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University Academic Research Involvement Program Is Underway

During July 1988, a distinguished panel of estuarine scientists chaired by Jerry R. Schubel (State University of New York at Stony Brook) reviewed the Delta Outflow/San Francisco Bay Study in particular and the Interagency Ecological Study Program in general. The following was included in their recommendations:

Efforts should be undertaken to increase involvement of University faculty and students in the Ecological Studies Program. The relative lack of involvement of the regional academic community in issues related to San Francisco Bay is startling when compared with other regions of the country and considering the outstanding reputation of universities in the Bay region. A stronger academic community involvement could bring into the overall effort greater imagination, training opportunities, and alternate sources of research support.

In response to this recommendation, the Interagency Program Coordinators authorized the establishment of the University Academic Research Involvement Program. The objective is to foster university research in San Francisco Bay and the Delta by providing support for graduate students and post-doctoral appointees. The Interagency Program allotted \$75,000 for the first year of the program (DWR \$40,000, SWRCB \$15,000, USBR \$20,000), and the San Francisco Estuary Project provided another \$75,000. This amount will support three or four projects annually.

Proposals were solicited during May and June this year, and by the July 2 deadline, 20 proposals from researchers at seven institutions were received. Proposals submitted were for research in the areas of flow; hydrodynamic processes; habitat; and pollutants, health, and physiology.

The proposals are being reviewed by a Peer Review Panel chaired by Tom Powell (UC Davis). Others on the panel are: Scott Nixon (University of Rhode Island), Bill Boicourt (University of Maryland), Carl Walters (University of British Columbia), Sam Luoma (USGS Menlo Park), John Lech (Medical College of Wisconsin) and Paul Sabatier (UC Davis).

Each proposal will also be evaluated by up to six independent reviewers who will provide written NSF-type analyses. In all, about 120 potential reviewers are involved.

Final selections will be made by the Agency Review Panel, which will include the Peer Review Panel Chair and representatives from the Interagency Program and the San Francisco Estuary Project. Cooperative agreements will then be developed between DWR and successful applicants. We hope to notify successful applicants in October. Several more weeks will be required to process the contracts.

Advertising for proposals to be considered in the next round of awards will begin soon after we announce the results of this round.

An *ad hoc* group, including Dr. Powell and representatives of the Interagency Program, San Francisco Estuary Project, Aquatic Habitat Institute, and Stanford University, is working to develop a long-term funding base for this program.
Perry L. Herrgesell, DFG

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Delta Smelt

On August 30, the Fish and Game Commission decided not to list the Delta smelt, *Hypomesus transpacificus*, as a threatened or endangered species. Part of the decision was that DWR and others should provide financial support for studies to learn more about Delta smelt. The Commission retains the ability to provide emergency listing should indices of smelt abundance show another significant decline.

On September 5, Pete Chadwick, Don Stevens, Peter Moyle, Bruce Herbold, Bellory Fong, and Randy Brown met to discuss possible components of an intensive Delta smelt study. These components may include an expanded fall survey (January-February coverage), expanded egg and larval survey (February-March coverage), and expanded tow-net survey (July-August) to determine spatial and temporal abundance of adults and early life stages. Also included will be work on identifying time and location of spawning, separating (identifying) longfin and Delta smelt at the larval stages, hatchery techniques, and losses to diversions.

Don Stevens will prepare and circulate a draft work program based on comments received. We hope to begin field work in January 1991.

San Francisco Estuary Project

The Estuary Project is about midway through its 5-year program. Interagency staff is active on the Technical Advisory Committee and several technical subcommittees. For example, Perry Herrgesell chairs an aquatic resources subcommittee. Many of the Estuary Project's activities may influence the direction taken by the Interagency Program. The following is an annotated listing of some of those activities most relevant to our program.

- Status and Trends reports. A series of reports, prepared by various contractors, intended to document the past and present status of certain aspects of the estuary; a listing of major information gaps; and recommended management activities. Included in this series are:
 - Dredging and Waterway Modification – Essentially completed.
 - Wetlands – Third draft; near completion.
 - Pollutants – Final draft.
 - Aquatic Resources Expect complete first draft in October.
 - Wildlife – Expect complete first draft in October.

- Hydrodynamics. A report on hydrodynamic processes of the estuary. A component of this report will include an analysis of the effects of mixing and circulation on phytoplankton standing crop. A UC-Davis/Stanford effort funded in part by matching University funds. Drs. Powell (UCD), Monismith, and Koseff (both of Stanford) head the hydrodynamic portion, and Dr. Jassby (UCD) is working with them to analyze the hydrodynamics:phytoplankton relationship.
- Flows Subcommittee. Subcommittee of the Management Committee formed to examine freshwater flow issues. The subcommittee is in the process of hiring flow assistants to examine the Bay/Delta hearing record and other available information to help the Estuary Project determine if it should make flow management recommendations to the SWRCB.
- Monitoring. A subcommittee formed recently to help assess monitoring needs in the estuary and perhaps eventually to provide guidelines for a comprehensive estuarine monitoring program.
- A characterization report will synthesize results of the Status and Trends reports.
- A *State-of-the-Estuary Conference* is being planned for May 30 through June 1, 1991.

Delta Outflow/San Francisco Bay Study Advisory Panel Established

The Interagency Program Coordinators recently directed the Delta Outflow/San Francisco Bay Study Technical Committee to establish an Advisory/Peer Review Panel. The panel is to meet at least once each year to review program workplans and determine if the program is "doing the right things" and if things are "being done right". The panel will also review data and information produced by the program and provide insight

or analytical/statistical techniques to improve data analysis.

The Technical Committee established six general areas where expertise would be sought:

- » Fish and invertebrates (biology),
- » Flow/systematics/ecosystems,
- » Hydrodynamics,
- » Biometrics,
- » Primary production/water quality, and
- » Modeling.

All six of the desired members have committed themselves to this effort. They are:

- » Jerry Schubel, State University of New York - Stonybrook
- » Donald J. O'Connor, HydroQual, Inc.
- » Bill Boicourt, University of Maryland
- » Tim Hollibaugh, San Francisco State - Tiburon Center
- » Alec McCall, National Marine Fisheries Service - Tiburon
- » Carl Walters - University of British Columbia

The first meeting of the panel is tentatively scheduled for November 1990.
Perry L. Herrgesell, DFG

A Special Study to Determine Spatial Distribution of *Potamocorbula amurensis*

DWR's Bay/Delta Monitoring and Analysis Unit is conducting a special study to determine the spatial distribution of *Potamocorbula amurensis* in the northern bays and western Delta.

The main objectives are:

- To determine the current spatial distribution of *P. amurensis* in San Pablo and Suisun bays, the major sloughs of Suisun Marsh, and the major channels of the western Delta.
- To derive regional estimates of total abundance and size class distribution. This information will help us understand the ecological impacts of *P. amurensis* on this system and will aid in design of laboratory experiments.
- To design and conduct a reproducible study that can be repeated after a high outflow (wet) year.

The field sampling was completed in September. DWR, USBR, and SWRCB employees collected more than 200 benthic grab samples throughout the study area. The samples have been sent out for quantitative analysis, which will take about 2 months.

Preliminary information shows *P. amurensis* is most abundant in the Suisun Bay area. Abundance is substantially lower in Suisun Marsh, and the clam seems to be almost nonexistent east of Sherman Island. Large numbers were collected in parts of San Pablo Bay, but overall distribution is quite patchy in this region.

Substrate information collected with each sample suggests *P. amurensis* is most abundant where clay predominates and least abundant where sand predominates.

A report of findings will be published early in 1991.

H. Proctor (DWR)

Annual Interagency Workshop

The Annual Workshop is scheduled for February 20 through 22, 1991, at the Asilomar Conference Center. A small planning committee will meet in October 1990 to start work on the program. Anyone with suggestions regarding meeting format, social activities, etc., please contact Perry Herrgessell, Jim Sutton, Jim Arthur, Marty Kjelson, or Bellory Fong. This year all attendees will be required to register in advance and pay for room and board upon registration. The complete agenda will be published in the December *Newsletter*.

Noteworthy

- At an Interagency Program workshop scheduled for October 4 and 5, the coordinators and study managers will discuss overall program goals and then work on specific goals and objectives for individual studies. Results will be summarized in the next *Newsletter*.
- On October 19, the Agency Directors will receive technical briefings on Delta smelt, USACE studies, Food Chain Group activities, and staff response to program changes recommended at February's annual workshop by people outside the program. This will be the third in a series of technical briefings designed to provide the Directors with periodic updates of program activities.
- Under the sponsorship of USBR, an Israeli scientist specializing in hydroacoustic gear toured the Bay/Delta and described the use of echo sounding in assessing fish populations. He also demonstrated the gear in a field application. DFG is already using hydroacoustic techniques to help evaluate losses of striped bass and Chinook salmon in the SWP's Clifton Court Forebay.
- The annual fall midwater trawl began September 10. This survey samples

several stations throughout the Bay and Delta, and completion requires about six days each in September, October, November, and December. Although designed primarily to index striped bass abundance, the fall survey provides important data on several other fish species — such as Delta smelt — that are vulnerable to the gear used.

- The Suisun Marsh Technical Committee is developing plans for a biological assessment of the impact of the Suisun Marsh Plan of Protection on those threatened and endangered plants and animals listed after the plan was adopted by DWR, DFG, USBR, and the Suisun Resource Conservation District. The assessment will include the managed marsh as well as unmanaged tidal wetlands outside the marsh.
- In a related activity, Suisun Marsh Committee members are initiating the planning, design, permitting, and environmental documentation processes leading to the next in a series of facilities designed to maintain a brackish marsh. Although Boynton-Cordelia Ditch was originally identified as the facility to provide the desired quality of

water to the northwestern portion of the marsh, other alternatives will be examined in the environmental impact documents. Staff is also considering whether to include Cordelia-Goodyear Ditch and Boynton-Cordelia Ditch as one project, since the required completion dates are only a year apart. A public hearing on the project is tentatively scheduled in Fairfield on November 28, 1990.

- USBR staff is analyzing results of 1990 field studies in which striped bass eggs and larvae were continuously sampled at a site on the Sacramento River near Sacramento and at another on the San Joaquin River below the mouth of the Mokelumne. Preliminary indications are that there was substantial spawning on the Sacramento River, with eggs passing Sacramento in several peaks. Some technical problems were encountered on the San Joaquin River, including possible predation on striped bass in the sampling chamber by the introduced amphipod, *Lagunogammarus*. Complete results should be available late this fall.

UNIT OF THE MONTH

Agency Coordinators

This month we are introducing the people who coordinate the Interagency Program.

Pete Chadwick (DFG) is a fishery biologist with degrees from Cornell University and the University of Michigan. He has worked for DFG since 1956 and has participated in the Interagency Program since 1966. As hobbies, Pete enjoys a variety of outdoor activities, including backpacking, cross-country skiing, hunting, and bird watching. He is involved in a variety of church and civic activities, and has been a scoutmaster and president of the local Planned Parenthood affiliate.

Marty Kjelson (USFWS) received his PhD in biology from the University of California-Davis in 1971 and his BS in ecology from the University of Wisconsin-Madison in 1963. Before moving to Stockton, Marty worked for the National Marine Fisheries Service in Beaufort, North Carolina, until 1977. He is now Project Leader of USFWS's Fisheries Assistance Office. Marty's hobbies include hunting and fishing, fly tying and golf. He is married and has two daughters.

Mark Dettle (USACE) has a BSCE from the University of Santa Clara (1979) and ME from the University of California-Berkeley (1981). He has worked for two consulting firms in New York City, as a civil marine engineer for an international firm specializing in materials handling, and as a coastal engineer for Planning Research Corporation. He started with the USACE San Francisco District in 1985 as a coastal engineer. Mark is now Project Manager for John F. Baldwin Ship Channel Deepening, Phase 3, under which the ship channel will be deepened from -35 feet to -45 feet MLLW from Angel Island to Benicia.

Peter Anttila (USGS) is Assistant District Chief for Hydrologic Investigations, California District. His position includes overall management of about 40 investigations each year and 60 employees. Pete has a BS in civil engineering from Tufts University. His entire 25-year professional career has been with the USGS; previous assignments have been in the Michigan and Ohio districts. Pete's hobbies include skiing, golf, and reading.

David Beringer (SWRCB) received his degree from the University of Pittsburgh. He has worked for an engineering consultant on the east coast and was in the military during the Vietnam War era. He now manages SWRCB's Bay-Delta Program. His hobbies include competitive rifle, pistol, and shotgun shooting; furniture building; singing in the Sacramento Chorale; and gourmet cooking. Dave and his wife have three children.

Randy Brown (DWR) received his PhD in ecology from the University of California-Davis. His MS in fisheries and oceanography and BS in fisheries are both from Oregon State University. Randy has worked for the State of California for 24 years in agricultural waste water treatment studies and as staff biologist. He has been involved in the Interagency Program for the last 11 years. Aside from his work, Randy enjoys his family, woodworking, gardening, and reading.

Kenneth Lentz (USBR) received both his BS and MS in fisheries from Humboldt State University. He has been with USBR since 1972, and as Chief of the Scientific Resources Branch in Sacramento, he directs a multidisciplinary staff responsible for evaluating the effects of project operations on water quality and fish. Ken's outside interests are sports, blues music, barbecuing, gardening, and woodworking.

Soviet Visit

This June I visited the Soviet Union for about 2 weeks to discuss mutual experiences regarding the impacts of water development on fish. The focus of our discussions was the lower Volga River, which travels 2,300 miles through the Russian Republic to the Caspian Sea. A few observations may be of interest to our readers.

The Volga River is a true major artery of the Soviet Union. Average annual discharge is about 200 million acre-feet, and typical flows are on the order of 300,000 cfs. The Volga is part of a river/canal/lock/sea system that allows boats to move through the country from the Mediterranean Sea to the North Sea. The Volga empties into the Caspian Sea through an extensive Delta.

Principal fish include 12 species of sturgeon (most important are beluga and "sevruga") and several species of cyprinids (including carps). Much of the research is focused on sturgeon.

Resource management is partitioned among a myriad of local, regional, and national ministries and committees (e.g. power, irrigation, commercial fisheries, environment, agriculture). Although I was never certain as to how decisions were made, a Soviet visitor would probably have the same problem visualizing how our system works.

The sturgeon fishery on the lower Volga is economically important and provides flesh as well as caviar. In one of the main migratory channels, 100-meter haul nets are used 24 hours a day at five sites for

three months in the spring. Peak catches per 20- to 30-minute haul at lower stations can be 80 to 100 sturgeon. The fish are transported live to nearby factory ships, where caviar is prepared and the carcasses iced until further processing.

The sturgeon fishery is currently depressed. Possible causes are over-fishing, pollutants, loss of upstream habitat due to dams, and changes in flow and temperature in the Volga.

Fish mitigation measures include hatchery production, a large "water divider" to force much of the flow down one channel for minnow spawning, and payment for fish lost at dams and discharge points. There is apparently little evaluation as to the effectiveness of the mitigation measures.

Each agency, committee, and ministry is well staffed with technical people. For example, the Caspian Sea Institute has about 1,000 employees, most of whom are scientists and engineers. Pay is fairly low; a senior scientist might earn about 450 roubles a month (about \$80). Of course prices are also quite low.

All in all, it was an interesting and worthwhile trip. DWR has invited a Soviet scientist to visit the Bay and Delta this fall or next spring. He or she will present two or three seminars on fish problems in the Soviet Union. We hope a continuing exchange program will be developed.

Randy Brown, DWR

Staff Notes

This summer the Coordinators approved establishing a Program Manager position within the Interagency Program. Principal duties of this position, which will be in DFG, are:

- » Supervise DFG technical staff.
- » Oversee technical staff of other agencies to help ensure that overall program needs are being met.
- » Develop and implement a public relations/communications program

to make study data and findings available to a wider audience.

- » Work with Coordinators to develop meeting agendas, provide support documents, and follow-up to ensure that action items are accomplished.
- » Work with technical committee chairs to establish and oversee technical advisory panels.
- » Coordinate annual development of workplan and budget for individual study programs.

- » Coordinate preparation of annual report and workshop, university research involvement program, and technical workshops.

Perry Herrgesell is acting Program Manager, but hasn't assumed all of the duties pending completion of paperwork within DFG. The Program Manager will play a major role in keeping the Interagency Program on track.

Interagency Ecological Study Program
NEWSLETTER
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Interagency Ecological Study Program for the Sacramento-San Joaquin Estuary

NEWSLETTER

A Cooperative Effort of:

**California Department of Water Resources
State Water Resources Control Board
U.S. Bureau of Reclamation**

U.S. Army Corps of Engineers

**California Department of Fish and Game
U.S. Fish and Wildlife Service
U.S. Geological Survey**

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