a professor?

RO: Well, as I told you, I started off in the Zoology Department, and when Lavern Weber became director, he thought I would be better off in Fisheries and Wildlife Department, which was his department. That's where he would like me to be, so I actually changed departments then. And in Fisheries and Wildlife it was possible for me to get on a tenure-track position, which was harder. It's hard on soft money to get tenure track; you really don't do it. And so, I was able to get more hard money support in Fisheries and Wildlife than I could in the Zoology Department.

And so at that point I got on a tenure track, and Lavern had worked to help fund me to become an assistant to him, administratively, in the education area, and so that's where some of my funding came from. After a number of years of working with Lavern as part of—what I did wasn't necessarily where all of my funding came from. And so, we started the Marine Biology course in 1980, and I was involved with finding professors to teach in the various sections, and just coordinating, setting up a schedule of when you would do your teaching. And you worked with the Invert Zoologist that needed the low tides, so they always got the weeks when the lowest tides were. And so there was that kind of coordinating to do, so that each professor taught a week, or maybe two weeks, during the spring term. So I was in charge of figuring out how that was going to work, and then teaching my own sections of the class as well. So.

MD: Daunting task, yeah.

RO: Anyway, I did eventually get funding to be the associate director for education programs at the Marine Science Center [0:35:03], working with Lavern.

MD: Now, you are the only person I've ever met that has a parasite named after them. I read in one of the issues of the Hatfield Center newsletter in 2008 that they named *trypanoplasma bobolsoni* after you. What's that story? What kind of a parasite are you?

RO: Right. Well, that's sort of a lighthearted story in a way, because one of my graduate students studies parasitic flagellates in marine fishes. And he went out to the Virginia Institute of Marine Science, where he had a highly successful

career. His name is Eugene Bureson, and he was one of my early PhD students. Actually, he started working with Ivan Pratt, but Ivan Pratt died in 1973, so I became Gene Bureson's major professor. And Gene had a highly productive career, and we were also good friends.

When you discover new species of parasites, or any organism, you have the ability to write the paper describing it and naming it. And so, but there's more to this particular story than the fact that he honored me by naming a parasitic flagellate, a new species, after me. Sort of a lighthearted discussion between Gene Bureson and me, and another fellow named Chris Duncan, who really promoted the parasite being named *bobolsoni*—that sort of has its base. It's sort of a long story.

I shouldn't go into it, but there is sort of a funny story coming out of British Columbia where a new parasitic copepod was found on fish, and the people who described it named it after the most famous parasitologist of copepods, whose name was Bob Kabata. So when you name a parasite, if it's a new genus, you have to give it a new genus name. If it's a new species you have to give it a new species name. And they named this parasite, a parasitic copepod after Bob Kabata. They named it: the genus was *bobkabata*, and the species was *kabatabobbus*, which is Bob Kabata spelled backwards. Anyway, so this was all sort of a joke among us, sort of fun to sort of tell about this unusual name for the parasite.

And so when Gene found a parasitic flagellate in flatfishes on the East Coast that was a new species, Chris Duncan wanted to name it after me. Chris Duncan said, "Not just *olsoni*; it should be *bobolsoni*." So that's what happened. But a parasitic flagellate is related to, well, kind of better known by—the African Sleeping Sickness in people is caused by a similar looking parasite in the same group, and that's carried by the tsetse fly, as well. It turns out that all of the parasitic flagellates in fishes are transmitted by leeches. And Gene Bureson was the world's authority on leeches, as well as a lot of other aspects, molluscan diseases, and so on. But anyway, this is one of his areas where he was a specialist, and he named one of his new species after me, yeah.

MD: I love it. Now, you mentioned before also that you taught a class on sea birds, shore birds. And when they started the whole, all marine sanctuaries up and down the coast for the different species, like marbled murrelet, and I know there's a number of other ones that have rookeries, did you get involved with the studies of that, too?

RO: Not in a research way. Not in a research way, but I've always had an avocational interest in birds, and moving to the Oregon Coast, I learned a lot about the sea birds of the area. And so, it was more out of that interest rather than my main professional interest. So the Seataqua Program started at the Marine Science Center in 1972 or '73, and this was a new series of short courses on coastal topics. And Don Giles, who was the extension agent in charge of marine education for the general public, started these short courses. [0:40:00]

And so, he got me and a friend, Peter Rothesberg, who was a graduate student, to teach the first Seataqua short course, which was on coastal birds, or marine birds and coastal birds. And so, I then taught that course every year, sometimes twice a year, for the next fifteen years or so, during the Seataqua program. So, as a part of just being an interest, sort of an advocational interest of mine, as well as working on the Seataqua course, then I eventually was able to teach a couple of—I taught a summer Marine Bird course for the Zoology Department. And I taught a Marine Bird section of a Marine Biology Course. So that was something that just sort of developed on the side.

MD: Well, as a child, I remember being so excited going to the Marine Science Center Aquarium that they had set up for the public. And I was probably, I don't know, a small child, looking at the octopus and the tide pools there in the Center when you were teaching, early on. Now, tell us a little bit—you may not have been involved with that, but what are your feelings about having that public presence there at the Center?

RO: Well, it was extremely important. It's difficult for the community at large to have a feel for what's going on in the Marine Laboratory. They have preconceived notions, but often times it isn't clear. For example, for many years, and even to this day to some extent, people in Newport think that the Marine Science Center is run by the Oceanography School. It is in part; that's a part of it there, but it wasn't—it's a lot more diverse than Oceanography. And so in the early days, well, the Aquarium was right from the start at the Marine Science Center, and people came in large numbers to view the animals, and to learn about the programs at the Marine Science Center. But that wasn't—still they were in the Aquarium area, but they didn't know what was going on back at the laboratories.

So again, back in the '70s we started to have open houses, and the first open houses we had, people came. So many came you could hardly maneuver down the hallways, everybody was so interested to see what was going on in the laboratories, and what research was going on. And so, people became quite knowledgeable about what exactly goes on at the Marine Science Center. What kind of marine studies are you doing? Why? What kind of things are you finding out? So the open houses went on for a number of years, but it has transitioned now into a Marine Science Weekend, where groups, people come in, and research groups put on and set up demonstrations, and allow people to learn about what's going on. So it's not an open house in the same sense that it was initially, but the Aquarium aspect of things has really provided a basis for people to have a feel for what's going on in the marine environment, and what kinds of studies are we doing on those things.

MD: Now, what are your feelings about how the relationships between the city of Newport and the central coast there, and the Hatfield Science Center, are? Initially, was there any resistance to them being put in, or has it always been a supportive community?

RO: To the best of my knowledge it's always been extremely supportive. The land that the Marine Science Center sits on was, is, leased from the Port of Newport, a 99-year lease, essentially free. And the Marine Science Center itself exists at least partially because of a fluke, in a sense, and that is that in the mid-sixties there was an economic depression going on in certain areas of the country, and especially some areas were considered economically depressed. And Oregon's Newport area qualified for that. I'm not sure what the criteria were for qualifying to be an economically depressed area, but Newport did qualify, and there were federal funds. [0:45:00] There was a federal program to allow things to develop in these areas that would help the economics of the area.

Well, it was a short-lived federal program; I don't even know the name of it. But two things were built under that program: something in Utah; I don't know what it was. And the Marine Science Center received funding from this federal program. And so that's how it got there, was because Newport was considered economically depressed. And people have been extremely supportive of it, and it has been a major, a major contributor to the economic well-being of the Newport area and the entire Oregon Coast, for that matter.

So in a sense it was sort of a fluke, but also the Oregon State University knew they wanted to have a marine laboratory, and so they had planning going on, and so they had sort of a running head start. When this program opened up they had some funding. They had already planned on, well, along the way to being developed, so that when they went and applied for the money they were very competitive, and got money to build the Marine Science, the original Marine Science Center building.

MD: Well, and the other thing that comes to mind is the relationship between the Hatfield Center, the OSU Extension Service and the Marine Extension Agents, and the commercial fishing industry. Has there always been a good relationship there, or has there been some contention?

RO: Well, there has, there has been, because Sea Grant started at right about the same time, and Sea Grant was envisioned as extension agents in hip boots. That was Athelstan Spilhaus's way of describing what the Sea Grant program should be. It would do for the oceans and marine environment what Land Grant did for the agriculture on land. That was the whole idea at the start. So the Extension Service has been a big part of Sea Grant right from the very start. In fact, Herb Frolander was the first director of Sea Grant; he was Oceanography.

But the one who was director for probably the longest period of time, and really fostered the building of the whole Sea Grant program at Oregon State was Bill Wick. And he was an Extension Agent initially out of Tillamook County. He came to the Marine Science Center and ran the Marine Advisory Program, which was the face of Oregon State University's marine programs to the communities and to the public. So the Extension Service had had a big part of it right from the start, and continues to this day, and with the Coastal Oregon Marine Experiment Station, which is part of the Extension, and that, it's the only marine—I think it's still the only marine experiment station in the country. Maybe other states have followed suit, but definitely the first. It was the first one, and it has been a major contributing factor to the success of the whole marine program at the Marine Science Center at Oregon State, and it includes the Sea Food Lab in Astoria, as well.

MD: Yeah, the Sea Food Lab has been around since the mid-thirties.

RO: It's been around for a long time, but when the Marine Experiment Station came into being, they were folded into it, and it has provided good support for faculty members that are in those, doing research in the Experiment Station. To have the Extension Marine Experiment Station has really strengthened research in that area.

MD: Well, yeah, because again, the Marine Science Center is such a thing for OSU to be proud of, and to see that it's such an integral part of the whole central coast really does your heart good.

RO: Well, it's interesting, the critical mass that started from that small nucleus of marine work, well, originally at the Oyster Lab that Fisheries and Wildlife had up the bay a little ways. Willy Breese was an early oyster worker, way before the Marine Science Center was built, and so he carried that program into the Marine, when the Marine Science Center came in 1965. And he became a very well-known oyster researcher, very much involved in the development of oyster hatcheries, which now provide the seed for the oystermen to grow. They used to always have to import it from Japan [0:50:00], before the oyster hatcheries were developed. And Chris Langdon carries that on today. But I've sort of lost the thread of where I was going with that. Anyway—

MD: It is a long history.

RO: I guess the Extension aspect of it has been a very important part.

MD: Well, let's shift gears just a slight bit. I'd like to talk about you being faculty and emeritus, through OSU's Department of Fish and Wildlife. Your specialty has always been parasites and diseases of fishes, and vertebrates. Now, through your research and teaching, what have you learned? What changes have been made? How has the world benefited from—?

RO: One major thing that I have neglected to talk about so far, it's so hard to encapsulate everything that goes on, has gone on, but one of the major things that happened, again, about the time we were starting the marine courses, about in 1980 or so, was the building of the Newport Aquaculture Laboratory through Hatfield's influence, and also then the Research Port Facility, two large National Fisheries Service buildings. Well, one of the laboratories in the NAL, the Newport Aquaculture Laboratory, was a Fish Disease Laboratory. And I became associated with Dr. John Fryer in the Microbiology Department at that time, who had a large program studying the bacterial and viral diseases of fishes.

And I did some of the—well, they did some parasitology there and that was my interest as well. And so I became associated with the Salmon Disease Research Program through the Microbiology Department. And Kathy Land was our technician, who was an outstanding cell culturist, allowed us to do virology. We had a number of graduate students: Jim Winton, who has gone on to become a renowned fish virologist, and a number of other graduate students doing fish disease research at the Marine Science Center in this new laboratory. And it was really a good relationship with Dr. John Fryer's program on campus, where they were doing the freshwater disease work, and we were involved in disease work more associated with salt water.

And the thing that really allowed that to take off in a big way was the fact that Oregon Aquafoods was a salmon ranching company across the road from the Marine Science Center that was attempting to, in a private company way—Weyerhaeuser actually was the owner of it. And they would raise salmon in fresh water, release them from their release site across the road from us in Newport, and then the idea then was that when the fish were growing up in the open ocean, they would be available to the commercial fishermen, the sport fishermen, but when they came back to Newport, to the return site for Oregon Aquafoods, then Oregon Aquafoods would have those as a commercial product.

And so that was a huge, huge effort on the part of Weyerhaeuser. They had a very large facility there. They had a very large freshwater hatchery in Springfield, near their plant there. And there were lots of—over the early years there were lots of signs it was really going to work, but for a variety of reasons, some of them political, some of them technical, eventually the salmon ranching was shut down across the road from us. But while they were in operation, they not only raised—they got fish in salmon eggs and sold the eggs to places like Chile, which was just developing their aquaculture, pen-reared aquaculture, of salmon in Chile. And in order for the eggs to be sold and transmitted anywhere, whether it was locally or to other countries, they had to be certified disease-free, and especially of viral diseases.

And so we got heavily involved in doing certification work, where we would take samples from the eggs from the salmon that were going to be sold, from the eggs that were going to be sold, and we would run virology exams on those. [0:55:00] And basically you were certifying that you looked according to standard techniques, and did not find something, because you can never prove a negative. But anyway, so, but there were standardize procedures that were followed that allowed a high level of confidence that there was no viral transmission going to go with those eggs. So we did that very extensively through the '80s.

Plus, there were many spinoffs, in terms of new viruses being found. A new intestinal organism was found as a result of some of this work we were doing with the aquaculture industry. So that was a very major effort, and involved a lot of people, and our Fish Disease Laboratory in Newport, in the Newport Aquaculture Lab, was a state of the art facility during that time.

MD: Well, it seems like the courses you taught, your career as far as your research—have the facilities grown along with these classes? Have they developed technically, and facility-wise?

RO: Definitely. Yeah, I mean the National Fisheries Service buildings have been used by both OSU researchers and Natural Marine Fisheries Service researchers since they were built, and some very strong programs. Behavioral Ecology of Fishes was a major program. Population Dynamics in the Barry Fisher Building now is the newest National Fisheries building. Those people there do population dynamics studies on marine commercial fish species. The Oyster Nutrition Program has been a major one. And now the development that has, over the last five or ten years, become maybe the major thrust is Genetics. There's a Genetics program where they are using genetics techniques to understand fisheries problems, and understand fisheries populations.

Plus the Marine Mammal Program—that hasn't been mentioned yet. That's been a huge part of the Marine Science Center, Bruce Mate's program, and now Scott Baker, who is the Marine Mammal associate director, is a geneticist. And he's using genetics techniques to study marine mammals around the world. So Bruce Mate does the tagging studies; Scott Baker does the genetic studies. Anyway, so there's huge marine mammal work going on, too. It's a little bit hard to tell you the story in a coordinated way, because there are so many aspects that keep happening from the side that I—

MD: New areas of research come up, and, "Let's look at this." Yeah, it's 50 years of history with this facility.

RO: Right.

MD: And so, to see where it was then, and where it is today, must be really rewarding for you.

RO: Yeah. And I started off talking about the critical mass, I guess, at one point, but the fact that we were there and we had people with expertise and so on, and the City of Newport wanting to—thinking an aquarium would be a good idea. And so the Oregon Coast Aquarium developed in large part because there was expertise available, and people available that had ideas on how to do things, plus the city fathers, who gave it great support, that brought the Oregon Coast Aquarium into being. And then just a couple of years ago, when NOAA was looking for a new place to have their Pacific fleet home-ported, Newport won that battle, which was an interesting political battle underneath all of that, but Newport did, in fact, end up getting the Pacific Oceanographic Fleet from NOAA. So that's part of the critical mass of people who are there.

And now, OMSI, Oregon Museum of Science and Industry, has bought land in South Beach, where they're going to put in a new OMSI facility for education for young people, basically. So that's going to be breaking ground in the next year or so. And interestingly [1:00:00], the money that funds that comes from John Gray. John Gray was the developer who developed Salishan and Sunriver, and a great supporter of many things in Oregon. Well, he's the one that bought the land that's going to allow OMSI to build their new facility there. So that's going to interact with the Oregon Coast Aquarium, the Marine Science Center Education Programs.

We have programs for school kids at the Marine Science Center as well, so all of these things work together to a bigger and better whole. Everything is more than the individual parts, really. It's lots of things going on that all start from, actually, the fortunate development, or establishment, of the Marine Science Center in 1965. That's where it all sort of

started. Anyway, I mentioned John Gray, and his daughter, Janet Webster, is the librarian at the Marine Science Center, and she's been a major contributor to the success of the Marine Science Center, as well.

MD: And we will have her story, along with yours, available through the Oregon Sesquicentennial Oral History Project, which is really fantastic. Now, one of the things I've thought about, over 50 years of being involved with teaching and advising, you've come in contact with so many young scientists over these years. Anybody special? Is anybody famous?

RO: Well, there have been some highly successful students that have come out of the program at the Marine Science Center. I don't know how famous people are. I mentioned Gene Burreson, who was one of my students who has been an extremely successful scientist. In fact, the year before he retired, which was about three years ago—he retired the year before that—he was the Virginia Scientist of the Year, so, semi-famous, in that regard. A woman named Anne Kapuscinski was a genetics graduate student of Jim Lannan's, and she has become—she now has an endowed chair at Dartmouth University, so she has been very successful. She started off at University of Minnesota and then went to Dartmouth. And I know that there are other people that have done extremely well, as well.

But I suppose the most famous person associated with the Marine Science Center is Jane Lubchenco, who has been a MacArthur Genius Fellowship recipient. She was head of NOAA, the National Oceanographic Atmospheric Administration. And she's a highly successful marine biologist, well known nationally, certainly. She didn't do her study, undergraduate, graduate study, at the Marine Science Center, but since she's been in the Zoology Department at Oregon State, she's interacted closely with the Marine Science Center, and was a major mover in the success of the Marine Biology course that we teach.

MD: Well, one of the other things that I always love to ask emeritus professors, and people who have been in the profession for a long time, is how you think that students have changed between, say 1980, and the recent times that you've been dealing with students?

RO: Well, I don't know how much change there has been, because when students come to do marine biology they're always really fired up. So in terms of enthusiasm, I don't know if there has been much change. They're always extremely enthusiastic, and interested in becoming marine biologists, or at least becoming knowledgeable in marine science, wherever that might lead. And those are the students I primarily have seen.

We have not done freshman courses, for example, where you are working the students that are trying to find themselves. The ones that we see in Fisheries are advanced students who have decided this is where their passion is, and certainly the Marine Biology students, this is where their passion is as well, and so they are always very good students and great potential for success. So I haven't seen the change that you're looking for. [1:05:00]

MD: Well, maybe notebooks to laptops! [Laughs]

RO: Technology-wise, no question technology-wise it's been a sea change what goes on. Everybody, well, seems to have a second nature for computers, something that I don't have. And they've grown up with it more, and it's the way they are very productive now. For example, the library is an interesting thing in terms of technology, because we have a beautiful library at the Marine Science Center, but the library has gone so much online these days, everything; the library's holdings are mostly available online in some fashion. And so we have this beautiful library where we don't receive journals in hard copy anymore, for the most part. And research professors and researchers for the government agencies do most of their literature searching in their offices online.

So Janet, she's been involved in this. We've been reconfiguring the Marine Science Library to have more meeting spaces for small meetings, or even a little bit larger meetings, and more spaces for students to come and have a spot to be. So, using the space more for that than for increasing the number of journals we receive, which we can't really do anymore.

MD: Yeah. Well, I always like to find out about a person's life interests, because we try to create the whole picture of our oral histories with the person. So I'm assuming that you decided to make a home in Newport. How about your family life, children, that type of thing?

RO: Right. Yeah, we did move to Newport without having been anywhere near Newport before we moved here in 1968. And interestingly, at least to us, when we moved here in 1968, Newport set its rainfall record by twenty inches that year.

And so we got here in the middle of that. And in both November and December, of 1968 we had between seventeen and twenty inches of rain each month. And so there were 114 inches that year. So anyways, rain-wise, we got well indoctrinated early on, and we adapted to that, and it's been easy ever since.

In fact, I don't know if we can blame climate change or not, but this last year Newport's weather has been the best since we've been there for 46 years. And I'm not the only one who's seeing all of that. I don't remember, but other people are seeing it, too. This year is the nicest weather we've ever had. And so, whether we're turning into northern California or not, I'm not sure. But anyway, so we moved here then, and we found out we could easily adapt to coastal environment. The temperatures in the 60s suit us very well. If it gets above 70, we start to go into heat prostration a little bit.

MD: [Laughs]

RO: And so I raised—my wife and I raised two boys in Newport. They went to Newport High Schools, High School, and they have gone on to careers. One son is a 7th grade science teacher in suburban Minneapolis, and the other son is a science education professor at Oakland, University in Michigan. And they did their education, initial education, at Newport schools, and did well. So we're promoters of the Newport schools, as well. Now, we have made a home in Newport, and don't have plans to move it, at this point in time, at least.

MD: So what about some of your—what do you like to do for leisure time, if you have any leisure time?

RO: Well, I do have leisure time, but one of the things I discovered I enjoy doing when I was in my early forties was running. And so I enjoyed to do 5k, 10k races, and even marathons. So I did ten marathons over time, and so that takes a lot of time to get ready for, so that uses up some time. I eventually was able to run the Boston Marathon once.

MD: Oh, wow!

RO: So that was sort of a passion for through my forties, fifties [1:10:00], and into my mid-sixties, actually. It's gotten a little harder since my mid-sixties, and I still run a little bit, but not like I used to be able to do. But I still enjoy it. Bird watching. Birding always has been something that I really enjoy doing, and I've had a number of friends that travel the world and do bird watching. I've done a little bit of that, but not as much as some of them have, but I did get to go to Antarctica one time, and that was a tremendous experience. South Georgia Island, on the way to Antarctica, is the most amazing place I've been the world, basically.

And South Georgia Island is where Shackleton left from to go on his Antarctic attempt to reach the South Pole, when he got stuck, when he got frozen in the ice, and basically marooned for a couple of years, basically. Anyway, that whole story took place from South Georgia, south to Antarctica, and back to South Georgia again. And South Georgia is just an amazingly beautiful place, full of penguins, and elephant seals, and fur seals, and leopard seals, and huge numbers of penguins of various species. I didn't say pelicans, did I?

MD: No, you didn't.

RO: I didn't intend to. There are penguins, plus lots of other birds, as well. So anyway, that was a huge fun place to go. I've also been able to go birding in Australia and South America, as well. So, fun to do.

MD: Well, you are a true gem of both Hatfield Marine Science Center and Oregon State University, as an emeritus professor and person who has a passion for his teaching, and marine science over the years. It's been indeed an honor to be able to include you in our OH150 project. Is there anything you'd like to add to the viewers of these videos about Oregon State, or about your science?

RO: Well, I guess when I think back on some of the things I've been fortunate to be involved in and to be working on, I guess the sheer fun of making discoveries, whether they are—they aren't particularly large discoveries, but discoveries of something that hadn't been known before is very, very fun to do. And I've been fortunate to be able to do that in just a couple of instances of my research career.

One of them was working on an organism, a parasite of the gills of salmon, Chinook salmon, coming into hatcheries in Oregon in some places. And the organism has never really been fully classified. It's not clear whether it's a protozoan or

a fungus, or what it is. It's called dermocystidium. But the fun thing about it was I was able to take the cysts that occurred on salmon gills, and study them and culture them for a while, until they produced zillions of little swimming spores, very, very tiny things. But nobody knew how fish got infected before.

And I found by examining these spores, I was able to see what are called the zoospores develop in huge numbers, and then I was able to expose some little salmon to them. Not a very nice thing to do, but anyway, these little salmon became heavily infected with the parasite, showing these were the infectious stages, and those infectious stages hadn't been known before. So I can remember the feeling of observing them for the first time. That was really fun to do.

And another fun one was actually brought to my attention by a person named Milos Popovic, who was the financial—the university main financial guy for many, many years. He died just a couple of years ago. But he liked to go crabbing in Alsea Bay. And when he went crabbing in Alsea Bay, he started finding crabs that didn't taste good, and they looked—and the meat didn't look right. And so he brought them to me. And I looked at the meat of the crab he brought, and it was very, very white and opaque. [1:15:00] This is from a non-cooked crab, and basically the meat looked like it had been cooked, but it was fresh. So I said, "I think I know what that is. I think that's a type of parasite called a microsporidian."

So I took some of the sample of it and looked at it under a microscope, and microsporidian spores are egg-shaped, very, very, very tiny, but egg-shaped. And all I could see were these needle-shaped, very long, thin, needle-shaped structures. I thought, "Hm. I don't have any idea what these are. I just don't know what they are at all. So, that started a study of Alsea. We started at Alsea Bay. Eventually we studied it all along the coast, and the parasite was found in crabs, especially in estuaries along the coast. And I puzzled and puzzled and puzzled, what in the world the parasite was. And at one point I went to the electron microscope on campus here, with the microscopists there, and we found some really weird looking structures. And I thought, "This must be the critter that's doing it."

Well, luckily I found out before I embarrassed myself that that was Dungeness crab sperm, and it wasn't—they weren't parasites, but they were very unusual looking things. [Laughs] But it turned out not to be the parasite. But eventually then, through the use of an electron microscope I was able to see structures within these needle-like, little, very tiny, tiny needle structures that were microsporidian structures. And so my initial thought was that they were microsporidians, because microsporidians turn crustacean flesh white. That's why I thought that. It turns out they were microsporidian. And it took me a year or more—I can't remember exactly, but an extended period of time—to discover that, find the structures that said, yes, they are microsporidians.

And it turned out to be not only a new genus and species, but a new family of microsporidians. And so I was able to publish a paper then, with the help of some others, describing this new family, genus, and species of parasites. We named it *nadelspora canceri*. The *nadelspora*—German word for needle is Nadel, and I remembered looking at little insect pins. The tiniest insect pins you can get are called minuten Nadelen. And so I thought, well, these are very, very tiny needles, and so we'll name it nadel, German for needle, and then *canceri* for the genus of the crab. So that was the *nadelspora canceri*. So that was fun to do, too.

And I guess looking back, there are lots of things that were really satisfying and fun, and some things not so satisfying, over the years. But the really, really fun things were when you would find something that was new to science. That's fun to do. Whether or not it's going to save the world or not? You never know how things are going to be used in the future. But it turned out with the Dungeness crab parasite, the semi-fortunate thing is it's actually a lethal parasite. It kills the crabs, but young crabs get infected in estuaries more so than offshore, as far as I could determine. And crabs don't live long enough to get into the commercial catch. And so it's unusual to find one in the commercial catch. So that's a fortunate thing, in the sense of not having to worry about it. It wouldn't infect people anyhow. It wouldn't hurt you, it just doesn't taste very—but it's not common to find it in a commercially caught crab. So it's mainly in young ones. We were able to infect crabs in the laboratory. Very tiny little crabs would get infected, just by putting the spores in the water and it ate the spores, that's all it had to do.

Anyway, so the other thing about some parasites like that is: why hadn't they been observed before in Dungeness crab? I mean, people had been that—maybe they had been, and just not noticed. But I also have noticed over the years that, almost like the Ebola thing, which breaks out into a big epidemic and then goes back again, some of these parasitic diseases I studied become very common over a period of a few years, and then sort of wane again, and don't become quite

so common. So there are some ecological things going on that are fostering the development of the parasite at some period of time, [1:20:00] and they may or may not become much less common later on.

I don't know for sure about the Dungeness crab one; I haven't been able to study that lately, but I did study, early on, a similar parasite in sand shrimp. And then I went back twenty years later to try to find it. It was abundant, it was everywhere. I went back twenty years later, and I could not find any in the sand shrimp. So things change, is the point of it, and for reasons we really don't necessarily know.

MD: Well, you are absolutely fascinating. One of the things that we always like to do is give our alumni and emeritus a chance to give your feeling about associated with, or being, a Beaver.

RO: Right.

MD: And so, just a note about that.

RO: Well, definitely, Oregon State's been a great place for me to be, at the Marine Science Center in Newport. It's been unbelievable to be able to be there all of those years, associated with Oregon State, and enjoying, being able to enjoy things that I really thoroughly enjoy working on. I consider myself extremely fortunate. I didn't know anything about Oregon when I came here, and I came here from—had not been to the West Coast. And it's turned out to be home, and Oregon State is a wonderful university that I am happy to be, proud to be, associated with.

And I'm a Beaver. Sometimes that's not always easy to do. But I have two sons who didn't go to Oregon State, actually, but they're Beavers. They're Beavers; one's in Michigan, one's in Minnesota, and they fly their Beaver flags. [1:21:52]