Contaminants in Sport Fish

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Findings
In the first year of this statewide screening study, 2291 fish from 36 species were collected from 42 locations on the California coast. The survey identified high concentrations of contaminants in a few areas, and widespread moderate contamination throughout the urban coastal regions sampled. Methylmercury and PCBs are the pollutants that pose the most widespread health concern to consumers of fish caught on the California coast. None of the locations had all sampled fish species below all the OEHHA thresholds. However, the high degree of variation observed among species indicates that exposure can be significantly reduced by selectively targeting cleaner species.
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At several locations, methylmercury reached concentrations high enough that OEHHA would consider recommending no consumption of the contaminated species. At all but one of these locations, the highest concentrations were observed in sharks, which have a tendency to accumulate high levels of methylmercury worldwide. Most of the locations sampled (31 of 42) were in the moderate contamination categories (above the lowest threshold of 0.07 ppm and below 0.44 ppm). PCB contamination was also moderate but widespread. Six of the 42 locations surveyed had a species with an average concentration exceeding the threshold of 120 ppb above which OEHHA would consider recommending no consumption of the contaminated species. San Francisco Bay and San Diego Bay stood out as having elevated concentrations. Most of the locations sampled (74%) fell in the moderate contamination categories between the lowest threshold of 3.6 ppb and the 120 ppb no consumption threshold. Only five locations from more remote areas had concentrations lower than the lowest threshold.

At several locations, methylmercury reached concentrations high enough that OEHHA would consider recommending no consumption of the contaminated species (0.44 ppm wet weight). Overall, eight of the 42 locations surveyed had a species with an average concentration exceeding 0.44 ppm. At all but one of the locations the highest concentrations were observed in sharks, which have a tendency to accumulate high levels of methylmercury worldwide. Striped bass, a very popular species sampled in San Francisco Bay, was the one other species that had an average methylmercury concentration (0.45 ppm) above 0.44 ppm. Most of the locations sampled (31 of 42) were in the moderate contamination categories (above the lowest threshold of 0.07 ppm and below 0.44 ppm). Several species had average methylmercury concentrations below all thresholds, most notably chum salmon, which is one of the most popular sport fish species on the southern California coast. Striped bass, a very popular species sampled in San Francisco Bay, was the one other species that had an average methylmercury concentration (0.45 ppm) above 0.44 ppm. Most of the locations sampled (31 of 42) were in the moderate contamination categories (above the lowest threshold of 0.07 ppm and below 0.44 ppm). Several species had average methylmercury concentrations below all thresholds, most notably chum salmon, which is one of the most popular sport fish species on the southern California coast. PCB contamination was also moderate but widespread. Six of the 42 locations surveyed had a species with an average concentration exceeding the threshold of 120 ppb above which OEHHA would consider recommending no consumption of the contaminated species. San Francisco Bay and San Diego Bay stood out as having elevated concentrations. Most of the locations sampled (74%) fell in the moderate contamination categories between the lowest threshold of 3.6 ppb and the 120 ppb no consumption threshold. Only five locations from more remote areas had concentrations lower than the lowest threshold.
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PCB contamination was also moderate but widespread. Six of the 42 locations surveyed had a species with an average concentration exceeding the threshold of 120 ppb above which OEHHA would consider recommending no consumption of the contaminated species. San Francisco Bay and San Diego Bay stood out as having elevated concentrations. Most of the locations sampled (74%) fell in the moderate contamination categories (above the lowest threshold of 3.6 ppm and below 120 ppb).

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Concentrations of the other contaminants measured in fish tissue sampled rarely exceeded any of the OEHHA Advisory Tissue Levels (ATLs). The legacy pesticides, however, did frequently exceed Fish Contaminant Goals (FCGs) established by OEHHA.

San Francisco Bay samples were also analyzed for dioxins, polybrominated diphenyl ethers (PBDEs), and perfluorinated chemicals (PFCs). Dioxin toxic equivalent (TEQ) concentrations in the Bay are several times higher than a San Francisco Bay Water Board screening value and do not show obvious signs of decline. A lack of accepted thresholds constrains assessment of the concern posed by PFCs for consumers of Bay sport fish. Only four samples had detectable perfluorooctanesulfonate (PFOS) concentrations. PBDEs were well below the newly established FCG and ATLs for PBDEs. A study performed with white croaker from San Francisco Bay found that removal of skin reduced concentrations of organic contaminants such as PCBs by 65%.
The State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) has released a report on results from the first year of a two-year statewide screening survey of contaminants in sport fish from California coastal waters. The report, Contaminants in Sport Fish from the California Coast, 2009, represents a major step forward in understanding the extent of chemical contamination in sport fish on the California coast. Monitoring in 2009 focused on areas near Los Angeles and San Francisco, including San Francisco Bay. The study has provided information that will be valuable in prioritizing areas in need of further study, support development of consumption guidelines and cleanup plans, and provide information the public can use to be better informed about the degree of contamination of their favorite fishing spots.

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