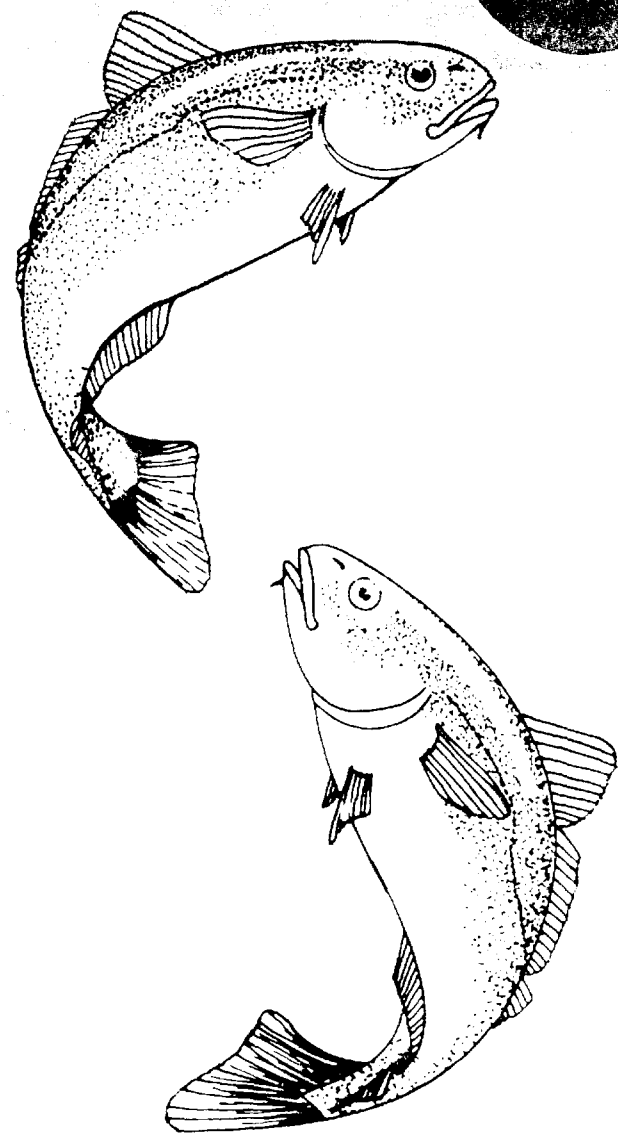
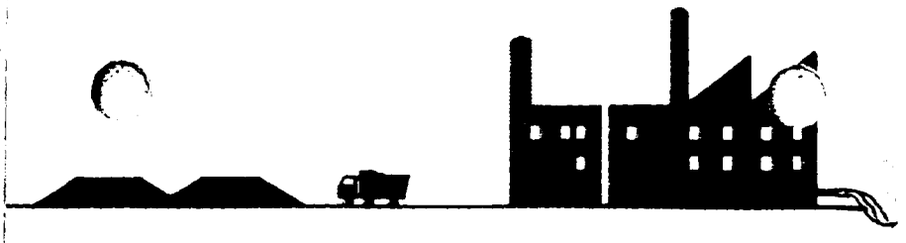
55723

PCBs and NEW BEDFORD HARBOR

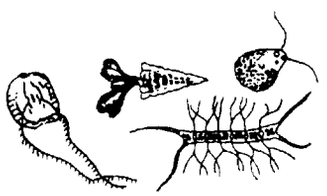


CLARIFYING the ISSUES



What are PCBs?

PCBs—an abbreviation for polychlorinated biphenyls—are a type of man-made chemical made of very stable arrangements of carbon, hydrogen and chlorine. This stability means that PCBs generally do not break down when they are exposed to water, heat, electricity, or natural environmental forces. Because PCBs are so stable, they last for a very long time in the environment.



MICROSCOPIC PLANT & ANIMAL PLANKTON

Why and how are PCBs used?

The electrical industry found that these chemicals made excellent insulators because electricity could not pass through them. For this reason, PCBs have been used extensively as insulators in electrical equipment such as capacitors and transformers. Because PCBs are very resistant to fire, they have also been used as flame retardants in a variety of products. PCBs were also used in the past in varnishes, waxes, sealants, glues, hydraulic fluids, lubricants, adhesives, and pesticides because they do not break down easily.

Because PCBs may cause health problems and environmental damage, the U.S. Environmental Protection Agency (EPA) in 1979 banned the use of PCBs except in special conditions. These special conditions include the use of PCBs in "totally enclosed systems" where the chemical cannot be released into the environment, such as in electric transformers. EPA now carefully controls the use and disposal of PCBs and is eliminating the continued use of the chemical.

What do PCBs look like?

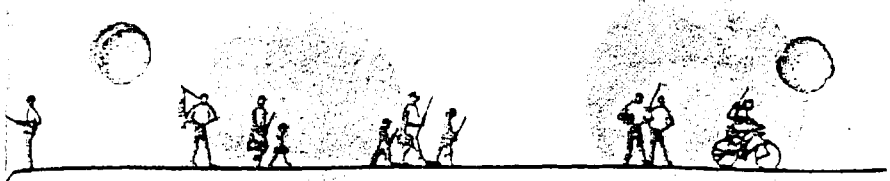
When PCBs are made, they usually appear as a colorless, or light yellow, oily or resin-like material. They also can appear as a white powder. However, PCBs are usually mixed with other materials such as mineral oil. Used in most industrialized countries, PCBs have found their way into our environment. However, we usually cannot see them, smell them, or taste them. Laboratory tests must be used to find out if PCBs are present in water, air, soil, or food.

SMALL FISH

Why should we be concerned about PCBs?

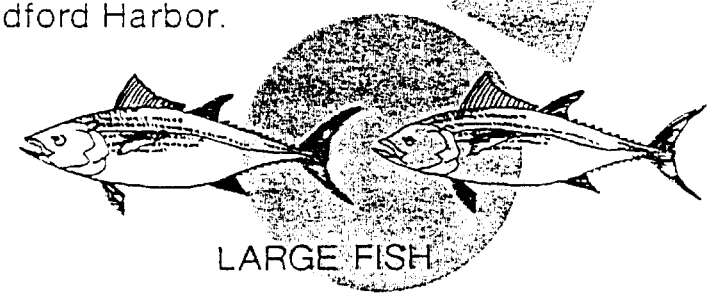
PCBs were first manufactured in 1929. Since then, we have used 1.25 billion pounds of PCBs in the United States. We have since learned a lot more about the chemical than we originally knew. We know that PCBs persist in the environment for long periods of time. We know that PCBs can damage skin and liver tissue. We know that PCBs cause cancer in laboratory animals and, therefore, are suspected of causing cancer in humans. We also know that PCBs accumulate in the fatty tissues of animals and humans. This is very important because this means that PCBs "**bioaccumulate.**"

SMALL CRUSTACEANS



What does bioaccumulate mean?

"**Bioaccumulate**" is a word which is used to describe how certain chemicals collect in living creatures and pass from one type of animal to another in the food chain. PCBs are one such chemical. As an animal comes in contact with PCBs, the chemical is stored in the fatty tissues of the animal. Because PCBs are very stable, they are stored by the animal for a very long time. If a big fish eats a small fish containing PCBs, the bigger fish will collect — or **bioaccumulate** — the PCBs from the smaller fish. If a big fish eats a lot of small fish containing PCBs the large fish will collect all of the PCBs from the small fish. As the PCBs are passed through the food chain, the bigger animals collect greater and greater amounts of the chemical, as shown by the illustration on this page. People are at the top of the food chain. If people eat fish containing high quantities of PCBs, they will eventually **bioaccumulate** high amounts of PCBs. This is the reason fishing has been restricted in the New Bedford Harbor.



LARGE FISH

Where did the PCBs in the New Bedford Harbor come from?

Most of the PCBs in the New Bedford Harbor are thought to have come from the manufacturing process of the electronics industry. Two New Bedford facilities, Cornell-Dubilier and Aerovox, used PCBs in the production of electric capacitors from about 1940 to 1978. While the discharge of PCBs from these facilities has been significantly reduced, PCB contamination remains in New Bedford Harbor because PCBs are stable and long lasting.

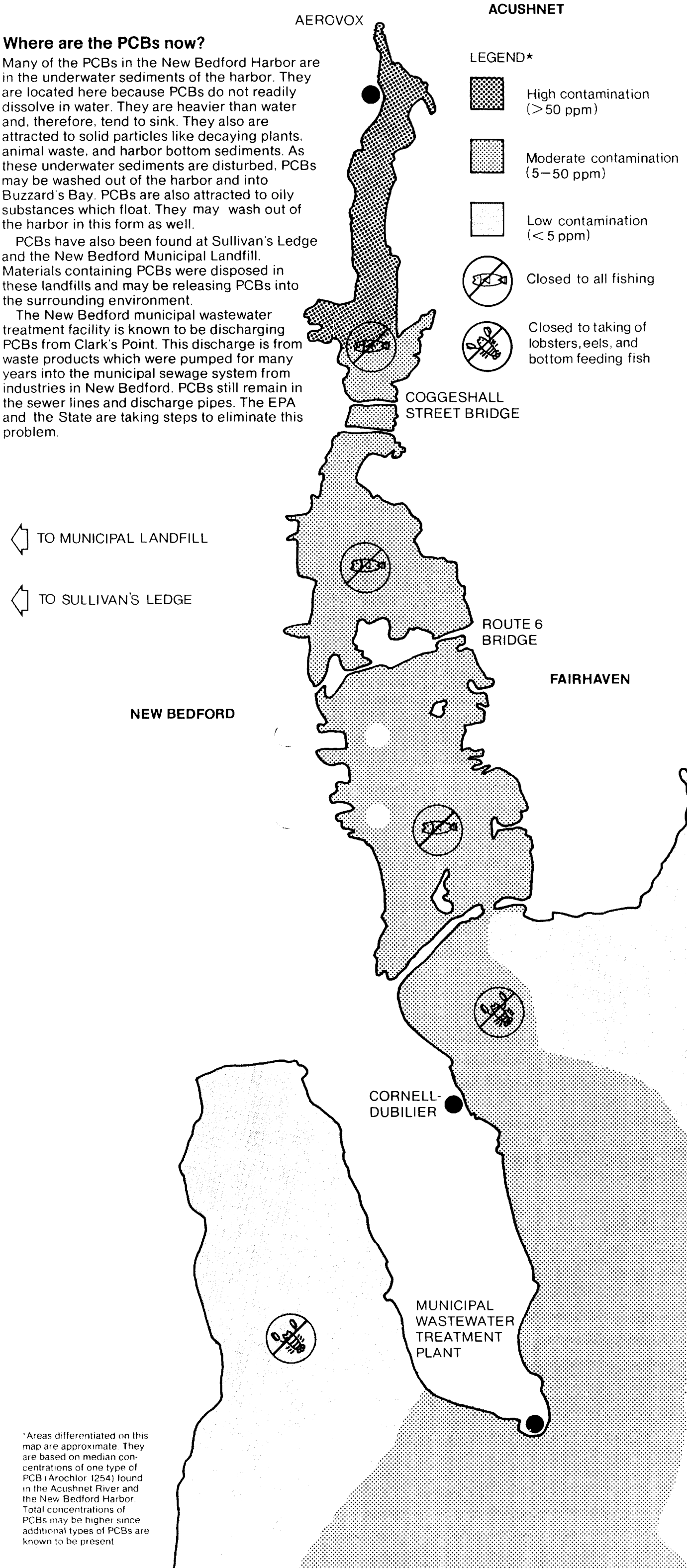
Continued inside

Where are the PCBs now?

Many of the PCBs in the New Bedford Harbor are in the underwater sediments of the harbor. They are located here because PCBs do not readily dissolve in water. They are heavier than water and, therefore, tend to sink. They also are attracted to solid particles like decaying plants, animal waste, and harbor bottom sediments. As these underwater sediments are disturbed, PCBs may be washed out of the harbor and into Buzzard's Bay. PCBs are also attracted to oily substances which float. They may wash out of the harbor in this form as well.

PCBs have also been found at Sullivan's Ledge and the New Bedford Municipal Landfill. Materials containing PCBs were disposed in these landfills and may be releasing PCBs into the surrounding environment.

The New Bedford municipal wastewater treatment facility is known to be discharging PCBs from Clark's Point. This discharge is from waste products which were pumped for many years into the municipal sewage system from industries in New Bedford. PCBs still remain in the sewer lines and discharge pipes. The EPA and the State are taking steps to eliminate this problem.



*Areas differentiated on this map are approximate. They are based on median concentrations of one type of PCB (Arochlor 1254) found in the Acushnet River and the New Bedford Harbor. Total concentrations of PCBs may be higher since additional types of PCBs are known to be present.

The restriction on fishing extends outward to Ricketson's Point and Wilbur Point. An area extending further outward to Mishaum Point and the southern tip of West Island is closed to the taking of lobsters only.

How can we protect ourselves from PCBs?

The best way to protect ourselves is to avoid coming in contact with PCBs. Observe the ban on fishing in New Bedford Harbor. The symbols on the map indicate the areas where fishing has been restricted. These restrictions should be followed. Do not eat fish or shellfish (including lobsters) which have been caught in the closed areas. They most likely contain PCBs.

The shading on the map indicates areas of higher and lower concentrations of PCBs. Because the health effects of PCB exposure depend on the individual exposed and many other factors, no specific concentration level can be considered "safe." In general, measurable levels of PCBs have been found throughout the lower Acushnet River and the New Bedford Harbor. Avoid coming in contact with harbor mud and sediment — particularly the mudflats north of the Coggeshall Street Bridge — they are likely to contain PCBs. Children should be cautioned against playing near the river. Sullivan's Ledge should also be avoided.

What is being done to clean up PCBs in the New Bedford Harbor?

The EPA and other Federal agencies, the Commonwealth of Massachusetts, local government, and citizens are working together to solve the PCB problem in the New Bedford area. Studies are underway to identify the best remedial actions to take. As agencies propose actions, the public will be asked to comment on the proposals. A broad study will recommend a long-term solution for the entire harbor, Sullivan's Ledge, and the New Bedford Municipal Landfill.

For more information, contact: *U. S. Environmental Protection Agency, Region 1, Office of Public Affairs - 2203, John F. Kennedy Federal Building, Boston, Massachusetts 02203.*

What are the health effects from exposure to PCBs?

Health effects from exposure to PCBs can be either **acute** (from short-term exposure to high concentrations) or **chronic** (from long-term exposure to low concentrations). If people are exposed to high concentrations of PCBs, they may experience acute effects such as nausea, vomiting, weight loss, discolored gums, swelling of the joints, jaundice, digestive disorders, and abdominal and joint pain. Chloracne, a skin rash, is a common symptom of PCB exposure. Damage to the liver may also occur.

Less is known about the chronic health effects of PCB exposure. In general, PCBs do not break down in the body. They are stored in the body. Over time, increasing concentrations of the chemicals **bioaccumulate** in the body's fat cells. Liver damage is known to occur when high concentrations of PCBs are accumulated. Skin lesions (open sores) may appear. PCBs may also cause problems with reproduction and child birth. Research has shown that PCBs cause cancer in laboratory animals and, therefore, are suspected of causing cancer in humans.

We are learning more about the long-term effects of PCBs through research. Until we know more, exposure to PCBs should be avoided.

United States
Environmental Protection
Agency

Region 1
Office of Public Affairs — 2203
John F. Kennedy Federal Building
Boston, MA 02203

Official Business
Penalty for Private Use
$300

Postage and
Fees Paid
Environmental
Protection
Agency
EPA-335