

Monitoring and Special Study Activities for 1997

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On October 30, 1996, the Interagency Program Directors met to consider monitoring and special study elements recommended by the Coordinators for 1997. Although there was a delay of a couple of weeks to assess the relative levels of state and federal funding (Table 1), the Directors ultimately approved the recommended 1997 activities. The concern among the State Water Contractors is the continued disproportionate share being paid by the state. The contractors will be working to achieve more equal funding for 1998.

Each year the program undertakes a review and revision process in an effort to maintain its relevance to the estuarine management and protection needs of member agencies and their stakeholders. The program is reviewed at many levels.

• Project Work Teams consider the results of current and past program elements, evaluate team activities in light of current and expected information needs, and identify opportunities for technical improvements in

monitoring and special studies. Based on these considerations, they recommend additions, deletions, and modifications of program elements to the Management Team.

- The Management Team compiles and reviews the recommendations of the Project Work Teams and, based on budget considerations and perceived information priorities, develops an integrated program to recommend to the Coordinators.
- The Coordinators review the recommended program and direct revisions to the proposal based on responsiveness to agency information needs, priorities, and budgets. The Coordinators present their approved program to the Directors, who are the state agency directors and federal regional directors of member agencies. The Directors meet annually to consider the recommended program for the following year.

Early discussions with stakeholders and a joint meeting of the Management Team and Coordinators identified several technical subjects or

objectives to be emphasized in planning for 1997. They are:

- Assess the importance and role of shallow-water habitat in the bay and delta.
- Assess the effects of contaminants on species and communities in the bay/delta and tributaries.
- Evaluate the role of introduced species on the estuarine system.
- Test and evaluate proposed recovery actions for listed species.
- Refine real-time monitoring concept and activities.
- Improve assessment techniques, especially those associated with salmon studies.
- Evaluate CVPIA-AFRP measures as they are implemented and facilitate technical review of proposed measures.
- Implement monitoring improvements identified during the 1996 community monitoring concept development.
- Study early life history and rearing of sturgeon.

Table 1
Proposed 1996/97 Interagency Funding Transfers and Agency Self-Funding Levels
(Thousands of Dollars)

Agency (To)	Agency (From)										TOTAL
	DWR	DFG	SWRCB	USBR	USFWS	USGS	USEPA	USACE	NMFS	CVPIA	
DWR	2,638	0	0	438	0	0	0	0	0	50	3,126
DFG	2,259	1,033	0	1,417	0	0	0	0	0	280	4,989
SWRCB	0	0	10	0	0	0	0	0	0	0	10
USBR	0	0	0	1,616	0	0	0	0	0	0	1,616
USFWS	400	0	0	388	181	0	0	0	0	104	1,073
USGS	439	0	0	300	0	721	0	0	0	0	1,460
USEPA	0	0	0	0	0	0	20	0	0	0	20
USACE	0	0	0	0	0	0	0	0	0	0	0
NMFS	0	0	0	0	0	0	0	0	405	0	405
TOTAL	5,736	1,033	10	4,159	181	721	20	0	405	434	12,699

Baseline Monitoring

- Balance the distribution of special study and monitoring efforts across salmon races.
- Plan and implement habitat restoration monitoring and evaluation.

The 1997 program includes several revisions that respond to these areas of emphasis within the goals of: a near-level budget; sustained monitoring to provide a long-term record for assessing status and trends; and completing important studies already underway.

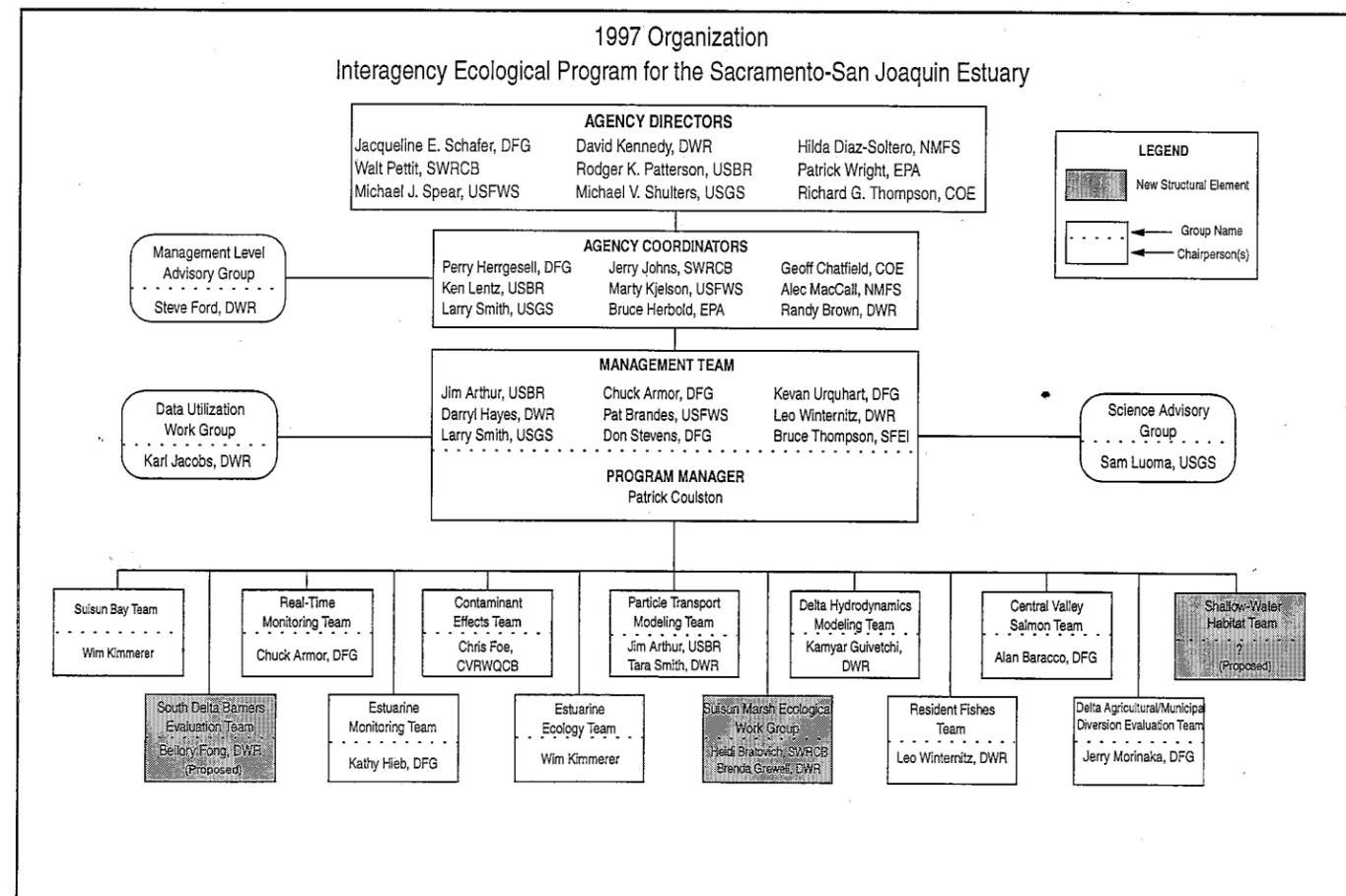
Shown below is the latest version of the Interagency Ecological Program's organization chart, including existing and proposed project work teams. More information about the organization can be found at the Interagency web site or by contacting the program manager.

The 1997 program is a mixture of "monitoring" and "special study" activities.

Several core routine monitoring elements provide long-term measures of the abundance and distribution of an ecologically diverse group of estuarine species. This monitoring, which will be essentially the same as in previous years, includes (those marked * receive at least partial funding through the CVPIA): Bay Salinity Monitoring; Estuarine/Marine Fish and Shrimp Survey; Fall-Spring Midwater Trawl Survey*; Delta Resident Shoreline Fish Sampling; CVP/SWP Fish Salvage Reporting; Adult Sturgeon Tagging; Adult Striped Bass Tagging*; Summer Tow-Net Survey*.

Some significant changes in monitoring efforts are also being planned or implemented now, and additional changes may be made. Proposed significant changes in monitoring are:

- Delta flow measurements will continue. USGS expects to have preliminary daily outflow measurements by this spring. Contra Costa Water District has reduced its contribution to this effort, and this may affect the number of instruments deployed at key delta flow splits. Also, analytical efforts will focus on use of existing datasets to calibrate the new delta flow model.
- Decision 1485 water quality compliance monitoring, including phytoplankton, zooplankton, and benthos sampling crews, will be fully integrated. Water quality, zooplankton, and phytoplankton samples will be collected at each sampling site. At least one additional multiparameter sampling site will be installed in 1997.
- The proposed 1997 real-time monitoring program differs from the 1995 and 1996 programs in several aspects. The goal of the 1995 and 1996 programs was to develop a



dataset from which a number of hypotheses could be tested while providing information useful to CVP/SWP operators and agency regulators in charge of threatened and endangered species issues. The first goal of the 1997 program is to provide the operators an early warning and geographical context of presence of any species of concern. To achieve this, gear specific to different species will be used when it appears that a species may be affected by project operations (eg, focus on chinook salmon smolts early and shift to delta smelt when they become more numerous). Sampling will continue at the main input sites (Sacramento and Mossdale) and the "ring" sites used in the 1996 program. Sampling at Head of Old River and False River will depend on water year type. Intensive sampling will begin April 1 and (except at Jersey Point) continue until the end of June. Real-time data collection actually began October 1 at some sites as part of possible fall make-up pumping. Statistical analysis of 1996 data showed that sampling could be decreased to five 20-minute tows per site per day (in some cases three 20-minute tows could be used) and 5 days per week (but with no more than one day off at a time) without significant information loss. Therefore, sampling will be reduced to five 20-minute tows on Monday, Tuesday, Thursday, Friday, and Saturday at all sites except Sacramento and Mossdale, where effort will remain at ten 20-minute tows 7 days/week. When delta smelt appear in the delta and chinook salmon smolts are still present, we will use both the Kodiak trawl and 20mm tow-net at the "ring" sites. Estimated cost of the 1997 program is \$553,000 for a dry year and \$546,000 for a wet year.

- During 1996, real-time processing of 20mm survey samples resulted in unplanned costs and staffing that

were disrupting to the rest of the program. These efforts have now been budgeted so they can be accomplished without disrupting other program elements.

- We have little year-to-year information about the distribution, habitat use, and abundance of young-of-the-year sturgeon. Resources for pilot juvenile sturgeon sampling in the lower Sacramento River will be made available from the existing sturgeon program by ending the spawning survey. The 1997 effort will focus on testing sampling gear and sites.
- The pilot downstream extension of the estuary-wide zooplankton sampling, approved by the Directors in 1995, has been funded and will be implemented.
- We will use results of an August 1996 workshop to evaluate the Interagency Program's role in a comprehensive watershed and estuary monitoring and special studies program. The evaluation will include sample parameters, sites, and gear; the work of other agencies and groups; and comments by member agencies and stakeholders. For example, the salmonid work team is being restructured to take a life-cycle look at chinook salmon and steelhead, with subteams for specific races or assignments. Also, the work team has convened a spring-run group and has a group designing a constant fractional marking program for hatchery chinook. We are considering establishment of a "shallow-water habitat" team to develop monitoring, special studies, and restoration evaluation elements.

Special Studies

About half of our 1997 resources will be spent on investigations generally intended to answer particular "how", "how to", or "why" questions about the estuary.

Chinook Salmon

Several studies related to chinook salmon are planned.

- Continue the Knights Landing sampling through June 1997 to determine the site's contribution to understanding spring- and winter-run chinook outmigration. Evaluate data to see if this site should be part of the long-term salmonid monitoring network.
- Tag about 1 million Coleman Hatchery fall-run salmon and release three groups in April to evaluate in-river survival and contribution of Coleman to ocean catch and escape-ment.
- Tag about 800,000 Coleman Hatchery late-fall chinook so that the smaller fish will not be confused with winter chinook at the salvage facilities. Release and capture of some of these tagged fish in the delta was to have provided information on the relative benefits of high and low export/inflow ratios. Flows were high during the study period, and the desired export/inflow ratios were not obtained. The releases will help us assess survival during extreme outflow events.
- Continue tissue collection and sample analysis for DNA work at Bodega Marine Laboratory. Expand tissue collection to obtain a wider baseline of samples from known populations.
- Conduct pilot monitoring of juvenile salmon emigrating from the San Joaquin drainage past Mossdale during the October 1 through March 1 period. Yearling salmon may be emigrating during this

period that might be confused with spring- or winter-run salmon.

- Smolt mark/recapture survival experiments in the southern delta to assess barrier effects may be conducted as part of ongoing water project planning. Any incremental increases in cost over other IEP salmon work will be borne by agency water project planning units. The effort may include dye release studies and temporary UVM flowmeters to assess channel flow splits.

Delta Smelt and Splittail

In 1996, the Resident Fish Project Work Team held a workshop to discuss the future direction of delta smelt investigations. The result of the workshop and other planning efforts is a prioritized list of possible special studies. At the top of the list is a study of shallow-water habitat use by delta smelt and other species. A study plan is being developed for the shallow-water habitat study in spring 1997, and a study is underway of growth rates in various parts of the system.

Estuarine Ecology

The Directors approved funding for two of the eight studies proposed by the Estuarine Ecology Team:

- Net Fluxes in the Western Delta: This project will attempt to determine the magnitude of the eastward transport of important species (zooplankton and larval fish) in the lower San Joaquin River when net flow is calculated to be negative. It will also attempt to determine importance of this movement to

populations involved. Most of the work will be done by non-agency personnel, with some agency staff used during data collection. Preliminary budget estimate is \$110,000. If San Joaquin River flows remain high through spring, this study will be postponed.

- Ecosystem Performance: This project will construct a mathematical biochemical box model of the net ecosystem performance of San Francisco Bay, particularly the north bay, and the delta. The primary parameters to be derived would be net ecosystem performance (production-respiration) and the relative excess of net production or respiration. This project will use existing data from a variety of sources and will complement the work of Jassby *et al* on carbon in the estuary. Non-agency personnel will do all the work. Preliminary budget estimate is about \$270,000, of which the Interagency Program portion is \$40,000. USGS is contributing the rest of the funding.

Yolo Bypass

The approved 1997 program included a small pilot study of Yolo Bypass to help determine the role of the bypass as shallow water habitat, as a contributor to the estuary's carbon budget, and as a passage (or trap) for juvenile chinook salmon. A more comprehensive study was later made through the Bay-Delta Accord "Category III" project funding process. Bypass inundation and high flows resulting from the January storms will prevent full implementation of the larger study until 1998.

Contaminant Effects

Two contaminant effects investigations developed in 1996 will be implemented in 1997. One will examine herbicide concentrations in the delta and their potential effects on phytoplankton photosynthesis and primary productivity. The other will examine the role of trace organic compounds on reproductive success and larval growth of shiner perch and tule perch. Total budget for the two studies is \$75,000. The Contaminants Team has seven proposals under review for possible approval, using up to \$75,000 in 1997 funds.

Georgiana Slough Acoustical Barrier

Results of the 1996 study indicated that, on average, the barrier did not guide juvenile salmon away from Georgiana Slough with last spring's relatively high flows. If these studies continue, they will involve a significant investment in equipment and a redeployment of the acoustical array. Estimated cost is about \$250,000 for a special study to be conducted only if flows are 10,000-17,000 cfs during the expanded peak April 1-3 salmon emigration period. The high flows caused extensive damage to the mooring system and cables.

Introduced Species

The Interagency Coordinators agreed to assign questions dealing with impacts of introduced species to the Estuarine Ecology Team. The team will discuss issues surrounding introduced species and may bring recommendations for studies or actions to the Coordinators. The Interagency Program is also represented on the western panel work group formed under the auspices of the recently amended National Invasive Species Act.