

Southern California Bight 2013 Regional Monitoring Program: Volume VII. Demersal Fishes and Megabenthic Invertebrates

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EXECUTIVE SUMMARY

Regional monitoring has become an important component of assessing the status of our coastal resources in the Southern California Bight (SCB). The Southern California Bight 2013 Regional Monitoring Program (Bight '13) is the fifth in a series of regional marine monitoring efforts beginning with a pilot project in 1994 and repeated in 1998, 2003, and 2008. More than 90 different organizations encompassing regulatory, regulated, academic, and non-governmental agencies collaborated to create Bight '13. Collectively, these organizations asked three primary questions:

1. What is the extent and magnitude of impact in the SCB?
2. Does the extent and magnitude of impact vary among different habitats of interest?
3. What are the temporal trends in impacts?

Bight '13 had five components: Contaminant Impact Assessment, Water Column Nutrients, Shoreline Microbiology, Marine Protected Areas, and Trash and Debris. The Contaminant Impact Assessment component evaluated sediment chemistry and toxicity, benthic infauna, fish assemblages, and bioaccumulation. The focus of this report is on demersal fishes and megabenthic invertebrates.

A stratified random sampling design was selected to ensure an unbiased sampling approach to provide areal assessments of environmental condition. There were 6 strata selected for the trawl-based study including three continental shelf strata (5-30 m, 30-120 m, 120-200 m), upper slope (200-500 m), and an embayment stratum. One new stratum, marine protected areas, was introduced in Bight '13.

A total of 165 trawl stations were sampled, capturing over 75,000 fishes from 127 species, and over 165,000 invertebrates from 229 species. Overall, trawls in 2013 had greater average abundance, greater biomass, and reduced average species count compared to previous Bight trawl surveys.

Southern California Bight trawl caught fish were generally in good condition. Based on the Fish Response Index (FRI), a measure of fish community response to pollution, 93% of the Bight's soft bottom habitat was unimpacted by sediment contaminants. In addition, <0.1% of fish had tumors, lesions, or fin rot, all symptoms of potentially stressed individuals. Overall, fish communities have remained healthy since the Bight '98 survey 15 years prior.

Despite the overall good health of fish populations, not all habitats supported healthy fish communities equally. Healthy fish communities were found less frequently in embayments (bays and harbors) compared to the continental shelf (83 vs 96% of area, respectively). A similar disparity has been observed each survey where fish communities in bays and harbors were sampled.

Recommendations included the following actions:

- a critical review and update of the Fish Response Index to enhance assessments
- improved information management to increase accuracy and efficiency
- further investigation of linkages between biological and oceanographic condition
- continued support of regional taxonomic societies that improve the comparability and quality of the organisms species identifications amongst regional Bight survey participants
- evaluation of additional potential indicators of contaminant impacts

Full Text

http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/972_B13TrawlReport.pdf