

was pending in various forms for 5 years "kept people studying dioxin—the trial forced research to be done," says Columbia University epidemiologist Maureen Hatch, another expert witness called by the veterans' attorneys. "Now

that it's not being adjudicated, it may have left a cloud hanging . . . and we're back to saying that all we know dioxin causes is chloracne. We might have gone beyond that." Hatch says that dioxin's potential role in causing birth defects

was to have been examined very carefully during the trial, but it is now left "hanging in the air. It's a whole new research area that needs work."

Had the trial gone forward, the veterans would have also tried to prove that Agent Orange was responsible for causing particular cancers, nervous system defects, and the skin rash called chloracne, in addition to birth defects. Because of court rulings, however, other potential health effects were omitted from consideration.

Various long-term studies, including several massive epidemiologic projects that the Centers for Disease Control (CDC) has under way or is planning, will attempt to address such issues. One CDC study about to begin is budgeted for \$57 million during its first 2 years and is considered the most complex study CDC has ever undertaken. Also, the U.S. Air Force Ranch Hand study, which has been interpreted in sometimes contradictory ways, also will be continuing (*Science*, 16 March, p. 1156).

The Veterans Administration, not a disinterested party in this matter, just has released a critical review of the scientific literature on dioxin's health effects, concluding that current information is "inadequate" to establish that exposure to dioxin causes "any serious irreversible health effects." However, on this key point the review waffles, noting that the studies also are not adequate to establish "the absence of any specific toxic effects," and thus dioxin's role in several serious disorders cannot be "ruled out."

Settlement without a trial poses another peculiar problem that is yet to be addressed. A \$180-million fund, which on 7 May began accumulating interest of about \$60,000 daily, is to be distributed to affected veterans and their families during the next 25 years. What scientific and medical criteria will be used, if any, for determining who will receive these funds is not clear. A trial, had it been won by the veterans, might have established what ills now could be attributed to dioxin and what other health problems could reasonably be anticipated.

These same questions still stand before the court. Henderson says that the group of veterans' attorneys will deal with this problem "scientifically" and with "compassion" before presenting its recommendations to the court. "There must be some scientific bases" for compensating the veterans, he says. The recommendations must be aired in a public hearing before Judge Weinstein, who ultimately is faced with making those decisions.—JEFFREY L. FOX

## Can Fish Quota Save the Whales?

Differences between Japan and the United States over international controls on commercial whaling have been escalating. Last year the U.S. government reduced the catch permitted Japanese fishermen in U.S. waters in reaction to Japan's objection to a moratorium on commercial whaling voted by the International Whaling Commission (IWC). But a more serious encounter may be shaping and some observers say that the issue could add substantially to tensions in trade relations between the two countries.

The IWC, which is made up of 38 nations which have had a major interest in whaling, in 1982 approved a moratorium on commercial whaling to start at the end of 1985. Japan, Norway, and the U.S.S.R. have objections on file under which they reserve the right to continue whaling after the moratorium begins. Under pressure from Congress, the Reagan Administration last year exercised the option under U.S. law to cut the catches permitted foreign fishermen in U.S. waters to support conservation measures. The reduction of 100,000 tons amounted to about 10 percent of the Japanese quota. For the Japanese, who carry on major fishing operations in the North Pacific, the cut meant losses of an estimated \$45 million to \$50 million.

This year, no reductions in the quarterly quotas were announced in January and April. The Japanese government had strongly protested last year's cuts and asked the U.S. government not to link policy on whaling with fishing rights. So far, the Administration has not revealed its intentions, indicating that it is waiting to see what tack the Japanese take on whaling policy. If Japan should continue whaling after the moratorium begins, however, existing U.S. fishing legislation would apparently make a drastic reduction in the Japanese quota mandatory. A provision sponsored by Senator Bob Packwood (R-Ore.) and the late Senator Warren Magnuson, specifies that any country certified as undermining IWC measures will have its fishing quota cut by at least half.

The year and a half remaining before the moratorium is scheduled to go into effect is expected to be a period of hard bargaining with Japan and the other holdout nations. Japan takes more whales than any other nation—currently about 3700 a year. A majority of these are the small, fairly numerous minke whales hunted off the coast of Japan and in Antarctic waters. But Japanese whalers also take rarer species, including the sperm whale, which is on the endangered list. Japan will probably offer to make modifications of its whaling operations but is clearly resentful of what it sees as a lack of sympathy and understanding by the United States of the history of its whaling industry and the place of whale products in the Japanese diet and culture and is expected to ask for concessions.

Increasing attention on the possibility of sanctions through U.S. cuts in fishing allocations for Japan is anticipated. U.S. conservation groups are pushing for a strong linkage between whaling policy and fishing rights. Senator Packwood, who heads the Senate Commerce subcommittee on ocean policy, says he intends to pursue effective implementation of the moratorium and sees fishing allocations as a useful means of doing so. The U.S. fishing industry is not pleased with the linkage, complaining that fishing allocations have sometimes been traded off for concessions in other fields. Some observers predict that fish and, indirectly, whales will become bargaining chips in trade negotiations over such disputed trade items as beef, citrus fruit, autos, and high-technology products. The Reagan Administration has not declared its long-term view on linkage, but the next fishing allocations scheduled for announcement in July, which follows the annual IWC meeting in June, could provide a clue.—JOHN WALSH