

Lead Scientist's Report

Summary: This report presents three items, 1) the 2011 Fall Midwater Trawl Fish Abundance Indices, 2) the latest issue of the Council sponsored online journal, *San Francisco Estuary and Watershed Science*, and 3) a new journal publication by Brooks et al. (In Press) on the ecological effects of contaminants.

2011 Fall Midwater Trawl Fish Abundance Indices

The 2011 Fall Midwater Trawl (FMWT) sampling season was completed on December 16, 2011. Delta smelt abundance indices were much higher in 2011 than in recent years. Fall surveys to estimate pelagic fish abundance and distribution in the Delta are conducted annually from September through December by the Interagency Ecological Program. The sum of the September through December monthly abundance indices comprises the annual fall index. The 2011 fall index for delta smelt is 343, the highest since 2002. Thirty additional delta smelt were collected outside of the historical FMWT sampling area in the Sacramento Deep Water Ship Channel (25) and Cache Slough region (5) of the northern Delta. The delta smelt fall index was highest in 1970 when it reached 1,673 and has been consistently below 100 since 2004. The 2011 fall indices for Age-0 striped bass (272) and longfin smelt (477) are the highest they have been since 2006. For threadfin shad the index (228) is the third lowest in FMWT history and the fourth in a series of very low abundance indices, but many additional threadfin shad were collected in the Sacramento Deep Water Ship Channel (2,188) and Cache Slough region of the northern Delta (610).

For more information about the 2011 FMWT survey results see the Department of Fish and Game Fall Midwater Trawl Memo (Attachment 1).

Latest Issue of *San Francisco Estuary and Watershed Science*

The latest issue of the Council-sponsored online journal *San Francisco Estuary and Watershed Science* was recently released (Volume 9, Issue 3, 2011). This issue is part of a two-part special issue featuring articles developed from research at the San Francisco Bay National Estuarine Research Reserve, part of the National Oceanic and Atmospheric Administration's nationwide network of 28 estuarine research reserves. This issue includes five articles on the following topics, 1) tidal marsh restoration (Callaway et al.), 2) climate change effects on Bay-Delta tidal wetlands (Parker et al.), 3) tidal marsh birds (Takekawa et al.), 4) invertebrates at China Camp in Marin County (Robinson et al.), and 5) vegetation at Rush Ranch in Suisun Marsh (Whitcraft et al.). A recurring theme in these articles is that accelerating sea level rise poses immediate and severe threats to tidal wetlands around the San Francisco Estuary. The second installment of this special issue will be released in spring or summer of this year. To access the journal please visit: http://escholarship.org/uc/jmie_sfews.

New journal article (Brooks et al. in press) on the ecological effects of contaminants

The interactive ecological effects of contaminants in the San Francisco Estuary remain largely unknown, and are difficult to investigate with standard toxicological methods and existing data. Brooks et al. provide an analysis that suggests that sublethal stress from metals, nutrient-rich effluents, cyanobacteria (*M. aeruginosa*) blooms, and pesticides are potential contributors to, but not the sole cause of, past and ongoing declines in abundances of pelagic (open water) fishes. The analysis also examined threats to pelagic fishes at various life stages and the associated geographic location and season for each life stage. This analysis identified that the greatest threats to pelagic fish species from contaminants in the San Francisco Estuary most likely occur during larval life stages in the freshwater reaches of the Delta in late winter and spring.

Reference

Brooks, Marjorie L., Erica Fleishman, Larry R. Brown, Peggy H. Lehman, Inge Werner, Nathaniel Scholz, Carys Mitchelmore, Michael L. Johnson, Daniel Schlenk, Suzanne van Drunick, James Drever, David M. Stoms, Alex E. Parker, and Richard Dugdale. In Press. Life Histories, Salinity Zones, and Sublethal Contributions of Contaminants to Pelagic Fish Declines Illustrated with a Case Study of San Francisco Estuary, California, USA. Estuaries and Coasts DOI:10.1007/s12237-011-9459-6

To access the full journal article please visit:

<http://www.springerlink.com/content/k051705055725730/fulltext.pdf>

List of Attachments

Attachment 1: Department of Fish and Game Fall Midwater Trawl 2011 Memo

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