

June 1987

## CONDENSED AUTOBIOGRAPHY

NAME: James E. Cloern

REGION: Western Region

PROJECT SHORT TITLE: Plankton Dynamics in Estuaries, WR79-164

PROJECT CHIEF: Same

GRADE AND DATE OF LAST PROMOTION: GS-15, October 1986

DATE AND LOCATION OF ENTRANCE WITH WRD: August 1976, Menlo Park, CA

EDUCATION

- University of Wisconsin, B.S. 6/70, Zoology
- University of Wisconsin, M.S. 6/73, Zoology
- Washington State University, Ph.D. 6/76, Zoology,  
Mathematics, Computer Science.

LANGUAGES

- French (reading)

PROFESSIONAL SOCIETIES

- American Society of Limnology and Oceanography
- American Association for the Advancement of Science
- International Society of Ecological Modelers
- Estuarine Research Federation
- San Francisco Bay and Estuarine Association
- Estuarine and Brackish Water Sciences Association, U. K.

AWARDS AND HONORS

- President, San Francisco Bay Estuarine Association, 1984-85
- NATO Postdoctoral Fellowship, 1976 (did not accept)
- AAAS Student Prize for Excellence, 1976
- Phi Kappa Phi, 1973
- Sigma Xi, 1973

PROFESSIONAL EXPERIENCE

- National Research Program, WRD, since August, 1976
- Research Project Chief since October, 1978
- Assistant Research Advisor for Ecology, 1984-85
- Research Advisor for Ecology, 1985-Present
- Conducting research on plankton ecology (in estuaries and lakes) using a combination of field studies and simulation modeling.

## BIBLIOGRAPHY

- Cloern, J.E., 1976. The survival of coho salmon (Oncorhynchus) Kisutch eggs in two Wisconsin tributaries of Lake Michigan: American Midland Naturalist, Volume 96, Page 451-461.
- Cloern, J.E., 1976. Recent limnological changes in southern Kootenay Lake, British Columbia: Canadian Journal of Zoology, Volume 54, Page 1571-1578.
- Cloern, J.E., 1977. Effects of light and temperature on the growth and nutrient-uptake kinetics of Cryptomonas Ovata: Journal of Phycology, Volume 13, Page 389-395.
- Cloern, J.E., 1978. Simulation model of Cryptomonas Ovata population dynamics in southern Kootenay Lake, British Columbia: Ecological Modeling, Volume 4, Page 133-149.
- Cloern, J.E., 1978. Empirical model of Skeletonema Costatum photosynthetic rate, with applications in the San Francisco Bay estuary: Advances in Water Resources, Volume 1, Page 267-274.
- Cloern, J.E., and Nichols, F.H., 1979. A von Bertalanffy growth model with a seasonally varying coefficient: Journal of the Fisheries Research Board of Canada, Volume 35, Page 1479-1482.
- Cloern, J.E., 1979. Phytoplankton ecology of San Francisco Bay: The status of our current understanding, in Conomos, T.J., ed., San Francisco Bay: The Urbanized Estuary: Pacific Division, AAAS, San Francisco, p.274-264.
- Cloern, J.E., and Cheng, R.T., 1981. Simulation model of Skeletonema Costatum population dynamics in northern San Francisco Bay: Estuarine and Coastal Shelf Science, Volume 12, Page 83-100.
- Cloern, J.E., 1982. Phytoplankton, in Greeson, P.E. and others, eds., Methods for collection and analysis of aquatic biological and microbiological samples: Techniques of Water Resources Investigations of the U.S. Geological Survey, Chapter A-4 (revised).
- Cloern, J.E., 1982. Does the benthos control phytoplankton biomass in South San Francisco Bay (USA)?: Marine Ecology-Progress Series, Volume 9, Page 191-202.
- Luoma, S.N., and Cloern, J.E., 1982. The impacts of waste water discharge on biological communities in San Francisco Bay, in Kockelman, W.J., Conomos, T.J., and Leviton, A.E., eds., San Francisco Bay: Use and protection: Pacific Division, AAAS, San Francisco, Page 137-161.
- Cloern, J.E., Cole, B.E., and Oremland, R.S., 1983. Chemistry and microbiology of a sewage spill in South San Francisco Bay: Estuaries, Volume 6, Page 399-406.
- Cloern, J.E., Alpine, A.E., Cole, B.E., Wong, R.L.J., Arthur, J.F., and Ball, M.D., 1983. River discharge controls phytoplankton dynamics in the northern San Francisco Bay estuary: Estuarine, Coastal and Shelf Science,

Cloern, J.E., Cole, B.E., and Oremland, R.S., 1983. Autotrophic processes in meromictic Big Soda Lake, Nevada: *Limnology and Oceanography*, Volume 28, Page 1049-1061.

Cloern, J.E., Cole, B.E., and Oremland, R.S., 1983. Seasonal changes in the chemical and biological nature of a meromictic lake (Big Soda Lake, Nevada, USA): *Hydrobiologia*, Volume 105, Page 195-206.

Cloern, J.E., 1984. Temporal dynamics and ecological significance of salinity stratification in an estuary: *Oceanologica Acta*, Volume 7, Page 137-141.

Cole, B.E., and Cloern, J.E., 1984. Significance of biomass and light availability to phytoplankton productivity in San Francisco Bay: *Marine Ecology-Progress Series*, Volume 15, Page 15-24.

Catts, G. Page, Khorram, S., Cloern, J.E., Knight, A.W., and DeGloria, S.D., 1985. Remote sensing of tidal chlorophyll a variations in estuaries: *International Journal of Remote Sensing*, Volume 6, Page 1685-1706.

Alpine, A.E., and Cloern, J.E., 1985. Differences in in-vivo fluorescence yield between three phytoplankton size classes: *Journal of Plankton Research*, Volume 7, Page 381-390.

Ambler, J.W., Cloern, J.E., and Hutchinson, A., 1985. Seasonal cycles of zooplankton from San Francisco Bay: *Hydrobiologia*, Volume 129, Page 177-197.

Cloern, J.E., Cole, B.E., Wong, R.L.J., and Alpine, A.E., 1985. Temporal dynamics of estuarine phytoplankton: A case study of San Francisco Bay: *Hydrobiologia*, Volume 129, Page 153-176.

Cloern, J.E., and Nichols, F.H., 1985. Time scales and mechanisms of estuarine variability-a synthesis from studies of San Francisco Bay: *Hydrobiologia*, Volume 129, Page 229-237.

Cloern, J.E., and Nichols, F.H., eds., 1985. Temporal dynamics of an estuary-San Francisco Bay: *Developments in Hydrobiology* No. 30, Dr. W. Junk Publishers, Dordrecht, 237 pages (Also released as volume 129 of *Hydrobiologia*).

Nichols, F.H., Cloern, J.E., Luoma, S.N., and Peterson, D.H., 1986. Modification of an estuary: *Science*, Volume 231, Page 567-573.

Cole, B.E., Cloern, J.E., and Alpine, A.E., 1986. Biomass and productivity of three phytoplankton size classes in San Francisco Bay: *Estuaries*, Volume 9, Page 117-126..

Powell, T.M., Cloern, J.E., and Walters, R.A., 1986. Phytoplankton spatial distribution in South San Francisco Bay-mesoscale and small-scale variability, in D.A. Wolfe, ed., *Estuarine variability*: Academic Press, N.Y. Page 369-383.

Oremland, R.S., Cloern, J.E., Smith, R.L., Culbertson, C.W., Zehr, J., Miller, L., Cole, B.E., Harvey, R., Iversen, N., Klug, M., Des Marais, D.J.,

Rau, G., and Sofer, Z., 1987. Microbial processes and biogeochemistry of Big Soda Lake, in A. Fleet and M. Talbot, eds., Symposium on lacustrine oil source rocks: Blackwell Scientific Publication (in press).

Cole, B.E., and Cloern, J.E., 1987. An empirical model of phytoplankton productivity in estuaries: Marine Ecology Progress Series, Volume 36, Page 299-305.

Wienke, S.M., and Cloern, J.E., 1987. The phytoplankton component of seston in San Francisco Bay: Netherlands Journal of Sea Research, Volume 21, Page 25-33.

Khorram, S., Catts, G.P., Cloern, J.E., and Knight, A.W., 1987. Modeling of chlorophyll a from an airborne scanner: Proceedings of the International GeoScience and Remote Sensing Symposium, Zurich, September 1986 (in press).

Cloern, J.E., 1987. Review of the book "Synthesis Modeling of Intermittent Estuaries", by W.R. Cuff and M. Tomczak, Jr.: Marine Geology (in press)

Zehr, J.P., Harvey, R.W., Oremland, R.S., Cloern, J.E., George, L., and Lane, J.L., 1987. Big Soda Lake (Nevada). 1. Pelagic bacterial heterotrophy and biomass: Limnology and Oceanography (in press).

Cloern, J.E., Cole, B.E., and Wienke, S.M., 1987. Big Soda Lake (Nevada). 4. Vertical fluxes of particulate matter - seasonality and variations across the chemocline: Limnology and Oceanography (in press).

Nichols, F.H., and Cloern, J.E., 1987. San Francisco Bay: A case study: Hydrobiologia (in press).

Cloern, J.E., 1987. Turbidity as a control on phytoplankton biomass and productivity in estuaries: Continental Shelf Research (in press).

#### PUBLISHED ABSTRACTS

\*Alpine, A.E., Cloern, J.E., and Cole, B.E., 1979. Variations in the relationship between in-vivo fluorescence and chlorophyll a in the San Francisco Bay estuary: EOS, Volume 60, Page 851 (abstract).

\*Cloern, J.E., Alpine, A.E., Cole, B.E., Hutchinson, A., and Wong, R.L.J. 1980, What regulates algal biomass in the nutrient-enriched South San Francisco Bay?: Abstracts of Papers, 146th National Meeting, AAAS, Page 129 (abstract).

\*Luoma, S.N., Cloern, J.E., and Nichols, F.H., 1980, Impacts of waste discharge on the biological communities of San Francisco Bay: 61st Annual Meeting, Pacific Division, AAAS, Page 3 (abstract).

\*Cloern, J.E., 1981, Phytoplankton dynamics in the San Francisco Bay system: A comparison of two estuary types: Estuaries, Volume 4, Page 298-299 (abstract).

\*Alpine, A.E., and Cloern, J.E., 1982. Use of in-vivo fluorescence size-fractionate phytoplankton biomass: EOS, Volume 63, Page 951 (abstract).

\*Cloern, J.E., and Cole, B.E., 1982. Autotrophic processes in Big Soda Lake, Nevada: EOS, Volume 63, Page 965 (abstract).

\*Cloern, J.E., 1983. Tidal mixing, freshwater inflow, and phytoplankton dynamics in South San Francisco Bay, California: Estuaries, Volume 6, Page 322 (abstract).

\*Ambler, J.W., Cloern, J.E., and Hutchinson, A., 1984, Seasonal cycles of copepods, tintinnids, and rotifers from San Francisco Bay, California: EOS, Volume 65, Page 927 (abstract).

\*Powell, T.C., and Cloern, J.E., 1985. Phytoplankton spatial distribution in South San Francisco Bay - effects of topography, circulation and mixing: EOS, Volume 66, Page 1268 (abstract).

\*Cole, B.E., and Cloern, J.E., 1985. A simple empirical model for predicting primary productivity in diverse estuaries: Estuaries, Volume 8, Page 76A (abstract).

\*Alpine, A.E., and Cloern, J.E., 1985. Spatial variability of phytoplankton growth rate in San Francisco Bay - responses to light availability: Estuaries, Volume 8, Page 76A (abstract).

\*Powell, T.M., and Cloern, J.E., 1985. Topography, circulation, mixing, and phytoplankton spatial distribution in South San Francisco Bay: Estuaries, Volume 8, Page 84A (abstract).

\*Khorram, S., Catts, G.P., Cloern, J.E., and Knight, A.W., 1986. Modeling of estuarine chlorophyll a from an airborne scanner: Proceedings, 1986 International Geoscience and Remote Sensing Symposium, Zurich, September 1986.

\*Cloern, J.E., 1986. San Francisco Bay, USA: IV. International Congress of Ecology, Syracuse, N.Y., August 1986, Page 116.

\*Cloern, J.E., 1986. Turbidity as a control on phytoplankton productivity in estuaries: Proceedings, Estuarine and Brackish Water Science Association Symposium on Dynamics of Turbid Coastal Environments, Plymouth, United Kingdom, EBSA Bulletin, Volume 45, Page 47 (abstract).

#### DATA REPORTS

Cloern, J.E., and Cole, B.E., 1979. Water quality of South San Francisco Bay and Coyote Creek after failure of the San Jose-Santa Clara Water Pollution Control Plant. I. 17 September-10 October 1979: U.S. Geological Survey Open-File Report 79-1600, 25 p.

Alpine, A.E., Cloern, J.E., and Cole, B.E., 1981, Plankton studies in San Francisco Bay. I. Chlorophyll distributions and hydrographic properties of the San Francisco Bay estuary, July 1977-December 1979: U.S. Geological Survey Open-File Report 81-213, 150 p.

Wong, R.L.J., and Cloern, J.E., 1981. Plankton Studies in San Francisco Bay. II. Phytoplankton abundance and species composition, July 1977 - December 1979: U.S. Geological Survey Open-File Report 81-214, 103pages.

Wong, R.L.J., and Cloern, J.E., 1982. Plankton studies in San Francisco Bay. IV. Phytoplankton abundance and species composition, January 1980 - February 1981: U.S. Geological Survey Open-File Report 82-443, 152 pages.

Alpine, A.E., Wienke, S.M., Cloern, J.E., and Cole, B.E., 1985. Plankton studies in San Francisco Bay. VIII. Chlorophyll distributions and hydrographic properties in South San Francisco Bay, 1983: U.S. Geological Survey Open-File Report 85-196, 58 pages.

#### ADDITIONAL SCIENTIFIC CONTRIBUTIONS

##### 1. LECTURES GIVEN AT UNIVERSITIES

- Plankton Ecology of San Francisco Bay. San Francisco State University, 1978, invited lecture.
- Plankton Ecology of San Francisco Bay. Hayward State University, 1979. invited lecture.
- Plankton Population Dynamics of South San Francisco Bay. Tiburon Center for Environmental Studies, 1981, invited seminar.
- Water Resources Issues and Oceanography of San Francisco Bay. University of Minnesota-Duluth, 1981, invited seminar.
- Oceanography of San Francisco Bay. University of California at Berkeley, 1982. (Invited, two lectures given).
- San Francisco Bay: A Case Study. University of California at Davis, 1983. (Invited, two lectures given).
- USGS Estuarine Research, 1985
- Institute for Marine Environmental Research, Plymouth, England
- Netherlands Institute of Sea Research, Texel
- University of Groningen, the Netherlands
- University of Kiel, FRG
- University of Bergen, Norway
- Physical Controls on Ecological Processes in Estuaries. Stanford University, 1987 (invited seminar)

##### 2. PAPERS GIVEN AT SCIENTIFIC MEETINGS

- Survival of coho salmon eggs in two Wisconsin tributaries of Lake Michigan. Midwest Fish and Wildlife Conference, St. Louis, 1973.
- Nutrient-uptake and growth kinetics of Cryptomonas Ovata. American Society of Limnology and Oceanography (ASLO), Missoula, Montana, 1976.
- Temperature and light effects on algal growth. EPA Symposium on Rate Constants, Coefficients, and Kinetics Formulations in Surface Water Modeling, Concord, CA, 1977, invited paper.
- Phytoplankton of the San Francisco Bay Estuary: The state of our current understanding. Pacific Division, AAAS, San Francisco, 1977, invited paper.
- Empirical model of Skeletonema Costatum photosynthetic rate, with applications in the northern San Francisco Bay estuary. ASLO, Victoria, B.C., Canada, 1978.
- Plankton studies in San Francisco Bay. San Francisco Bay and Estuarine Association, 1979. invited paper.



- Some biological-chemical consequences of a sewage spill in South San Francisco Bay. AAAS, San Francisco, California, 1980, poster presentation.
- Effects of river discharge on phytoplankton biomass and species composition in the northern San Francisco Bay estuary. ASLO, Los Angeles, California, 1980.
- What regulates phytoplankton biomass in South San Francisco Bay? ASLO, Milwaukee, Wisconsin, 1981.
- Does the Benthos Control Phytoplankton Biomass in South San Francisco Bay? Symposium on Production in the San Francisco Bay-Delta, Concord, California, 1982. invited paper.
- Seasonal Changes in the Chemical and Biological Nature of a Meromictic Lake (Big Soda Lake, Nevada, USA), Second International Symposium on Athalassic Saline Lakes, Saskatoon, Saskatchewan, Canada, 1982.
- Autotrophic Processes in Big Soda Lake, Nevada. AGU/ASLO, San Francisco, California, 1982.
- Tidal Mixing, Freshwater Inflow, and Phytoplankton Dynamics in South San Francisco Bay, California. Estuarine Research Federation Meeting, Virginia Beach, 1983.
- The Phytoplankton Contribution to Seston in San Francisco Bay. ASLO, Vancouver, B.C., 1984.
- Vertical Mixing and Phytoplankton Dynamics in an Estuary, ASLO, Minneapolis, 1985 (invited paper in a symposium on physical influences in aquatic systems).
- The Role of Turbidity as a Control on Estuarine Productivity. Invited keynote address, Estuarine and Brackish Water Sciences Association, Plymouth, England, 1986.
- A Synthesis from Studies of San Francisco Bay. Invited address, International Association for Ecology, Symposium on Ecological Management of Coastal Zones, Syracuse, New York, 1986.

### 3. TRAINING

- Ecological Modeling-State of the Art. Advanced Seminar in Water Quality, WRD Training Center, Denver, CO, 1978.
- Co-taught graduate seminar on Plankton Ecology in Estuaries with Dr. Ned Lyke, California State University, Hayward, CA, 1979.
- Nutrients and Phytoplankton. Freshwater Estuaries Workshop organized by the Wisconsin District, Madison, WI, 1979.
- Assisted in developing an outline for a new course (One Dimensional Transport Models for Non-Conservative Solutes) Denver Training Center, 1978. 1979.
- Instructor for "Aquatic Biology: Analysis and Interpretation of Data", WRD Training Center, 1985.
- Graduate thesis committee of two students, 1980, 1981.
- Supervision of NRC Postdoc, 1984-86.

### 4. PROFESSIONAL SOCIETY COMMITTEE ASSIGNMENTS

- President, San Francisco Bay and Estuarine Association, 1984-1985.

### 5. OTHER COMMITTEE ASSIGNMENTS

- WRD Task Group on Biology and Microbiology, 1979. 1980.
- Peer Review Panel, WRD Ecology Group, 1981, 1983. 1985. 1986.
- Technical Advisory Committee, USBR, 1982-1984.
- Technical Advisory Committee to California Water Quality Control Board,

1981-1985.

- Assistant Research Advisor, Ecology, 1985. Research Advisor, 1986.
- WRD Committee on Multidisciplinary Research in Lake-Watershed Systems

5. INFORMAL SEMINARS, USGS

- Aquatic Ecosystem Modeling. Water Resources Division, Menlo Park, CA, 1978.
- Phytoplankton Population Dynamics in San Francisco Bay Water Resources Division, Menlo Park, CA, 1979.
- What's Happening in South San Francisco Bay? Water Resources Division, Menlo Park, CA, 1981.
- Biology of Big Soda Lake. Nevada District Office, WRD, 1981.
- Current Research in San Francisco Bay, with an Emphasis on Biological Studies, WRD, Denver, 1981.
- South San Francisco Bay: An example of a System Where Physics controls Biology. WRD, Menlo Park, 1985.

6. OTHER TALKS AND ASSIGNMENTS

- Frequent manuscript reviews for Limnology and Oceanography, Journal of Phycology, Estuaries, Ecological Modeling, The American Naturalist, Hydrobiologia, Marine Ecology Progress Series, Continental Shelf Research, Photogrammetric Engineering and Remote Sensing, etc.
- Numerous grant proposal reviews for NSF, NASA, California, Rhode Island and Maryland Sea Grant Offices, Hudson River Foundation, etc.
- Invited talk and participation in a Workshop on Long-Term Research Needs at Chesapeake Bay, University of Maryland, 1987.
- Invited participation in joint ASLO-NSF Workshop in Research Needs of the Land-Sea Interface, Woods Hole, 1987.
- I have spent considerable time consulting State Agencies (Department of Fish and Game, Department of Water Resources, Water Quality Control Board) and Federal Agencies (Fish & Wildlife Service, Bureau of Reclamation): numerous presentations, proposal reviews, reviews of study plans, and frequent consultations regarding ecological modeling, 1979-Present.
- Consulted with Nevada and California District (WRD) personnel concerning potential USGS research in Lake Tahoe and San Francisco Bay.
- Invited to talk for the Northern California Science Writers Association, 1983.
- Chaired panel session and presented a talk at the WRD Solute Transport Workshop, Menlo Park, 1983.
- Paper at the WRD Lake Limnology Workshop, Pinedale, Wyoming, 1983.