

Dr. Carl Henry Oppenheimer, Jr.

Curriculum Vitae

Professor Emeritus of Marine Sciences, University of Texas, Austin,
Ecological Consultant and Corporate Scientist, Oppenheimer Biotechnology, Inc, Austin, Texas. 1990 - 2007

Personal:

Born November 13, 1921, Los Angeles, CA.
Died December 26, 2007

Education:

Bachelor of Arts, University of Southern California, 1947.
Master of Arts, University of Southern California, 1949.
Doctor of Philosophy, Scripps Institution of Oceanography, University of California, 1951.
Fulbright Fellow, University of Oslo, Norway, 1952 - 1953.
Fulbright Fellow, University of Naples, Italy, 1978.

Professional Experience:

Assistant Marine Biologist, Scripps Institution of Oceanography, University California, 1951-1955.
California State Employees Association, Local Chairman, La Jolla Campus.
Senior Research Scientist, Pan American Petroleum Corporation Research Center, 1955-1957.
Research Scientist and Lecturer in Marine Microbiology, University of Texas, Port Aransas, 1957-1961.
Associate Professor, Institute of Marine Science, University of Miami, 1961 - 1964.
Director and Professor, Oceanographic Institute, Dept. of Biological Sciences, Florida State University, 1964-1966.
Chairman and Professor, Department of Oceanography, Florida State University, 1966-1969.
Director, The Edward Ball Marine Laboratory, and Professor, Department of Oceanography, Florida State University, 1966-1971.
Director and Professor, University of Texas Marine Science Institute at Port Aransas, 1971-1973.
Professor of Microbiology and Marine Studies and Research Scientist, University of Texas, Marine Science Institute, Port Aransas, TX 1973-1980.
Professor of Microbiology and Marine Studies, University of Texas at Austin, 1980 to 1992.
Vice President for Research and Development, Alpha Environmental Corporation, Austin, Texas 1986 -1990.
Chief Scientist in Research and Technology - Oppenheimer Biotechnology, Co. 1990 -2007
Professional Societies, past memberships: American Society of Microbiologists Society of Limnology and Oceanography Sigma Xi
Society of General Microbiology Geochemical Society
American Institute of Chemical Engineers

Special Research Interests:

Marine microbial ecology, geo-microbiology, marine bacteriology, petroleum microbiology and pollution, oceanography, general ecology, coastal zone management, microbiological pollution control, microbial enhanced oil recovery, bioremediation.

Other Experience:

Problems on sewage disposal in Los Angeles and San Diego, California; pollution of Oslo fjord, Norway; pollution of Texas bays; three years research sponsored by the American Petroleum Institute on the origin and decomposition of petroleum; two years research on the origin of oil with Pan American Petroleum Corporation; corrosion of iron by marine microorganisms; microbial ecology and geochemistry of shallow marine environments in the United

States and Europe; carbonate geo-microbiology of the Florida Keys; personal familiarity with oceanographic stations and personnel of the United States and Europe and with oceanographic features of the world; development of food for shrimp cleanup; establishment of biological guidelines for estuarine environmental use and management; development of environmental data management systems; ecology of the Gulf of Naples, Italy; North Sea oil ecology; ecology of the Mediterranean; ecology of the coast of Peru, Microbial management of municipal and industrial wastes in the U.S., Denmark and Italy. Bioremediation techniques for waste treatment of organic and inorganic materials.

Microbial Enhanced Oil Recovery (MEOR) to restore production in marginal oil wells by this Tertiary treatment. International activities in soil and water pollution cleanup for hydrocarbons and chlorinated hydrocarbons.

Educational Teaching Experience:

Marine Microbial Ecology 1957-1992.

Geo-microbiology 1957-1992.

Marine Ecology 1957-1992.

General and Advanced Oceanography 1980-1992.

Professional Memberships.

Chairman of the 1st International Symposium of Marine Microbiology and subsequent editor of Proceedings, 1961.

Chairman of the Fourth Conference on Marine Biology, Unresolved Problems in Marine Microbiology 1965-66, sponsored by the New York Academy of Sciences, 1966.

Ad Hoc Advisor to the National Science Foundation for programs in Marine Biology, Oceanography, and Educational

Grants in Oceanography.

Member of the State of Florida Inter-institutional Committee on Oceanography, 1966-1970.

Vice President of the Gulf Universities Research Corporation, 1966 - 1970.

Co-Chairman of the Fifth Conference on Marine Biology, Cultivation of Marine Invertebrates, sponsored by the New York Academy of Sciences, 1967.

Member of Biology Sub-Panel of President's Science Advisory Committee on Oceanography, 1965-1968.

Member of Florida Governor's Commission on Marine Science and Technology, 1967-1971.

Member of President's Oil Pollution Panel, Santa Barbara, California, 1969-1970.

Committee Member on Environmental Science Panel, National Science Foundation, 1969-1972.

Panel Chairman, American Assembly--Uses of the Sea, Miami Florida, April 17-20, 1969.

U.S. Representative, North Atlantic Treaty Organization, Advisory Panel on Eco-Sciences, 1971-1973;

Chairman, 1973. Member of Texas Senate Interim Coastal Zone Study Committee, 1971-1972.

Environmental Quality Advisor, Southern Interstate Nuclear Board, 1972-1978;

Southern States Energy Board, 1978-1980.

Member of Environmental Quality Committee, Coastal Bend Council of Governments, 1972-1983.

Member of OEI Planning Council, Gulf Universities Research Consortium, 1971-1974.

Member of the University of Texas System Council on Marine Related Affairs, 1971-1973.

Chairman of the International Conference on Environmental Data Management, sponsored by the North Atlantic Treaty Organization, April 7-11, 1974 and subsequent editor of Proceedings.

Chairman of the Environmental Task Force--Nuclear Energy Centers Project,

Southern States Energy Board, 1977-1981.

Member Board of Directors, Texas Bioremediation Council. 1992

Member, Society of Texas Environmental Professionals. 1994

Foreign Travel and Expeditions:

1952 - 1953 Fulbright Fellow, University of Oslo, visited oceanographic stations in Great Britain, Germany, Yugoslavia, Monaco, France, Denmark, Italy and Sweden.

1955 Visiting Scientist, February-June, The Norwegian State Fisheries Hatchery, Arendal, Norway.

1957 - 1959 Extensive field research in Mexico from Brownsville, Texas to Veracruz, Mexico.

1959 Visited oceanographic laboratories in Germany, German Democratic Republic, and Moscow and Leningrad, Russia.

1962 Participated in First International Organic Geochemistry Symposium, Milan, Italy, visited laboratories in France and Germany.

1963 Participated in the Scientific Committee on Oceanographic Research, Geochemistry Conference Halifax, Nova Scotia, Canada.

1964 Two week National Science Foundation exchange scientist in Japan.

1964 Participated in Geochemistry Cruise off African Coast in Equalant II Expeditions; visited oceanographic laboratories in Brazil, Nigeria, Germany Democratic Republic.

1965 Participated in Geochemistry Cruise in the Black Sea; visited laboratories in Greece, Turkey, Germany and France.

1969 Shrimp Mariculture Project in Republic of Panama for one year.

1971 Two week field trip to the Southern Gulf Coast of Mexico.

1971 - 1974 Several trips to Europe, Scandinavia and Turkey as Panel Member of NATO Eco-Sciences Committee; visited laboratories in Turkey, Germany, Norway.

1975 - 1976 chief Scientist, Two four-week research cruises on R/V FRIEDRICH HEINCKE in the North Sea as part of the NATO North Sea Oil Project.

1975 Ecological and bioremediation research and investigations, Italy, the Gulf of Naples and Gulf of Salerno, Italy.

1978 Ecological investigations, Italy and the Mediterranean Sea.

1982 Ecological investigations, coast of Peru, coast of Alaska.

1992 Oil Spill demonstrations in Coastal waters of Vancouver, Canada, Denmark and Norway.

1989 90 Secondary oil Recovery research in central Russia.

1985 Bioremediation studies in Denmark, Canada, Mexico, Venezuela, Trinidad, Malaysia, Japan, South Africa, Taiwan and Italy.

Publications:

1949. Attempts at gene recombination between Salmonella poona and S. cholerasuis. Master's Thesis, University of Southern California. 42pp.

1950. Bacteriology and biochemistry of Lake Mead sediments. Special Report. (With ZoBell and Sisler).

1950. Some effects of hydrostatic pressure on the multiplication and morphology of marine bacteria. (With ZoBell). Journal of Bacteriology, 60: 771-778.

1951. Some effects of hydrostatic pressure on marine bacteria. Doctor of Philosophy Thesis, University of California, Los Angeles. 84pp.

1952. Occurrence of Escherichia coli in the intestine of a wild sea lion. Science, 115: 527-528.

1952. The growth and viability of 63 species of marine bacteria as influenced by hydrostatic pressure. (With ZoBell). Journal of Marine Research, 11: 10-18.

1952. The membrane filter in marine microbiology. Journal of Bacteriology, 64: 783-786.

1953. An unusual mortality of California yellowtail *Seriola dorsalis* in a marine aquarium. California Fish and Game, 39: 113-135.

1953. Evidence of biochemical heating in Lake Mead mud. (With 1953. Why study marine fish diseases? Journal du Conseil, 29: 39-43.

1953. Disease as a factor in natural mortality of marine fish. Food and Agricultural Organization Fisheries Bulletin, 6: 1-8.

1953. Microfiltration in oceanographic research. II. Retention of colloidal micelles by adsorptive filters and by filter-feeding invertebrates; proportions of dispersed inorganic matter and to organic solutes. (With Fox and Kittredge). *Journal of Marine Research*, 12:233-243.
1954. The riddle of sterol and carotenoid metabolism in muds of the ocean floor. (With Fox and Kittredge). *Archives of Biochemistry and Biophysics*, 51:323-328.
1955. The effect of marine bacteria on the development and hatching of pelagic fish eggs and control of such bacteria by antibiotics. *Copeia*, No. 1, pp. 43-49.
1956. The biological removal of the radioisotopes Sr-90 and Y-90 from sea water by marine microorganisms. Chapter 7. (With Lear). In *Effects of Nuclear Explosion on Marine Biology*. Atomic Energy Commission, WT-1013, pp. 60-94.
1956. Consumption of microorganisms by the copepod *Tigropus californicus*. Chapter 8. (With Lear). In *Effects of Nuclear Explosion on Marine Biology*. Atomic Energy Commission, WT-1013, pp. 95-99.
1958. Field trip guidebook to sedimentology of South Texas. Gulf Coast Association of Geological Societies, Corpus Christi Geological Society, pp. 33-34, 37.
1958. Artificially formed mud balls. (With Kornicker). *Publication of the Institute of Marine Science*, 5: 148-150.
1958. Effect of the microbial production of hydrogen sulfide and carbon dioxide on the pH of recent sediments. (With Kornicker). *Publication of the Institute of Marine Science*, 5: 5-15.
1958. A relationship between multiple temperature optima for biological systems and the properties of water. (With Drost-Hansen). *Bacterial Proceedings*, 53pp.
1958. How to detect and control corrosion-causing bacteria. *World Oil*, 147: 144-147.
1958. A bacterium causing tail rot in the Norwegian codfish. *Publication of the Institute of Marine Science*, 5: 160-162.
1958. Evidence for fossil bacteria in phosphate rocks. *Publication of the Institute of Marine Science*, 5: 156-159.
1959. Bacterial activity in marine sediments. Preprints, General Petroleum and Geochemical Symposium, Fifth World Petroleum Congress, pp. 49-54.
1959. The microbial decomposition of organic carbon in surface sediments. (With Volkmann). *Bacterial Proceedings*, 11pp.
1960. Microbial corrosion of iron by marine sulfate reducing bacteria. (With Blanton). *Bacterial Proceedings*, 36 pp.
1960. Composition of gases from the float of the pelagic mollusc *Janthina janthina* (L.). (With McFarland). *Texas Journal of Science*, 12: 21-23.
1960. Bacterial activity in sediments of shallow marine bays. *Geochimica et Cosmochimica Acta*, 19: 244-260.
1960. Some perspectives in marine microbiology. *Bacteriology News*, November, pp. 5-6.
1960. Attachments of bacteria to the surface of living and dead microorganisms in marine sediments.
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(With Vance). *Zeitschrift fur Allgemeine Mikrobiologie*, 1 (1): 47-52.

1960. A relationship between multiple temperature optima for biological systems and the properties of water. (With Drost-Hansen). *Journal of Bacteriology*, 80: 21-24.

1960. Organic matter in shallow marine bays: Abstract Geochemical Society, 1960 mtg. pp. 170-171.

1961. Note on the formation of spherical aragonitic bodies in the presence of bacteria from the Bahama Bank. *Geochimica et Cosmochimica Acta*, 23: 295-296.

1961. Salinity, pH, and turbidity were considered in studies of coliform distribution in Central Texas Bays. (With Travis and Woodfin). *Water and Sewage Works*, August, 1961, pp. 298-307.

1962. Note on fluorescence microscopy in marine microbiology. (With Ferguson Wood). *Zeitschrift fur Allgemeine Mikrobiologie*, 2: 164-165.

1962. Note on the effect of contamination on a marine slough and the vertical distribution of unicellular plants in the sediments. (With Ferguson Wood). *Zeitschrift fur Allgemeine Mikrobiologie*, 2:45-57.

1962. Biological removal of radioisotopes Sr-90 and Y-90 from sea water by marine microorganisms. (With Lear). *Limnology and Oceanography*, Supp. Vol. 7: 44-62.

1962. Consumption of microorganisms by the copepod *Tigriopus californicus*. (With Lear). *Limnology and Oceanography*, Supp. Vol. 7: 63-64.

1962. The microbial decomposition of organic carbon in surface sediments of marine bays of the Central Texas Gulf Coast. (With Volkmann). *Journal of the Institute of Marine Science*, 8: 80-96.

1962. On marine fish diseases, Chapter 15. In *Fish as Food*, Vol. II. Edited by Borgstrom. Academic Press, New York, pp. 541-572.

1962. Some bacterial populations in turbid and clear water near Port Aransas, Texas. (With Jannasch). *Journal of the Institute of Marine Science*, 8: 56-60.

1963. Editor, *Symposium on Marine Microbiology*. Thomas and Company, Springfield, Illinois, 769pp.

1963. Release and capillary movement of phosphorus in exposed tidal sediments. (With Ward). In *Symposium on Marine Microbiology*. Edited by Oppenheimer. Chapter 62, pp. 664-673.

1963. Experiments regarding the sulfide formation in sediments of the Texas Gulf Coast. (With Gunkel). In *Symposium on Marine Microbiology*. Edited by Oppenheimer. Chapter 62, pp. 674-684.

1963. Editor, English Translation: Kuznetsov, S.A. *Introduction to Geological Microbiology*. McGraw-Hill, New York, 252pp.

1963. Method for the determination of organic carbon in sea water. (With Corcoran and Van Arman). *Limnology and Oceanography*, 8:487-488.

1963. Effects of Hurricane Carla on the ecology of Redfish Bay, Texas. *Bulletin of Marine Sciences--Gulf and Caribbean*, 13: 59-72.

1963. Marine Bacteriology. American Institute of Biological Sciences Bulletin, 13: 56-58. 1963. Marine sediments. McGraw-Hill Yearbook of Science and Technology, pp. 318-321.
1963. Marine microbiology. In Encyclopedia of Sciences and Technology, McGraw-Hill Yearbook for 1963, pp. 265-267.
1964. Modified device for anaerobic dispensing of reduced media. (With Willingham). Journal of Bacteriology, 88: 541- 542.
1964. Culture media for marine microbiology. Inst. Mar. Sci. Univ. of Miami. 38pp.
1965. Quantitative aspects of the unicellular algal population of the Texas Bay Systems. (With Ferguson Wood). Bulletin of Marine Science, 15: 571-588.
1965. On the solution of quartz and precipitation of dolomite in sea water during photosynthesis and respiration. (With Master). Zeitschrift fur Allgemeine Mikrobiologie, 5 (1): 48-51.
1965. Bacterial production of hydrocarbon-like materials. Zeitschrift fur Allgemeine Mikrobiologie, 5(4): 284-307.
1966. Bacterial production of hydrocarbon-like materials. Abstract: International Symposium of Oil Microbiology. Transactions of the German Science Academy of Berlin. p. 197.
1966. Marine microbiology, pp. 465-469. In The Encyclopedia of Oceanography. R.W. Fairbridge (ed.). Reinhold Publ. Co., New York.
1966. Eh and pH of marine sediments. In Encyclopedia of Earth Sciences. Reinhold Publ. Co., New York.
1966. Editor. Marine Biology II. Second Interdisciplinary Conference in Marine Biology, 1963. New York Academy of Sciences.
1968. Editor. Marine Biology IV. Unresolved Problems in Marine Bacteriology, 1966. New York Academy of Sciences.
1968. Bacterial changes in sea water samples, due to storage and volume. (With Simon). Zeitschrift fur Allgemeine Mikrobiologie, 8 (3): 209-214.
1968. Geomicrobial activities of microorganisms. Bull. Misaki Mar. Biol. Inst. Kyoto Univ., 12: 105-109.
1969. Gulf of Mexico, A Model for the Decade. (With Lohse, Menzies and Miloy). Gulf Universities Research Corporation, Publ. 109, pp. 1-70.
1969. Marine Biology V. Cultivation of Marine Invertebrates. (Conference Co-chairman). Gordon and Breach. pp. I-606.
1969. Microbial degradation of normal paraffin hydrocarbons in crude oil. (With Miget, Kator and LaRock). Proc. Joint Conf. on Prevention and Control of Oil Spills, Amer. Pet. Inst., New York, pp. 327-331.
1970. Research approach. In Proc. Congressional Meeting, Feb. 4, 1970. Gulf Universities Research Corporation, pp. 20-25.
1970. Geomicrobial effects on estuarine environments. In Laguna Costeras, Un Simposio, Mem. Simp. Intern. Lagunas Costeras, UNAM-UNESCO.
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1970. Food preference and growth of grooved penaeid shrimp. (With Subrahmanyam). Mar. Tech. Soc. Proc. Food and Drugs from the Sea, pp. 65-75.
1970. Temperature, bacteria, fungi, and blue-green algae, Chapter 3. In Marine Ecology, Vol. I. Edited by Kinne. John Wiley and Sons, pp. 347-361.
1970. The influence of feed levels on the growth of grooved penaeid shrimp in mariculture. (With Subrahmanyam). Proc. First Annual Workshop World Mariculture Society, Baton Rouge, La., pp. 91-100.
1971. Microbial degradation of a Louisiana crude oil in closed flasks and under simulated field conditions. (With Kator, and Miget) Proc. Joint Conf. on Prevention and Control of Oil Spills, Amer. Pet. Inst., E.P.A., and U.S.C.G., pp. 287-296.
1971. Microbial degradation of oil pollutants. (With Kator and Miget). Biological Conservation, 4 (1): 2pp.
1971. Characteristics of estuaries: Bacteria. pp. 110-112. In Water and Water Pollution Handbook. L.L. Ciaccio (ed.) Marcel Dekker Inc., New York.
1972. Silica contents in the northwestern Florida Gulf coast. (With Stephens). Contr. in Marine Science, 16: 99-108.
1972. Book Review of "Water Pollution Microbiology" (R. Mitchell (ed), John Wiley & Sons.) In BioScience, Vol. 24(4): 253.
1972. Utilization of paraffin hydrocarbons in crude oil by mixed cultures of marine bacteria. (With Kator and Miget). Society of Petroleum Engineers of AIME, Paper No. SPE 4206, 8pp.
1972. Man, Technology and Nature: Their interactions within coastal biological systems. (With Gordon). AIBS Education Div. News, 1 (5): 7-10.
1972. Texas Coastal Zone Biotopes: An Ecography. (With Gordon). Interim report prepared by the Bay and Estuary Mgmt. Program, Coastal Resources Mgmt. Program, Office of the Governor, 118 pp.
1972. The Management of Bay and Estuarine Systems--Phase I. (With Fruh, et al). Report prepared for the Coastal Resources Mgmt. Program, Division of Planning Coord., Office of the Governor of Texas, 280pp.
1972. Testimony Presented to the Bureau of Land Management at the Louisiana Offshore Oil and Gas Lease Hearings (With Miget and Kator), 58 pp.
1972. The identification and control of pollutants and nuisances of broad international significance. Presented to the Citizens Advisory Committee to the Secretary of state for the 1972 U.N. Conference on the Human Environment. 9pp.
1973. The Development of a Multi-Purpose Deep-Draft Inshore Port on Harbor Island, Texas to Accommodate VLCC Vessels--An Environmental Impact Statement. Prepared in cooperation with Nueces County Navigation District No. 1, Port of Corpus Christi, 62pp.
1973. The Management of Bay and Estuarine Systems--Phase II. (With Fruh, et al). Report prepared for The Coastal Resources Mgmt. Program, Division of Planning Coord., Office of the Governor, State of Texas, 144pp.
1973. Galveston Bay benthic community structure as an indicator of water quality. (With Holland and
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Maciolek). Contributions in Marine Science, 17: 169-188.

1973. Characteristics of the nearshore environment off the south coast of Anvers Island, Antarctic Peninsula. (With Warnke and Richter). Limnology and Oceanography, 18 (1): 131-142.

1973. Testimony Presented to the Bureau of Land Management at the 1973 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Mississippi, Alabama and Florida. (With Miget and Kator). 33pp.

1973. Testimony Presented to the Council on Environmental Quality at the Atlantic Outer Continental Shelf and Gulf of Alaska Oil and Gas Development; Environmental Hearings. 9pp.

1973. Toxicity Studies of Galveston Bay Project. (Editor). Final Report to the Texas Water Quality Board, Galveston Bay Study Program. 320pp.

1973. A Benthos and Plankton Study of the Corpus Christi, Copano and Aransas Bay Systems. (With Holland, Maciolek, and Kalke). First Annual Report to the Texas Water Development Board. 122pp.

1973. Hydrocarbon Ecology. Manuscript presented to Council on Environmental Quality at public hearing on the environmental impact of potential oil and gas development on the Atlantic Outer Continental Shelf, Boston, September 19, 1973. 10pp.

1974. Establishment of Operational Guidelines for Texas Coastal Zone Management--Final Report Biological Use Criteria. (With Isensee, Brogden and Bowman). Div. Nat. Res. and Environment, University of Texas, Austin, July, 1974. pp. 1- 208.

1974. Hydrocarbons in Seawater and Organisms and Microbiological Investigations. (With Miget and Kator). Final Report submitted to the Gulf Universities Research Consortium, Galveston, Texas. 1-57pp.

1974. Water Quality of Texas Bays, (Nutrients, Trace Elements, and Toxic Compounds). (With Brogden and Isensee). The Marine Science Institute of the University of Texas, Port Aransas, Texas. 62pp.

1974. A Computerized System for Organized Retrieval of Life History Information. (With Brogden and Cech). Chesapeake Science, 15:250-254.

1974. A Benthos and Plankton Study of the Corpus Christi, Copano and Aransas Bay Systems. (With Holland, Maciolek and Kalke). Second Annual Report to the Texas Water Development Board. 121pp.

1974. Texas Estuarine Management and Water. Manuscript presented at Palmetto Bend Dam Hearing, Victoria, Texas. 17pp.

1974. A new sampling device for the recovery of petroleum hydrocarbons and fatty acids from aqueous surface films. (With Miget, Kator, Laseter and Ledet). Analytical Chem., 46(8): 1154-1157.

1974 The Offshore Ecology Investigation. (With Morgan, Menzies and ElSayed). Gulf Universities Research Consortium. GURC Report No. 138, 39pp.

1975. Meeting Report--International Conference on Environmental Data Management. (With Brogden). BioScience, 25(2): 113-115.

1975 Computer Data Bank--Environmental Data--Life History Data of the Texas Coast, a comprehensive Computerized

Data Bank Using ENVIR. (With Brogden). The Marine Science Institute of the University of Texas, Port Aransas, Texas.

1975 Editor, English Translation: Kuznetsov, S.A. The Microflora of Lakes and Its Geochemical Activity. The University of Texas Press. 481pp.

1975 A Benthos and Plankton Study of the Corpus Christi, Copano and Aransas Bay Systems, III. (With Holland, Maciolek, Kalke and Mullins). Summary of the Three Year Project to the Texas Water Development Board. 174pp.

1975 Environmental Analysis. In Regional Assessment Study Houston Ship Channel--Galveston Bay. Prepared for the National Commission on Water Quality 350pp.

1976 Environmental Data Management. (With D. Oppenheimer and Brogden). Proceedings of NATO Sponsored Conference held in Houston, Texas, April, 1974. Plenum Press, N.Y. 244pp.

1976 The Ecology of a Texas Bay, pp 237-279. (With Brogden). In Harvesting Polluted Waters. O.Devik (ed). Plenum Press, NY.

1976 Development of the Methodology and Analysis of a Creel Census for Corpus Christi Bay. Special Publication, University of Texas Institute of Marine Science, 60pp.

1977 An Ecological Survey of the Gulf of Naples Area (Italy): Conducted During September 15 to October 15, 1976 for the Region of Campania. (With D. Oppenheimer and Bundo). Special Publication Submitted to Assessore Dr. Silvio Pavia, Region of Campania, Naples, Italy. 91pp.

1977 Microorganisms and Hydrocarbons in the North Sea During July-August 1975. (With Gunkel and Gassmann). Proceedings 1977 Oil Spill Conference, March 8-10, 1977. pp 589-610.

1977. Preliminary Results of Baseline Studies of Hydrocarbons and Bacteria in the North Sea; 1975, 1976 and 1977. (With Gunkel, Gassmann and Dundas). Spanish Conference on Hydrocarbon Pollution, April 1977. 38pp.

1977-1978. Corpus Christi Areawide Waste Treatment Planning Program. (With Southwest Research Institute and Urban Engineering). Final Reports to the Council of Governments, Texas Dept. of Water Resources and the EPA. Work packages I, 3, 4, 5, 6, 7, 8., I, 119pp.

1978. Microbiology in Sedimentology. In Encyclopedia of Sedimentology, Vol. VI of the Encyclopedia of Earth Science Series. Reinhold Publ. Corp., New York, pp. 482-485.

1978. Biological Application for Stabilization of Dredged Materials. (With Carangelo). Interim Report to Sea Grant, TAMU. 82pp.

1978. The Ecological Significance and Fate of Carbon Tetrachloride and FREON II3 in the Estuarine Environment. (With Brogden). Final Report to DuPont Corp. 190pp.

1978. An Environmental Evaluation of Capri, Italy. (With Blundo). Final Report to Fulbright Office University of Naples. 18pp.

1978. Microbiology Research Results, BLM South Atlantic Program 1977. (With Powers, Lang, Siegel and Duncan). Final Report to Texas Instruments. 143pp.

1978. Review of Proposed Apalachicola Estuarine Sanctuary. Conservation Foundation Proceedings, Tallahassee,

Florida. 19pp.

1978. Biological Uses. In Methodology to Evaluate Alternative Coastal Zone Management Policies: Application in the Texas Coastal Zone. (With Brogden). Final Report to NSF-RANN, Div. Nat. Res. & Env., Univ. of Texas, Austin. 13pp.

1979. A General Analysis of the Fecal Coliforms and Streptococci in the Coastal Waters of the Province of Naples for the Years 1975 to 1979. Fulbright Report. 15pp.

1979. Design of the Offshore Ecology Investigation with Menzies, R.J., Morgan, J.R., Sayed, S.Z., and Sharp, J.M. Rice University Studies, Vol. 65. pp. 19-35.

1979. Testimony - Coastal Zone Management Field Hearing, New Orleans, Louisiana, November 19, 1979. pp.

I-7. 1979. Reports, Informal - IXTOC Accident. August 3, 1979, pp. 10; January 21, 1980, pp. 3.

1979. Testimony Presented to the Oversight Hearings on the Effect to the U.S. from the Blowout of the Pemex IXTOC I Oil Well. September 11, 1979. pp. 7.

1979. Ecological Relationships Between Marine Microorganisms and Hydrocarbons in the OEI Study Area, Louisiana. pp. 68. (With Miget and Kator). Rice University Studies, Vol. 65: 287- 325.

1979. Biological Application for the Stabilization of Dredged Materials, Corpus Christi, Texas: Submergent Plantings. (With Carangelo and Picarazzi). Proc. 6th Ann. Conf. on Wetlands. Restoration and Creation. pp. 20.

1980. Oil Ecology. Marine Environmental Pollution I, Hydrocarbons. Elsevier Oceanographic Series, Vol. I: 21-34.

1980. Environmental and Economic Discussion of the Need and Justification of converting Existing Single-Hull-Barge Oil Transportation to Double Hull. Proc. Workshop on Reducing Tank Barge Pollution, NRC-NAS. April, 1980. pp. 70-87.

1980. Microbiological Research for the BLM South Atlantic Benchmark Program, 1977. pp. 38. (With Day, Powers, Sigel and Duncan). Elsevier Mar. Env. Poll. Ocean Series, Vol. I: 265-290.

1980. Carbon, Nitrogen and Phosphorus Content in the Development Stages of the Brine Shrimp *Artemia salina* (L). (With Moreira). The Brine Shrimp *Artemia*, Vol. 2.

1981. An Ecological Survey of the Gulf of Naples. (With Blundo and D. Oppenheimer). Elsevier, Mar. Env. Poll. Ocean Series, Vol. 2(2): pp67-141.

1981. Editor, Marine Ecosystems. (With Marine Ecosystems Class). Univ. of Texas. pp. 347.

1981. Conceptual Studies, Nuclear Energy Center, Phase III, Final Report. (With Southern States Energy Board). pp.

150. 1982. Editor, Marine Ecosystems. (With Marine Ecosystems Class). Univ. of Texas. pp. 305.

1982. Impacts of Agricultural Trends on Coastal Wetland and Estuary Habitats, Chapter II. In Impacts of Emerging Agricultural Trends on fish and Wildlife Habitat. National Academy Press, Washington, D.C., pp. 206-236.

1982. Corpus Christi Areawide Waste Treatment Management Non-Point Source Evaluations - Corpus Christi

- Bay System. Coastal Bend Council of Governments Report, Corpus Christi, Texas, pp. I-6I.
1983. The Environment and Life. Scienza Duemille, Italy, pp. 76-83.
1983. A Methodology Using Environmental Balance to Determine Hydrocarbon Impact to Coastal Zone Management (with J. Goni-Arevalo). Report presented to International Symposium IXTOC I, pp. I-35.
1983. The Ecology of the Mediterranean Sea (translated to Italian for high school teacher use). 400 pp.
1983. Biogeochemical and Ecological Aspects of Dredging and Materials in the Marine Environment. Report to the National Academy of Sciences. pp100.
1984. The Ecology of the Mediterranean Sea. Second Conference on the Mediterranean Area. Lega Navale Italiana, Agrigento, Italy Dec. 1984. pp. 293-299.
1985. The Ecology of the Gulf of Mexico, Editor. University of Texas Marine Science Institute. pp. 750.
1985. Activities of Marine Microorganisms. International Conference on Aquaculture, Mariculture, Pollution of Coastal Waters, Cagliari, Italy. Sept. 1985, National Biological Association of Italy, pp. 45-47.
1986. The Ecology of the Marine Environment. Presented before the Convegno Internazionale di Pathologia Ambientale, Naples, Italy, December 12, 1986, pp. I-I4 .
1986. The Mediterranean Sea Environmental Balance and Waste Discharges. February 17, 1987, Naples, Italy. 1987. The Autodepurization of the Sea. in La Difesa del Mare, Campania Region, Italy, pp39-47.
1988. Microbial Ecology and Pollution Control. Presented at a conference on Marine Pollution Albano, Italy, pp8.
1988. The Ecological Balance of our Planet. pp 25. The Italian Biological Association Annual Meeting, Rome, Italy.
- 1988 Microbially Enhanced Oil Production Field Tests in Texas. (With F.K. Hiebert) Proceedings of the Symposium on Applications of Microorganisms to Petroleum Technology. USDOE/NIPPER, Bartlesville, OK, Aug. 12-13, 1987.
1989. Microbiological Techniques for Paraffin Reduction in Producing Oil Wells. Department of Energy Final Report, DOE/BC/14014-9 (DE89000741) April 1989, pp 67.
1989. Oil Ecology-The Cycles of Hydrocarbons in our Environment. Encyclopedia of Chemical Processing, Vol 31, Marcel Dekker Pub. p51-61.
1991. Clean Gulf 91, Conference ,October, The Texas General Land Office, Austin, TX, , Paper-The Promise of New Technologies. pp 16.
1993. Requirements of Applied Bioremediation. Alaska, March 1993.
1993. Benefits and Limitations of Bioremediation, Presented at TX Bioremediation Council Conference, Houston, Texas,
1993. Microbial Ecology Pollution Control By Biomanagement. Paper presented at the July International Conference, Kuala Lumpur, Malaysia, Oil Spill Response in Asia Pacific Waters, pp27.
1994. A Composite History of Bioremediation, Presented at EPA Conference On Above Ground Storage Tanks, Dallas, TX,
1995. Microbial Bioremediation Technology, Presented at AfriWaste 95 Conference, Johannesburg, S.A. January 1995.
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1995. In Situ Microbial Bioremediation of an Underground Diesel Leak at Harbor Island, San Diego, CA. Bioreclamation Symposium, San Diego, CA March 1995.

Applied Projects in Bioremediation.

1989 Conducted A Pond simulated oil spill at the Marine Science Institute University of Texas at Port Aransas, conducted by the Texas General Land Office. The results are available from a publication of the General Land Office titled Combating Oil Spills along the Texas Coast.

1990 First Bioremediation using Microorganisms in an Open Sea Oil Spill, the MegaBorg off Galveston, Texas in the Gulf of Mexico. Application was successful; no oil reached the Texas Coast. The project was reported in the Publication, MegaBorg Oil Spill off the Texas Coast by the Texas Land Office and the Texas Water Commission.

1991 Bioremediated in three weeks to Texas Water Commission criteria, an oil contaminated pond and soil of approximately 300 cubic yards.

1991 Bioremediated in three weeks, to Texas Water Commission criteria, 300 cubic yards of oil contaminated soil at Bergstrom AFB.

1991 Bioremediated to Canadian criteria 10,000 cubic yards of oil contaminated soil at the Shermon Mine, Ontario, Canada.

1991 Bioremediated A Danish waste treatment plant in Herslev, Denmark. The treatment reduced nitrogen, sludge and improved BOD, effectively doubling the capacity of the plant.

1991 In Progress--Bioremediation of 50,000 cubic yards of oil waste consisting of 60 percent oil dry weight. Approximately 80% of the area has been reduced to meet Louisiana Criteria.

1993 Ongoing bioremediation of a sewage plant and lifting stations in Travis Co. TX. Effectively reduced grease accumulation in the distribution system and doubled the capacity of the plant.

1994 Completed in-situ bioremediation of underground storage tank diesel under a major Hotel in San Diego, CA.

Miscellaneous Unpublished Papers on Bioremediation

Bioheating for Arctic and Cold regions. BioLeaching of Minerals

Bioremediation--The Emerging New High Technology Bioremediation and Treatment of Chevron Bay

Marchand Terminal Bioremediation of Trichloroethylene

Bioremediation: Fresh and Salt Water Application

A Bioremediation Plan for Lake Maracaibo and Vicinity Bioremediation vs Bioaugmentation

Bioconcrete cleaner, its application and results (BioZorb) CapeTown SA Oil Spill Report

Closure of Bioremediation Site at Bergstrom AFB, Austin, TX. A Process to Remove Oil From Mammals and Birds

Ecology of Oil Eating Microorganisms

Field Report on Microbial Enhanced Oil Recovery

Glossary for Bioremediation Grease Trap Bioremediation Growth of Microorganisms

History of the Application of Bacteria to Enhance Degradation History of the Development of the Biodegradation of Oil Spills at Sea Hydrocarbons, What Are They?

Land Farming of Petroleum Saturated Soils

Mass Balance Estimates in Recycling Metabolic Significance of Infra Red Radiation

Method to Determine the Numbers of Hydrocarbon Degrading

Microorganisms Microbial Enhanced Oil Recovery and Paraffin Control

Narrative of a Hypothetical Oil Spill Biodegradation Response

Plan Nutrient Cycles in Biodegradation

Oil Spill Technology

The Oppenheimer Biocatalyst--A Function of Oxygen.

A Qualitative Test to Differentiate Hydrocarbons From Fatty Acids. Protocol for Gas Station, Truck Terminals or

Repair Shop Bioremediation Role of Microorganisms in Waste Treatment

Salt Tolerance of Microorganisms

The Significance of Hydrocarbons What is a Microbe?

The Ubiquitous Hydrocarbon

Video Programs:

The Steel Reef. 27 min Documentary Produced by Mr. Stan A. Waterman. Common Sense Ecology. A 28 minute video tape produced by KZTV, Corpus Christi. Oil Spills at Sea. A 28 minute video tape produced by KZTV, Corpus Christi.

Deep Water Port Ecology. A 28 minute video tape on the proposed deep-water port at Harbor Island, Texas produced by KZTV, Corpus Christi.

IXTOC Ecology. A 28 minute video tape on the ecological relationships of the IXTOC accident produced by KZTV, Corpus Christi.

Teaching slide set, 35mm, for 36 one- hour lectures in general oceanography. Bioremediation: The Texas Solution, Produced by the Texas General Land Office, 1990. 8 min.

The University of the Earth, Bioremediation, Produced by Austin Cable Access, 1993. 25 min.
