

Marine Science Center



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ANNUAL REPORT TO MARINE SCIENCE COMMISSION

FROM: Lavern J. Weber, Director, Hatfield Marine Science Center

SUBJECT: Summary of Academic Year 1984-85 at the Mark O. Hatfield Marine Science Center, Oregon State University

BUILDINGS/PHYSICAL PLANT

The dormitory, as a priority from the OSU Foundation, has been interesting saga this past year. On November 1, 1984, I was approached by a Mr. Bob Jensen, Jim Arthur, and Bill Williamson. They ventured to propose building the desired dormitory, maintaining ownership and, in essence, taking a tax write-off on any losses. They would have maintained all profits, but within five years their lease on the Marine Science Center ground would have terminated and they would, at that point, have turned over the buildings to OSU. After many meetings and much discussion with officials of the Oregon State University Foundation and the State Board of Higher Education, appropriate contracts, leases and agreements were all signed. However, nothing was accomplished and on June 15, 1985, the parties involved terminated agreements. We will be working with the OSU Foundation for a source of funds to build these badly needed dormitories.

Faculty at the HMSC have agreed to use all our seawater system, settling ponds, and storage areas for a high-salinity seawater system for the entire facility. This means that throughout the year, we will maintain 25/ppt or above for the entire facility.

EDUCATION PROGRAM

No significant changes in the education program have ensued in the past year. We continue to work with the University of Oregon's facility to attempt to get some cooperate programs. Our efforts to this point have not been significant. Our enrollment this past year has been up slightly and it is my belief that our successful programs over the past number of years are beginning to be self-perpetuating.

The summer program of 1984 did have one down period in that we had to cancel the Marine Biology course. The Fisheries course was very successful.

Dr. Rudy and I had hoped to present to the Marine Science Commission and the State Board of Education a joint program for a marine science degree. After many discussions between ourselves and with OSU campus, the decision was made by OSU not to continue this particular proposal. It was hoped that we can continue to develop internally, and I will be entertaining the School of Science towards an effort of increasing the utilization of the Center.

A summary of student enrollment can be found in the statistics section.

FACULTY CHANGES

Additions

Dr. Donald Campbell, Assistant Professor in Pharmacology. Dr. Campbell comes to OSU from the University of Iowa on his own funding, and hopes to work with Dr. Murray and Dr. Mpitsos in comparative pharmacology and physiology.

Rod Fujita, Pat Wheeler's postdoctorate in Oceanography, from the University of Washington.

Cindy Paszkowski, Bori Olla's postdoctorate in Oceanography.

Departures

Dr. David Barker has accepted a position with a private industry selling standardized biochemical preparations. It is a significant move for Dr. Barker with over a doubling in salary but a loss to Dr. Mpitsos' program and the Marine Science Center.

Visiting

Dr. Jack Pierce, Chairman of the Biology Department, Austin College, Sherman, Texas, has been on sabbatical leave this past year and has been working with Dr. Robert Olson. He will be leaving in September, 1985.

RESEARCH PROGRAMS

We are very pleased to report that the molluscan aquaculture position has been advertised and at the writing of this report, the position has been offered to a candidate. We expect to have that position filled in September, 1985. Dr. Bori Olla this past year has moved from his IPA to a online position with the National Marine Fisheries Service, and has been assigned to the Marine Science Center. His behavioral work here is certainly an asset. Dr. Steve Hammond with the Marine Resources Research Division of the National Oceanic Atmospheric Administration has been assigned as director of that program. Their program seems to be growing very steadily with about a dozen people now involved with geophysical research.

AQUARIUM/MUSEUM

We have spent another year in essence maintaining status quo of the aquarium/museum displays. For early this summer, 1985, we plan to exhibit as a permanent display a Minke whale skeleton. We have had a review by the Institution of Museum Services this past year which was very favorable. Through the use of a survey of the public, we hope to obtain information which will be used to decide how and when to update or rejuvenate our static displays. Statistics for the aquarium/museum visitors are on page 6.

FUTURE PLANS

Again, as in the last several reports, our major effort will be put in making possible construction of our much-needed dormitory space. The Environmental Protection Agency has received \$500,000 for engineering and architectural studies of a new facility here on the Marine Science Center campus. This construction also involves a library and a water calibration facility. All of these will be shared with Oregon State University.

FINANCIAL STATEMENT

ESTIMATED FY85 INDIRECT EXPENSE GENERATION (000)

	<u>Expenditures</u>		<u>Indirect Expense</u>
NSF	1775		148
DOE	145		24
DOD	199		40
NOAA	1334		182
OTHER FEDERAL	217		44
		3670	438
COOPERATING AGENCIES			
EPA	1000		--
ODFW	800		--
MRRD	102		--
NMFS	30	1932	--
 <u>STATE</u>			
OCEANOGRAPHY INSTRUCTION	25		--
MARINE RESOURCES INSTITUTE	24		--
HMSC ADMINISTRATION	208		--
OCEANOGRAPHY RESEARCH	40		--
SEA GRANT PROGRAM	160		--
HMSC AQUARIUM-MUSEUM	58		--
HMSC BUILDING OP. & MAINT.	370		--
BASIC EXTENSION PROGRAM	30		--
FISHERIES & WILDLIFE RESEARCH	12		--
		927	
HOUSING	15	15	
TOTAL		6544	
 DISTRIBUTION BY SOURCE			
	<u>Exp</u>	<u>%</u>	
FEDERAL GRANTS & CONTRACTS	3670	56	
COOPERATING AGENCIES	1932	30	
STATE	927	14	
HOUSING	15	--	
TOTAL	6544	100	

STATISTICS

STUDENT ENROLLMENT

<u>Winter</u>	<u>Name of Class</u>	<u>1984</u>	<u>1985</u>
FW455X	Fish Culture	11	17
FW466	Invertebrate Fisheries	10	15
FW494	Diseases and Parasites of Marine Fishes and Invertebrates	13	9
FW495	Molluscan Aquaculture	13	11
FW407c	Seminar	10	9
FW555	Fish Genetics	11	NA
FW473X	Fish Toxicology	7	NA
OC490	Principles of Biol. Oc.	7	7
Total Student Enrollment		<u>30</u>	<u>21</u>

<u>Spring</u>	<u>Name of Class</u>	<u>1984</u>	<u>1985</u>
Bi450x, 451x	Marine Biology	7	16
Total Student Enrollment		<u>7</u>	<u>16</u>

<u>Summer</u>	<u>Name of Class</u>	<u>1984</u>	<u>1985</u>
AET450X	Aquacultural Engineering	11	10
Ed407	Oceanography for Secondary Teachers	--	0
Ed408	Marine Biology for Elementary Teachers	25	0
FW455	Fish Culture	9	NA
FW495	Molluscan Aquaculture	5	15
FW507m	Seminar	9	4
FW571	Functional Ichthyology	9	NA
Bi450,451	Marine Biology	NA	12
AREc408	Marine Economics	NA	5
FW494x	Diseases and Parasites of Marine Fishes and Invertebrates	NA	15
Science ED407	Marine Botony for Teachers Natural History of Marine Mammals		25
ED508	Advanced Marine Biology	13	25
Total Student Enrollment		<u>15</u>	<u>32</u>

Resident Graduate Students (current) 11

ACADEMIC INSTITUTIONS UTILIZING THE HMSC
1984

Morningside College	12
Yukon Delta NWR	16
University of Washington	1
Boise State University	15
Linn-Benton Community College	30
Oregon Department Fish & Wildlife	18
Department of Health & Human Services	5
Weber State College	10
U. S. EPA	8
Chemeketa Community College	10
Oregon State University	16

AQUARIUM/MUSEUM VISITORS

January 1, 1984 - December 31, 1985 = 340,654

312 different school groups have utilized the Extension Education Programs for a total of 10,140 participants.

Visitors since opening: 5,811,717

FACULTY PUBLICATIONS

A list of HMSC investigator publications is presented for the academic year 1984-1985.

BARKER, DAVID L.

Murphy, A. Don, David L. Barker, Jeanne F. Loring, and S. B. Kater. (1984). Sprouting and functional regeneration of an identified serotonergic neuron following axotomy. *Journal of Neurobiology*. 16(2):137-151.

Richard, David L. Barker, S.B. Kater and Deana A. Bodnar. (1984). Nerve growth-promoting factor produced in culture media conditioned by specific CNS tissues of the snail Helisoma. *Brain Research*. 292(1984):81-91.

BOEHLERT, GEORGE W.

Boehlert, George and Mary M. Yoklavich. (1984). Carbon assimilation as a function of ingestion rate in larval Pacific herring, Culpea Harengus Pallasi Valenciennes. *J. Exp. Mar. Biol. Ecol.* 79:251-262.

Boehlert, George and Mary M. Yoklavich. (1984). Reproduction, embryonic energetics and the maternal-fetal relationship in the viviparous genus Sebastes (Pisces: Scorpaenidae). *Biol. Bull.* 167:354-370.

Boehlert, George and Mary M. Yoklavich. (1984). Variability in age estimates in Sebastes as a function of methodology, different readers, and different laboratories. *Calif. Fish and Game*. 70(4):210-224.

CAMPBELL, DONALD T.

Campbell, Donald T. and Richard Hahin. (1984). Altered sodium and gating current kinetics in frog skeletal muscle caused by low external pH. *J. Gen. Physiol.* 84:771-788.

Beam, Kurt G., John H. Caldwell and Donald T. Campbell. (1985). Na channels in skeletal muscle concentrated near the neuromuscular junction. *Nature*. 313:588-590.

GANT, DANIEL B.

Gant, Daniel B., L.J. Weber, and J.R. Smith. (1984). Effects of neuromuscular blocking agents and acetylcholinesterase inhibitors on the sculpin (Enophrys bison) pectoral fin response to indirect stimulation. *Proc. Soc. Experimental Medicine and Biology*. 177:151-155.

Sabourin, T.D., D.B. Gant and L.J. Weber. (1984). The influence of metal and nonmetal stressors on hepatic metal-binding protein production in buffalo sculpin, Enophrys bison. In *Marine Pollution and Physiology: Recent Advances*. 13:247-266.

HARVEY, JAMES T.

Harvey, James T. and Bruce R. Mate. (1984). Dive characteristics and movements of radio-tagged gray whales in San Ignacio Lagoon, Baja California Sur, Mexico. In *The Gray Whale*, M.S. Jones, S.F. Swartz and S. Leatherwood (eds.) Academic Press, 1984, 561-575.

Mate, Bruce R. and James T. Harvey. (1984). Ocean movements of radio-tagged gray whales. In *The Gray Whales*, M.S. Jones, S.F. Swartz and S. Leatherwood (eds.). Academic Press, 1984, 577-589.

LANNAN, C.N.

Lannan, C.N., J.R. Winton and J.L. Fryer. (1984). Fish cell lines: establishment and characterization of nine cell lines from salmonids. *In Vitro*, 20:671-676.

Winton, J.R., C.N. Lannan, D.P. Ranson and J.L. Fryer. (1985). Isolation of a new virus from chinook salmon (Oncorhynchus tshawytscha) in Oregon, USA. *Fish Pathology*, in press.

Olson, Robert E. and Catharine N. Lannan. (1984). Prevalence of Microsporidian infection in commercially caught pink shrimp, Pandalus jordani. *Journal of Invertebrate Pathology*. 43:407-413.

MATE, BRUCE R.

Mate, Bruce R. and James T. Harvey. (1984). Ocean movements of radio-tagged gray whales. In *The Gray Whale*, M.S. Jones, S.F. Swartz and S. Leatherwood (eds.) Academic Press, 1984, 577-589.

Harvey, James T. and Bruce R. Mate. (1984). Dive characteristics and movements of radio-tagged gray whales in San Ignacio Lagoon, Baja California Sur, Mexico. In *The Gray Whale*, M.S. Jones, S.F. Swartz, and S. Leatherwood (eds.). Academic Press, 1984, 561-575.

Roffe, Thomas J. and Bruce R. Mate. (1984). Abundances and feeding habits of pinnipeds in the Rouge River, Oregon. *J. Wildl. Manage.* 48(4):1262-1274.

OLLA, BORI L.

Olla, B.L., A.J. Bejda, A.L. Studholme and W.H. Pearson. (1984). Sublethal effects of oiled sediment on the sand worm, Nereis (Neanthes) virens: induced changes in burrowing and emergence. *Mar. Environ. Res.* 13:121-139.

Olla, B.L., A.L. Studholme, and A.J. Bejda. (1984). Behavior of juvenile bluefish Pomatomus slatatrix in vertical thermal gradients: the influence of season, temperature acclimation and food. In press, *Mar. Ecol. Prog. Ser.*

Steiner, W.W. and B.L. Olla. (1984). Behavioral responses of prejuvenile Red hake, Urophycis chuss, to experimental thermoclines. In press, Environ. Biol. Fishes.

Grover, J.J. and B.L. Olla. (1984). Morphological evidence for starvation and prey size-selection of sea-caught larval sablefish, Anoplopoma fimbria. In press, Fish Bull.

Burger, J. and B.L. Olla (ed.). (1984). Behavior of marine animals: current perspectives in research. Vol. 5: Shorebirds - Breeding Behavior and Populations. Plenum Publishing Co., New York.

Burger, J. and B.L. Olla (ed.). (1984). Behavior of marine animals: current perspectives in research. Vol. 6: Shorebirds - Migration and Foraging Behavior. Plenum Publishing Co., New York.

OLSON, ROBERT E.

Olson, Robert E. and Catharine N. Lanna. (1984). Prevalence of microsporidian infection in commercially caught pink shrimp, Pandalus jordani. Journal of Invertebrate Path., 43:407-413.

Bond, Carl E. and Robert E. Olson. (1985). Northward occurrence of the opaleye Girella nigricans and the sharpnose sea perch Phanerodon atripes. Cal. Fish and Game. 71(1):56-57.

OSIS, VICKI

Osis, Vicki. (1985). The Columbia River: its future and you, Grades 5-8; Grades 9-12. Two volumes. Oregon State University.

ROYLAND, JOYCE

Royland, Joyce E. and L.J. Weber. (1985). Suspension induced gross morphological changes in rat testes. Proc. Soc. Exper. Bio. and Med. 178(1):170.

SWARTZ, R.C.

Swartz, R.C., W.A. DeBen, J.K.P. Jones, J.O. Lamberson and F.A. Cole. (1984). Phoxocephalid amphipod bioassay for marine sediment toxicity. Special Technical Testing Publication 854, American Society for Testing and Materials, 285-306.

Swartz, Richard C., D.W. Schults, G.R. Ditsworth and W.A. DeBend. (1984) Toxicity of sewage sludge to Rhepoxynius abronius, a marine benthic amphipod. Arch. Environ. Contam. Toxicol. 13:207-216.

WEBER, LAVERN J.

Royland, Joyce and Lavern Weber. (1985). Suspension induced gross morphological changes in rat testes. Proc. Soc. Exp. Bio. and Med. 178(1):170.

Gant, Daniel B., L.J. Weber, and J.R. Smith. (1984). Effects of neuromuscular blocking agents and acetylcholinesterase inhibitors on the sculpin (Enophrys bison) pectoral fin response to indirect stimulation. Proc. Soc. Experimental Biology and Medicine. 177:151-155.

Sabourin, T.D., D.B. Gant and L.J. Weber. (1984). The influence of metal and nonmetal stressors on hepatic metal-binding protein production in buffalo sculpin, Enophrys bison. In Marine Pollution and Physiology: Recent advances. 13:247-266.

WINTON, JAMES

Winton, J.R., C.N. Lannon, D.P. Ranson and J.L. Fryer. (1985). Isolation of a new virus from chinook salmon (Oncorhynchus tshawytscha) in Oregon, USA. Fish Pathology, in press.

Lannon, C.N., J.R. Winton, and J.L. Fryer. (1984). Fish cell lines: establishment and characterization of nine cell lines from salmonids. In Vitro, 20:671-676.

Hedrick, R.P., R. Rosemark, D. Aronstein, J.R. Winton, T. McDowell and D.F. Amend. (1984). Characteristics of a new reovirus from channel catfish (Ictalurus punctatus). J. Gen. Virology, 65:1527-1534.

Yoshimizu, M., J.R. Winton and T. Kimura. (1984). An improved technique for the collection of ovarian fluid samples. Progressive Fish Culturist, in press.

Hah, Y.C., S.W. Hong, M.H. Kim, J.L. Fryer and J.R. Winton. (1984). Isolation of infectious pancreatic necrosis virus from goldfish (Carassius auratus) and chum salmon (Oncorhynchus keta) in Korea. Korean Journal of Microbiology, 22:85-90.

Schreck, C.B., R. Patino, C.K. Pring, J.R. Winton and J.E. Holway. (1985). Effects of rearing density on indices of smoltification and performance of coho salmon, Oncorhynchus kitsutch. Aquaculture, in press.

YOKLAVICH, MARY

Boehlert, G.W. and M.M. Yoklavich. (1984). Carbon assimilation as a function of ingestion rate in larval Pacific herring, Culpea harengus pallasi valenciennes. J. Mar. Biol. Ecol. 79:251-262.

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