

ACTION ITEM

Consideration of Grants for Three Research Projects

Summary: Staff recommends the Council authorize the Executive Officer to award three grants for critical science investigations that are consistent with two of the topics on the high-impact science actions (HISA) endorsed by the Delta Plan Interagency Implementation Committee (DPIIC) The HISA reflect a consensus among the 17 State and federal agencies directors on the DPIIC as to the most-pressing near-term research needs for Delta science.

Requested Action

Authorize the Executive Officer to award the three grants listed below and sign the individual grant agreements. The topics of these grants are consistent with the HISA list endorsed by DPIIC and relate to the effectiveness and implications of habitat restoration actions or science support for management of estuarine and migratory species.

The three projects proposed to be awarded are:

- 1) *Restoration Benefits in the Northeast Delta Landscape: Monitoring and Modeling to Link Physical Processes and the Food Web.* The requested grant amount is \$1,646,109. Grantee: Dr. Joshua Viers and Carson Jeffres, University of California, Davis.

This project includes three interlinked activities to monitor and quantify benefits of habitat restoration at the McCormack-Williamson Tract in the northeast Delta. Links between physical habitat, food web dynamics, and the persistence of native fish will be evaluated by monitoring, modeling, and synthesis in three thematic areas: aquatic food web and carbon flux; hydrodynamic models; and high resolution mapping of water quality parameters and isotope distribution. These proposed activities are components in an evaluation program to assess pre-restoration conditions at the site and quantify expected restoration outcomes. The project will demonstrate adaptive management program elements envisioned for EcoRestore.

- 2) *Monitoring Juvenile Spring-run Chinook Salmon in response to Climate-Driven Flows in the South Delta.* The requested amount is \$1,500,000. Grantee: Dr. Peter Klimey, University of California, Davis.

This project will establish a network of state-of-the-art stations to detect and monitor 500 tagged and released spring-run salmon smolts as they migrate through the south Delta. The study allows for partitioning of the river into ten kilometer reaches that will be equipped with an array of paired real-time monitors able to detect the migrating fish as they pass. Critical sites will also be equipped with sensors that record water speed, temperature, salinity, and dissolved oxygen. Detection information and other data will be transmitted to a server and displayed on a website. The investigation will occur over two years. The program will provide an opportunity to examine the response of salmon to a range of hydrologic conditions and to address the role of predation on migrating salmon. It will also enable fisheries managers to make decisions on a daily basis rather than

waiting over a year for survival estimates. Study results can be used to identify sites of salmon high mortality and enable restoration planners to design site modifications and restoration approaches to minimize exposure to predators.

- 3) *Assessment of Temperature- and Nutritional-dependent Physiological Processes in Larval Green and White Sturgeon*. The requested amount is \$989,000. Grantee: Dr. Nan Fangué, University of California, Davis.

This proposed research assesses the effects of temperature and nutrition on larval green and white sturgeon. These data are critical for the development of bioenergetic models of the early life history stages of sturgeon, which are needed to link the survival of larval sturgeon with historic environmental regimes, pinpoint temperature ranges for optimal survival, and help identify potential future restoration sites that can aid the recovery of sturgeon populations. The research furthers our understanding of how watershed productivity (i.e., food availability) affects native fishes and our understanding about how water flow or other critical drivers, such as temperature, impact fish populations.

Background

As one of the first steps in implementing the jointly developed HISA topics, the California Department of Fish and Wildlife (CDFW) used three out of the four HISA topics endorsed by 17 State and federal agencies represented on DPIIC, for its 2015 Proposition 1 Grant Solicitation:

- 1) Assessing drought-related effects on the Delta
- 2) Effectiveness and implications of habitat restoration actions
- 3) Science support for management of estuarine and migratory species

A total of 30 proposals were submitted to DFW last fall in support of the HISA topics, totaling slightly more than \$28 million. Seven million dollars were made available of CDFW's Proposition 1 funds designated for this purpose in the Bond Act, and CDFW was able to fund seven of the 30 proposals submitted. Out of the remaining pool of 23 submittals, five additional, very high-ranking proposals met Delta Science Program funding criteria.

From among those five proposals, the Delta Science Program selected the three three-year projects proposed for funding consideration by the Council.

Part of the Larger Science Partnership

These three grant agreements proposed to be funded through the Council's 2015/16 budget are only a small subset of the HISA initiated through successful partnerships with a range of agencies represented on DPIIC as well as stakeholders participating in this collaborative implementation process ("One Delta, One Science"). Item 7a, Approval of Contract with U.C. San Diego (California Sea Grant) for 2017 Class of Delta Science Fellows is also a result of interagency coordination on HISA.

The high-impact science topics developed in the interim – prior to the development of a jointly prioritized Science Action Agenda – are consistent with the Delta Science Plan and are covering a range of actions that include:

- Needed synthesis and model updates
- In-depth reviews of how much the state of knowledge has advanced in recent years on specific stressors impacting key species and ecosystem functions, the interactions among these stressors, and the kinds of remaining uncertainties that need to be addressed
- Critical research investigations addressing immediate management priorities
- Improvements to decision-support tools and science infrastructure, such as data accessibility, reporting and communication tools, model integration, and surveillance and monitoring technology

The HISA topics were arranged by how long it may take to begin implementing them, with directed actions being able to proceed at a more rapid pace than competitively solicited proposals via Proposition 1 and the Delta Science Fellows Program. The HISA list is organized by four general topics:

- 1) Drought-related effects on the Delta;
- 2) Effectiveness and implications of habitat restoration actions;
- 3) Science support for management of estuarine and migratory species; and
- 4) Science supporting flood risk reduction and the economies of Delta communities.

The HISA list identifies a lead agency and partner organizations to scope out detailed work plans, coordinate among study participants, and develop joint funding mechanisms.

Attachment 1 contains summaries of the research projects that were selected through a competitive solicitation process under the Council's Delta Science Fellows Program administered by California Sea Grant. Attachment 2 contains a summary table of collaborative implementation progress by DPIIC agencies and local government stakeholders that could be started rapidly, as well as project descriptions consistent with the HISA topics that are led by the Delta Science Program.

Recommendations and Next Steps

Staff recommends the Council authorize the Executive Officer to enter into the three grant agreements as listed above. The anticipated term of each grant agreement will be from June 2016 through June 2019. Council authorization is required because the total amount of the contract exceeds the Executive Officer's \$500,000 delegated authority.

Fiscal Information

The requested grant amount for the project entitled *Restoration Benefits in the Northeast Delta Landscape: Monitoring and Modeling to Link Physical Processes and the Food Web* is \$1,646,109 to be distributed as follows:

- FY 2015/16: \$1,100,000
- FY 2016/17: \$546,109

The requested grant amount for the project entitled *Relating in Real-Time the Movements of Juvenile Spring-run Chinook Salmon to Climate-Driven Flows in the South Delta* is \$1,500,000, to be distributed as follows:

- FY 2015/16: \$1,020,000

Agenda Item: 7b
Meeting Date: April 28, 2016
Page 4

- FY 2016/17: \$480,000

The requested grant amount for the project entitled *Assessment of Temperature- and Nutritional-dependent Physiological Processes in Larval Green and White Sturgeon* is \$989,000, to be distributed as follows:

- FY2015/16: \$900,000
- FY 2016/17: \$89,000

List of Attachments

Attachment 1: Science Investigations Conducted through Competitive Project Solicitations and the Delta Science Fellows Program

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