

Biographical Sketch of

HOWARD M. FEDER

Education:

Ph.D. 1956 Stanford University, Palo Alto

M.A. 1951 University of California, Los Angeles

B.A. 1948 University of California, Los Angeles

Honors:

Emeritus Professor of Marine Biology, University of Alaska Fairbanks, 1990.

Research Fellow, Dunstaffnage Laboratory, Oban, Scotland, 1980–1983.

National Science Foundation Research Fellowship (at Physiology Laboratory, Fishery Oceanography Center, La Jolla, California), summer 1966.

National Science Foundation Grant, 1964–1967.

University of Copenhagen Research Fellow, 1964–1966 (Denmark).

Eli Lily and Company Fellowship, 1955.

Stanford University Honors Fellowship, 1954.

Elected to Phi Beta Kappa Fraternity, 1948.

Graduated UCLA with highest honors, 1948.

Research Activities:

Investigation of the subtidal benthos of Port Valdez, Alaska. An extensive grab-sampling program pursued over the past years to obtain quantitative information to be used in a monitoring program in Port Valdez.

Alyeska Pipeline Company. Co-Principal Investigator—1971–2007. **Current Project.**

Investigation of the subtidal benthos associated with the pre- and post-dock conditions relative to Alyeska's SERVS dock in Port Valdez. Funded by Alyeska Pipeline Service Co. Principal Investigator—1993–1995.

A Long-Term Intertidal Monitoring Program for Port Valdez, Alaska, 1975–90. Co-Principal Investigator. Funded by Alyeska Pipeline Service Company

Investigation of the subtidal benthos of 14 bays in Prince William Sound subsequent to the *Exxon Valdez* oil spill. Funded by the State of Alaska. Principal Investigator—1989–92.

Investigation of the benthos on the shelf of the Gulf of Alaska, the southeastern and northeastern Bering and the southeastern and northeastern Chukchi Seas. Environmental assessment studies funded by NOAA. Principal Investigator—1974–80; 1979–81; 1986–93.

Investigations of the benthos of lower Cook Inlet. An environmental assessment study funded by NOAA. Principal Investigator—1976–79.

Investigation of the benthos of the Kodiak Island shelf and five bays. An environmental assessment study funded by NOAA. Principal Investigator—1976–80.

The reproductive biology of the Alaska pollock, *Theragra chalcogramma*. PROBES, NSF project. Co-Principal Investigator—1979–82.

Biology (recruitment, growth, age, distribution, abundance, reproduction) of hard-shell clams and their potential as a fishery resource in Alaska, Sea Grant project funded since 1970. Principal Investigator—1972–78.

The biology of the Tanner crab, *Chionoecetes bairdi*, in Alaskan waters. Sea Grant projects. Principal Investigator—1978–83.

Investigation of the benthos in Prudhoe Bay. An environmental assessment study funded by Atlantic Richfield Company and Alaska Sea Grant. Co-Principal Investigator—1975–76.

The benthos of Prudhoe Bay. Subcontract of SOHIO Alaska Petroleum Company. Principal Investigator—1980-81.

Impact of seafood cannery waste on the benthic biota and adjacent water at Dutch Harbor, Alaska. An assessment study funded by Environmental Protection Agency. Co-Principal Investigator—1979.

Risk Assessment Study in Port Valdez. Co-Principal Investigator---1997-98

Investigation of the benthos off Nome, Alaska. A program designed to obtain information of use to future monitoring in an area presently leased to the American Smelting and Refining Company. Co-Principal

Investigator—1973.

Investigation of the sediment/biological intertidal environment in Port Valdez and the effects of oil on this environment—an observational and experimental project. Funded by Environmental Protection Agency. Co-Principal Investigator—1972–76.

Sea-star biology. General biology and ecology of intertidal and subtidal sea-stars—1951–present.

Investigation of larval anchovies off California. Assessment of methods for feeding and sustaining anchovy larvae in fish tanks. Accomplished while I was a larval fish biologist at the Southwest Fisheries Center, La Jolla, California. Co-Principal Investigator-1969-70

Investigation of the European brittle star *Ophiura ophiura* (=texturata) and sea star and mollusk interactions in Scandinavian waters. Supported by a NSF grant and a Danish grant. 1964-1969

Investigation of a Scottish Sea Loch affected by the effluent from a pulp mill. Sabbatical Year and subsequent research years in Scotland 1980-1984

Investigation of the shallow benthic fauna off the Naval Arctic Research Laboratory at Barrow, Alaska. Research Assistant—1949-50

Consultant Activities:

Port Valdez Ecological Risk Assessment, 1995–1996. Funded by Alyeska Pipeline Service Co.

A Long-Term Intertidal Monitoring Program for Port Valdez, Alaska, 1991-1997. Funded by Alyeska Pipeline Service Co.

The subtidal benthos associated with the Endicott drilling islands and a causeway in the Beaufort Sea, Alaska. Funded by ENSR.

Monitoring the subtidal benthos in the vicinity of a causeway construction in Prudhoe Bay, Alaska. Funded by the Atlantic Richfield oil company

Peer Reviewer of Papers in the Following Journals

Polar Biology

Marine Biology

Marine Ecology Progress Series

Journal of Experimental Biology and Ecology

Marine Pollution Bulletin

Journal of the Biological Association of the U.K.

Coastal and Estuarine Ecology

Experience:

University of Alaska Fairbanks, Professor Emeritus, 1990–present.

University of Alaska, Professor of Marine Science and Zoology, 1970–1990.

Dunstaffnage Marine Research Laboratory, Scottish Marine Biological Association, Scotland: Research Fellow on Sabbatical Leave, and subsequent research work 1980-1984.

Hartnell College, Professor of Biology, 1966–69.

Fishery-Oceanography Center, La Jolla, California; Fishery-Biologist (Civil Service Rating: GS-12), 1969-70.

Oregon State University, Marine Science Center, Professor of Biology, summer 1967.

Marine Biological Laboratory, Denmark, and Kristineberg Zoological Laboratory, Sweden: Research Fellow, 1964–66.

Oregon University, Marine Laboratory, Professor of Biology, summer 1963.

Hartnell College, Professor of Biology, 1955–64. (Issued California Life Teaching Credential, 1963.)

Hopkins Marine Station, Research Assistant, 1951–55.

UCLA, Teaching Assistant, 1950–51.

Arctic Research Laboratory, Point Barrow, Research Assistant, 1949–50.

Kerckhoff Marine Laboratory, Research Assistant, 1948–49.

UCLA, Teaching Assistant and reader, 1946–48.

Published Papers and Chapters in Books

Vicknair, K., Pearse, J., Feder, H. M., McClintock, J. In press. Long-term population changes in sea stars at three contrasting sites

Blanchard, A. L., Feder, H. M., and Hoberg, M. In Review. Temporal variability of benthic communities affected by a large earthquake and anthropogenic stressors, 1971-2005. *Coastal and Estuarine Ecology*

Feder, H. M., Jewett S.C and Blanchard. 2007. A Southeastern Chukchi Sea (Alaska) macrobenthos. *Polar Biology* 30:261-275

Norton, D. W. and H. M. Feder. 2006. *Mytilus* thermophily? *Mar. Ecol. Prog. Ser.* 309: 301-303

Grebmeier, J. M., Cooper, L.W, Feder, H. M. Sirenko, B. I, 2006. Ecosystem dynamics of the Pacific-influenced Northern Bering and Chukchi Seas in the Amerasian Arctic. *Progress in Oceanography* 71:331-361

Feder, H. M., S. C. Jewett and Blanchard A. 2005. Southeastern Chukchi Sea (Alaska) epibenthos. *Polar Biology* 28: 402-421

Feder, H. M., Norton D., and Geller, J. 2004. A review of apparent late 20th century changes in the presence of mussels (*Mytilus trossulus*) and *macroalgae* in arctic Alaska and of historical evidence used to connect mollusk distribution to climate change. *Arctic* 56: 391-407

Blanchard, A. and H. M. Feder. 2003. Adjustment of benthic fauna following sediment disposal at a site with multiple stressors in Port Valdez, Alaska. *Mar. Pollut. Bull.* 46: 1590-1599

Blanchard, A. and H. M. Feder. 2003. Variations in benthic fauna underneath an effluent mixing zone at a marine oil terminal in Port Valdez, Alaska. *Mar. Pollut. Bull.* 46: 1583-1589

Blanchard, A. L., H. M. Feder and D. G. Shaw. 2002. Long-term investigation of benthic fauna and the influence of treated ballast water disposal in Port Valdez, Alaska. *Mar. Poll. Bull.* 44:367-382.

Hoberg, M. K. and H. M. Feder. 2002. The macrobenthos of sites within Prince William Sound, Alaska, prior to the *Exxon Valdez* oil spill. *Int. Rev. Hydrobiol.* 87:25-45.

Feder, H. M. 2001. A year at NARL: The experiences of a young biologist in the early days of NARL. In: Norton, D. (ed.), *Fifty More Years below zero*. University of Alaska Press, Fairbanks, Alaska, pp. 33-60.

Sheffield, G., F. Fay, H. Feder and B. P. Kelly. 2001. Laboratory digestion of prey and interpretation of walrus stomach contents. *Mar Mammal Sci.* 17:310-330.

Blanchard, A and H. M. Feder. 2000. Some aspects of the biology of limpets in Port Valdez, Alaska. *The Veliger* 43:34-42.

Blanchard, A. and H. M. Feder. 1999. Shell growth of *Mytilus trossulus* Gould, 1850, in Port Valdez, Alaska. *The Veliger* 43:380-388.

Jewett, S. C., H. M. Feder, and A. Blanchard. 1999. Assessment of the benthic environment following offshore placer gold mining in the northeastern Bering Sea. *Mar. Envir. Res.* 48:91-122.

Feder, H. M. and A. Blanchard. 1998. The deep benthos of Prince William Sound, Alaska, sixteen months after the *Exxon Valdez* Oil Spill. *Mar. Poll. Bull.* 36:118-130.

Wiegers, J. K., W. G. Landis, H. M. Feder, L.S. Mortensen, D. G. Shaw and V. J. Wilson. 1998. A regional multiple-stressor rank-based ecological risk assessment for the fjord at Port Valdez, Alaska. *Hum Ecol. Risk Assess.* 4:1125-1173.

Blanchard, A. and H. M. Feder. 1997. Reproductive timing and nutritional storage cycles of *Mytilus trossulus* (Gould, 1850) in Port Valdez, Alaska, site of a marine oil terminal. *The Veliger* 40:121-130.

Feder, H. M., A. S. Naidu, S. C. Jewett, J. M. Hameedi, W. R. Johnson, and T. E. Whitley. 1994. The northeastern Chukchi Sea: benthos-environmental interactions. *Mar. Ecol. Prog. Ser.* 111:171-190.

Feder, H. M., N. R. Foster, S. C. Jewett, T. J. Weingartner, and R. Baxter. 1994. Mollusks in the northeastern Chukchi Sea. *Arctic.* 47:145-163.

Naidu, A. S., R. S. Scalan, H. M. Feder, J. J. Goering, M. J. Hameedi, P. L. Parker, E. W. Behrens, M. E. Caughey, and S. C. Jewett. 1993. Stable organic carbon isotopes in sediments of the north Bering - south Chukchi Sea, Alaskan Soviet Arctic shelf. *Cont. Shelf Res.* 13:669-691.

Feder, H. M., A. S. Naidu, and A. J. Paul. 1990. Trace element and biotic changes following a simulated oil spill on a mudflat in Port Valdez, Alaska. *Mar. Poll. Bull.* 21(3):131-137.

Grebmeier, J. M., C. P. McRoy, and H. M. Feder. 1989. Pelagic-benthic coupling on the shelf of the northern Bering and Chukchi Seas. II. Benthic community structure. *Mar. Ecol. Prog. Ser.* 51:253-268.

Jewett, S. C., R. H. Day, and H. M. Feder. 1989. Feeding biology of the blackfin sculpin (*Malacocottus*

kincaidi, Gilbert and Thompson, 1905) and the spinyhead sculpin (*Dasycottus setiger*, Bean, 1890) in the northeastern Gulf of Alaska. *Pacific Science* 43(2):144–152.

Grebmeier, J. M., C. P. McRoy, and H. M. Feder. 1988. Pelagic-benthic coupling on the shelf of the northern Bering and Chukchi Seas. I. Food supply source and benthic biomass. *Mar. Ecol. Prog. Ser.* 48:57–67.

Naidu, A. S., H. M. Feder, M. J. Hameedi, and M. Baskaran. 1988. Carbon isotope and OC/N ratios: Evidence for sources of organic carbon in sediments of southeast Chukchi Sea-Kotzebue Sound, Arctic Alaska. *EOS* 69(44):1108.

Feder, H. M. and T. Pearson. 1988. The benthic ecology of Loch Linnhe and Loche Eil, a sea-loch system on the west coast of Scotland. V. Biology of the dominant soft-bottom epifauna and their interaction with the infauna. *J. Exp. Mar. Biol. Ecol.* 116:99–134.

Feder, H. M. and S. C. Jewett. 1988. The subtidal benthos. *In*: D. Shaw and J. M. Hameedi (eds.), *Environmental Studies in Port Valdez, Alaska: A Basis for Management. Lecture Notes on Coastal and Estuarine Studies.* Springer-Verlag, New York, pp. 165–202.

Feder, H. M. and B. Bryson-Schwafel. 1988. The intertidal zone. *In*: D. Shaw and J. M. Hameedi (eds.), *Environmental Studies in Port Valdez, Alaska: A Basis for Management. Lecture Notes on Coastal and Estuarine Studies.* Springer-Verlag, New York, pp. 117–164.

Feder, H. M. and S. C. Jewett. 1987. The subtidal benthos. *In*: D. W. Hood and S.T. Zimmerman (eds.), *The Gulf of Alaska. Physical Environment and Biological Resources.* U. S. Dept. of Commerce. U. S. Government Printing Office, Washington, D.C. pp. 347–396.

Jewett, S. C. and H. M. Feder. 1983. Food of the Tanner crab, *Chionoecetes bairdi*, near Kodiak Island, Alaska. *J. Crust. Biol.* 3:196–207.

Hoberg, M. K., S. G. McGee, and H. M. Feder. 1982. Polychaetes and amphipods as commensals with pagurids from the Alaska shelf. *Ophelia* 21(2):167–179.

Jewett, S. C. and H. M. Feder. 1982. Food and feeding habits of the King crab, *Paralithodes camtschatica*, near Kodiak Island, Alaska. *Mar. Biol.* 66:243–250.

Jewett, S. C. and H. M. Feder. 1981. Epifaunal Invertebrates of the Continental Shelf of the Eastern Bering and Chukchi Seas, pp. 1131–1153. *In*: D. W. Hood and J. Calder (eds.), *The Eastern Bering Shelf: Oceanography and Resources, Vol.II.* U. S. Dept. of Commerce.

McDonald, J., H. M. Feder, and M. Hoberg. 1981. Bivalve Molluscs of the Southeastern Bering Sea, pp. 1155–1204. *In*: D. W. Hood and J. Calder (eds.), *The Eastern Bering Sea Shelf: Oceanography and Resources, Vol. II.* U. S. Dept. of Commerce.

Feder, H. M. and S. C. Jewett. 1981. Feeding Interactions in the Eastern Bering Sea with Emphasis on the

Benthos, pp. 1229–1261. *In*: D. W. Hood and J. Calder (eds.), *The Eastern Bering Sea Shelf: Oceanography and Resources*, Vol. II. U. S. Dept. of Commerce.

Feder, H. M. 1981. Aspects of the Feeding Biology of the Brittle Star, *Ophiura texturata*. *Ophelia* 20:215–235.

Feder, H. M. and G. E. M. Matheke. 1980. Subtidal Benthos, Chapter 9, pp. 237–324. *In*: J. M. Colonell (ed.), *Port Valdez, Alaska: Environmental Studies, 1976–1979*. Inst. Mar. Sci., Univ. Alaska, Fairbanks.

Feder, H. M. and G. E. Keiser. 1980. Intertidal Biology, Chapter 8, pp. 145–233. *In*: J. M. Colonell (ed.), *Port Valdez, Alaska: Environmental Studies, 1976–1979*. Inst. Mar. Sci. Univ. Alaska, Fairbanks.

Feder, H. M. and A. J. Paul. 1980. Seasonal Trends in Meiofaunal Abundance on Two Beaches in Port Valdez, Alaska. *Syesis* 13:27–36.

Feder, H. M. and A. J. Paul. 1980. The food of the King crab, *Paralithodes camtschatica*, and the Dungeness crab, *Cancer magister*, in Cook Inlet, Alaska. *Proc. Nat. Shellfish Assoc.* 70:240–246.

Rice, R. L., K. I. McCumby, and H. M. Feder. 1980. Food of *Pandalus borealis*, *Pandalus hypsinotus*, and *Pandalus goniurus* (Pandalidae, Decapoda) from Lower Cook Inlet, Alaska. *Proc. Nat. Shellfish Assoc.* 70:47–54.

Feder, H. M., K. McCumby, and A. J. Paul. 1980. The Food of post-larval King crab, *Paralithodes camtschatica*, in Kachemak Bay, Alaska (Decapoda, Lithodidae). *Crustaceana* 39:315–318.

Feder, H. M. 1980. Asteroidea: The Sea Stars, Chapter 8, pp. 117–135. *In*: R. Morris, D. P. Abbot, and E. C. Haderlie (eds.), *Marine Intertidal Invertebrates of the California Coast*. Stanford Univ. Press, pp. 690.

Hoberg, M. K., H. M. Feder, and S. C. Jewett. 1980. Some aspects of the biology of the parasitic gastropod, *Asterophila japonica* Randall and Heath (Prosobranchia: Melanellidae), from southeastern Chukchi Sea and Northeastern Bering Sea, Alaska. *Ophelia* 19:73–77.

Jewett, S. C. and H. M. Feder. 1980. Autumn food of starry flounder, *Platichthys stellatus*, from Norton Sound, Port Clarence, and the Southeastern Chukchi Sea. *J. Cons. Int. Explor. Mer.* 39(1):7–14.

Paul, A. J., J. M. Paul, P. A. Shoemaker, and H. M. Feder. 1979. Prey Concentrations and Feeding Response in Laboratory-Reared Stage One Zoeae of King Crab, Snow Crab, and Pink Shrimp. *Trans. Am. Fish. Soc.* 108:440–443.

Feder, H. M., J. C. Hendee, P. Holmes, G. J. Mueller, and A. J. Paul. 1979. Examination of a reproductive cycle of *Protothaca staminea* using histology, wet weight-dry weight ratios, and condition indices. *The Veliger* 22:182–187.

Paul, A. J., H. M. Feder, and S. C. Jewett. 1979. Food of the snow crab, *Chionoecetes bairdi* Rathbun, 1924,

from Cook Inlet, Alaska (Decapoda, Majidae). *Crustaceana*, Suppl. 5, pp. 62–68.

Naidu, A. S., H. M. Feder, and S. A. Norrell. 1978. The effect of Prudhoe Bay Crude Oil on a Tidal-Flat Ecosystem in Port Valdez, Alaska, pp. 97–104. Proceedings of the 10th Annual Offshore Technology Conference, May 8–11, 1978. Houston, Texas.

Feder, H. M., S. C. Jewett, and J. R. Hilsinger. 1978. Man-Made Debris on the Bering Sea Floor. *Mar. Poll. Bull.* 9(2):52–53.

Jewett, S. C. and H. M. Feder. 1977. Biology of the Harpacticoid copepod, *Harpacticus uniremis* Kröyer on Dayville Flats, Port Valdez, Alaska. *Ophelia* 16:111–129.

Feder, H. M., A. J. Paul, and J. Paul. 1976. Age, Growth, and Size-Weight Relationship of the Pinkneck Clam, *Spisula polynyma*, in Hartney Bay, Prince William Sound, Alaska. *Proc. Nat. Shellfish Assoc.* 66:21–25.

Paul, A. J., J. M. Paul, and H. M. Feder. 1976. Age and Growth of the Butter Clam, *Saxidomus gigantea*, on Porpoise Island, Southeast Alaska. *Proc. Nat. Shellfish Assoc.* 66:26–28.

Feder, H. M. and D. Schamel. 1976. Shallow-Water Benthic Fauna of Prudhoe bay, pp 329–359. In: D. W. Hood and D. Burrell (eds.), Assessment of the Arctic Environment: Selected Topics. Inst. Mar. Sci. Occas. Publ. No. 4, Univ. Alaska, Fairbanks.

Paul, A. J., J. M. Paul, and H. M. Feder. 1976. Growth of the Littleneck Clam, *Protothaca staminea*, on Porpoise Island, southeast Alaska. *The Veliger* 19(2):163–166.

Paul, A. J., J. M. Paul, and H. M. Feder. 1976. Recruitment and growth in the bivalve *Protothaca staminea*, at Olsen Bay, Prince William Sound, ten years after the 1964 earthquake. *The Veliger* 18(4):385–392.

Feder, H. M., L. M. Cheek, P. Flanagan, S. C. Jewett, M. H. Johnson, A. S. Naidu, S. A. Norrell, A. J. Paul, A. Scarborough, and D. Shaw. 1976. The sediment environment of Port Valdez, Alaska: the effect of oil on this ecosystem. Inst. Mar. Sci. Tech. Rept. R76-3, Univ. Alaska, Fairbanks; EPA Rept. EPA-600/3-76-086, pp. 322.

Shaw, D. G., A. J. Paul, L. M. Cheek, and H. M. Feder. 1976. *Macoma balthica*: An indicator of oil pollution. *Mar. Poll. Bull.* 7(2):29031.

Paul, A. J. and H. M. Feder. 1975. The food of the sea star, *Pycnopodia helianthoides* (Brandt), in Prince William Sound, Alaska. *Ophelia* 14:15–22.

Feder, H. M. and A. J. Paul. 1974. Alaska Clams: A Resource for the Future. *Alaska Seas and Coasts* 2(1):1, 6–7.

Feder, H. M. and A. J. Paul. 1974. Age, growth and size-weight relationships of the soft-shell clam, *Mya*

arenaria, in Prince William Sound. *Proc. Nat. Shellfish Assoc.* 64:45–52.

Feder, H. M., C. Turner, and C. Limbaugh. 1974. Observations on fishes associated with kelp beds in southern California. *Calif. Dept. Fish and Game Fish. Bull.* 160:144.

Paul, A. J. and H. M. Feder. 1973. Growth, recruitment, and distribution of the littleneck clam, *Protothaca staminea*, in Galena Bay, Prince William Sound, Alaska. *Fish. Bull.* 71:665–677.

Feder, H. M., G. J. Mueller, M. H. Dick, and D. B. Hawkins. 1973. Data Section 9, pp. 665–800. In: D. W. Hood, W. E. Shiels, and E. J. Kelley (eds.), Environmental Studies of Port Valdez, Data Vol. I. Inst. Mar. Sci. Occas. Publ. No. 3A, Univ. Alaska, Fairbanks, pp. 800.

Feder, H. M., G. J. Mueller, M. H. Dick, and D. B. Hawkins. 1973. Preliminary Benthos Survey, pp. 305–391. In: D. W. Hood, W. E. Shiels, and E. J. Kelley (eds.), Environmental Studies of Port Valdez. Inst. Mar. Science. Occas. Publ. No. 3, Univ. Alaska, Fairbanks, pp. 495.

Feder, H. M. 1972. Escape responses in marine invertebrates. Sci. American Offprint Series. Freeman and Co., San Francisco, pp. 10.

Feder, H. M. and A. J. Paul. 1972. The littleneck clam, *Protothaca staminea*, of Prince William Sound, Alaska; a potential fishery resource. Twenty-Third Alaska Science Conference, pp. 2.

Feder, H. M. 1972. Escape responses in marine invertebrates. *Sci. Amer.* 227:92–100.

Feder, H. M. 1970. Growth and predation by the ochre sea star, *Pisaster ochraceus* (Brandt), in Monterey Bay, California. *Ophelia* 8:161–185.

Lasker, R., H. M. Feder, G. Theilacker, and R. May. 1970. Feeding, growth, and survival of larval anchovies reared in the laboratory. *Mar. Biol.* 5:345–353.

Feder, H. M. and B. Larssen. 1968. Ossicles in the stomach wall of *Ophiura texturata*. *Ophelia* 5:215–229.

Feder, H. M. and R. Lasker. 1968. A radula muscle preparation from the gastropod, *Kelletia kelletii*, for biochemical assays. *The Veliger* 10:283–285.

Feder, H. M. 1967. Organisms responsive to predatory sea-stars. *Sarsia* 29:371–394.

Feder, H. M. and J. Arvidsson. 1967. Studies on a sea-star (*Marthasterias glacialis*) extract responsible for avoidance reactions in a gastropod (*Buccinum undatum*). *Arkiv. for Zool.* 19:369–379.

Feder, H. M. 1966. Cleaning symbiosis in the marine environment. In: M. Henry (ed.), *Symbiosis*, Vol. I., Academic Press, pp. 327–380.

Feder, H. M. and A. M. Christensen. 1966. Aspects of asteroid biology. *In*: R. A. Booloottian (ed.), *Physiology of Echinodermata*, Interscience Publishers (John Wiley and Sons), New York, pp. 87–127.

Feder, H. M. and R. Lasker. 1964. Partial purification of a substance from starfish tube feet which elicits escape responses in gastropod molluscs. *Life Sciences* 3:1047–1051.

Feder, H. M. 1963. Gastropod defensive responses and their effectiveness in reducing predation by starfishes. *Ecology* 44:721–724.

Feder, H. M. 1959. The food of the starfish, *Pisaster ochraceus*, along the California Coast. *Ecology* 40:721–724.

Feder, H. M. 1956. Natural history studies on the starfish, *Pisaster ochraceus* (Brandt, 1835), in the Monterey Bay area. Ph.D. Dissertation submitted to Stanford University, pp. 294.

Feder, H. M. 1955. The use of vital stains in marking Pacific coast starfish. *California Fish and Game* 41:245–246.

Feder, H. M. 1955. On the methods used by the starfish, *Pisaster ochraceus*, in opening three types of bivalve molluscs. *Ecology* 36:764–767.

Book Review:

Feder, H. M. 1992. Intertidal Bivalves. A Guide to the Common Marine Bivalves of Alaska, by N. R. Foster. *Arctic*, pp. 407–408.

Poster Session:

Naidu, A. S., H. M. Feder, M. J. Hameedi, and M. Baskaran. 1988. Carbon isotope and OC/N ratios: Evidence for sources of organic carbon in sediments of southeast Chukchi Sea-Kotzebue Sound, Arctic Alaska. *EOS* 69:1108

The following papers, based on research notes maintained by Conrad Limbaugh prior to his death in 1960, have been organized and written by Howard M. Feder during the tenure of two American Academy of Arts and Science Grants. When this project was initiated, it was decided to make Conrad Limbaugh the sole author in all of the following papers. The papers are now archived at the Scripps Institution of Oceanography.

- Limbaugh, C. 1964. Life history notes on the two California pomacentrids: garibaldi *Hypsypops rubicunda* and blacksmiths *Chromis punctipinnis*. *Pac. Sci.* 18:41–50.
- Limbaugh, C. 1964. Field notes on sharks. *In*: P. Gilbert (ed.), *Sharks and Survival*. D. C. Heath Co., pp. 63–94.
- Limbaugh, C. 1962. Life history and ecological notes on the tubenose, *Aulorhynchus flavidus*, a hemibranch fish of western North America. *Copeia* 3:549–555.
- Limbaugh, C. 1961. Cleaning symbiosis. *Sci. Am.* 205:42–49.
- Limbaugh, C., H. Pederson, and F. A. Chace. 1961. Shrimps that clean fishes. *Bull. of Mar. Sci. of the Gulf and Caribbean* 11:237–257.
- Limbaugh, C. 1961. Observations on the California sea otter. *J. of Mammal.* 42:271–273.
- Limbaugh, C. 1961. Life history and ecologic notes on the black croaker. *Calif. Fish and Game* 47:163–174.

Technical Reports:

- Wiegers, J. K., H. M. Feder, W. G. Landis, L. S. Mortensen, D. G. Shaw, and V. J. Wilson. 1997. A Regional Multiple-Stressor Ecological Risk Assessment for Port Valdez, Alaska. Institute of Environmental Toxicology and Chemistry, Huxley College of Environmental Studies, Western Washington University, RCAC Contract # 1033.102, pp. 375.
- Feder, H. M., A. S. Naidu, J. M. Hameedi, S. C. Jewett, and W. R. Johnson. 1991. The Chukchi Sea Continental Shelf: Benthos-Environmental Interactions. *Inst. Mar. Sci. Rept. R92-1*, Univ. Alaska, Fairbanks, pp. 250.
- Feder, H. M., A. S. Naidu, M. Baskaran, K. Frost, J. M. Hameedi, S. C. Jewett, W. R. Johnson, J. Raymond, and D. Schell. 1991. Bering Strait-Hope Basin: Habitat Utilization and Ecological Characterization. *Inst. Mar. Sci. Report. R92-2*, Univ. Alaska, Fairbanks, pp. 457.
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