

## **DDTs in Sport Fish: Information for Fish Consumers**

**[12/22/10]**

DDT (dichlorodiphenyltrichloroethane) is a synthetic organochlorine insecticide once used throughout the world to control insects that transmit malaria, typhus, and other diseases. Although DDT is still used in some developing countries, it was banned in 1973 in the U.S. after it was discovered that it caused eggshell thinning in some birds, accumulated in the food chain, and persisted in the environment. Humans are typically exposed to a mixture of DDT and the related breakdown products DDD (tetrachlorodiphenylethane) and DDE (dichlorodiphenyldichloroethylene), which are referred to collectively as total DDTs. Fish consumption advice is based on the sum of these three compounds found in fish.

### **Where do DDTs come from?**

DDT was first used in United States in 1942. In addition to controlling lice, mosquitoes and other insects that spread human diseases such as malaria, DDT was also used to kill pests like the pink boll worm, potato beetle and gypsy moth in the agriculture and forestry industries. DDT does not break down easily in the environment and may be transported through the air many thousands of miles from where it was originally used.

### **How Might I Be Exposed to DDTs?**

The most common way that people are exposed to DDTs is through the food that they eat. Meat, dairy products, poultry and fish usually contain the highest DDT concentrations of any food products, although these levels are generally low and continue to decline over time. DDTs, and its breakdown products, can accumulate in sediment and be taken up by fish and other aquatic organisms. People may be exposed to DDTs by consuming foods produced in countries where DDT is still used. Babies may be exposed to DDTs through the placenta during pregnancy or through breast milk after they are born. People who live near or work at hazardous waste sites where DDTs are found may also be exposed to these chemicals.

### **At What Locations in California Have Elevated Levels of DDTs Been Found in Fish?**

Very low levels of DDTs can be detected in many fish, including sport fish caught in California. However, prior to its ban in the early 1970s, DDT was discharged into the southern California sewer system for many years. Large quantities of DDTs were deposited on the ocean floor of the Palos Verdes Shelf, off the Palos Verdes Peninsula. Moderate and high levels of DDTs were first reported in some fish species near the Palos Verdes Peninsula in the early 1970s. DDTs levels in white croaker in this area remain high today.

### **How Can DDTs Affect Health?**

Exposure to high levels of DDTs in the workplace or in accidental poisonings has been shown to affect the nervous system. Studies in animals confirm these effects. Like methylmercury and PCBs, lower levels of DDTs may affect the development of the nervous system in the fetus or children. DDTs may also affect reproduction. DDTs have also been found to cause cancer in

some animal studies. As a result, the state of California and the United States Environmental Protection Agency say that DDTs probably can cause cancer in humans.

### **Can DDT Poisoning Occur From Eating Sport Fish in California?**

No cases of DDT poisoning have been reported from eating California sport fish. Eating California sport fish is not expected to result in obvious signs of toxicity from exposure to DDTs. Fish consumption advisories are designed to prevent DDTs from building up in your body to levels that could cause subtle adverse effects or increase the risk of cancer.

### **Is There a Way to Reduce DDTs in Fish to Make Them Safer to Eat?**

A significant percent of DDTs found in fish can be removed by specific cooking and cleaning techniques. OEHHA recommends that you clean and gut the fish you catch before cooking it because DDTs and some other chemicals tend to concentrate in the organs, particularly in the liver. OEHHA also recommends consuming only the meat or fillet of the fish. For shellfish such as crabs and lobster, do not eat the soft “green stuff” (called “crab butter,” mustard, tomalley, liver, or hepatopancreas) in the body section of these shellfish.

DDTs are mainly stored in fat and can be reduced by getting rid of the fat. Trim the fat, remove the skin, and fillet the fish before cooking. Fat is located along the back and the belly, and in the dark meat along the lateral line running along side of the fish. Skinning fish will remove the thin layer of fat under the skin. Use a cooking method such as baking or grilling that allows the juices to drain away, and then discard the cooking juices. Do not use the fat, skin, organs, juices, or whole fish in soups or stews. These methods may eliminate half or more of the DDTs in fish. Consumption advice is based on contaminant levels in skin-off fillets. OEHHA strongly advises fishers to eat only the safest part of fish, skin-off fillets.

OEHHA also recommends fishing in different locations in case the location where you usually fish is highly contaminated. Eating a variety of fish species is likely to reduce your exposure to a species that has high contamination. Eating smaller fish of a species may also reduce your exposure because smaller younger fish tend to contain fewer DDTs than larger older fish.

### **Where Can I Get More Information?**

Health advisories for sport fish in all parts of California are printed in the California Sport Fishing Regulations booklets, which are available wherever fishing licenses are sold. Health advisories and safe eating guidelines are also available from the Office of Environmental Health Hazard Assessment, including new updates. OEHHA has educational materials and reports on fish contamination in the state at [www.oehha.ca.gov/fish.html](http://www.oehha.ca.gov/fish.html). Further information about DDTs is also available at <http://www.atsdr.cdc.gov/toxprofiles/tp35.html>.