ENVIRONMENT

Strong support for wetlands protection

A proposed amendment to Section 404 of the Clean Water Act — introduced by Senators John Tower and Lloyd Bentsen of Texas — has met with protests from scientists and environmentalists concerned that it would eliminate vital protection for wetlands. Through a permit procedure, Section 404 currently requires regulation of discharged dredge and fill material into all U.S. waters, including 148 million acres of wetlands. The proposal, S. 777, would limit permit requirements to navigable waters only, leaving 88 percent of all wetlands without federal protection. Already "we are losing wetlands at a rate of 300,000 acres per year," testified Jay D. Hair, executive vice president of the National Wildlife Federation, at a July 29 hearing. Two weeks ago, millions of acres were exempted from individual permit requirements through regulatory action (SN: 7/24/82, p. 56).

More than 1,000 scientists signed an eight-page statement, also made part of the hearing record, to oppose S.777 and a similar House proposal. Wetlands are "critical," the statement says, "to the survival of fish and wildlife, the maintenance of water quality, ground water recharge and flood control."

Proponents of S.777 say that states should protect their own wetlands and that Section 404 is an unreasonable constraint on construction. Senator Bentsen cited a flood control project in the Rio Grande valley that did not get a permit "for years." Meanwhile, he said, "there were millions of dollars of damage."

But William Y. Brown, senior scientist with the Environmental Defense Fund, says cases like this are "exceptions" and only two percent of all permit applications are denied. Section 404 "has not been used to stop development, but instead has minimized the damage caused by development," says Hair. Very effectively too, adds Brown. "By the Army Corps of Engineers' own estimate, Section 404 saves 300,000 acres of wetlands from destruction each year."

Environment briefs

- Last week, the Environmental Protection Agency agreed to excuse General Motors Corp. from recalling nearly 700,000 1979 automobiles that exceeded nitrogen oxide (NO) emission standards in return for a company promise to produce 2.3 million new cars with NO emissions lower than required by law. Agency spokesmen said that the plan would result in greater removal of pollutants than if cars were recalled. But Clarence Ditlow of the Center for Auto Safety told SCIENCE NEWS that GM is already producing cars with NO emissions slightly lower than required, so the promise is meaningless. "The only thing the public is getting out of this deal is higher emissions," Ditlow said.
- The California Fish and Game Commission has granted U.S. Fish and Wildlife Service researchers permission to take one egg and one chick from nests of wild California condors as part of the federal government's $1 million project to save this critically endangered bird by breeding it in captivity. Though the FWS requested three eggs, the Commission's decision will expand the federal campaign, which this year was restricted to an unsuccessful attempt to capture immature condors.
- An oil pipeline ruptured in northern Wyoming last week and dumped more than 6,000 barrels — or 250,000 gallons — of crude oil into a reservoir, river and creek near the town of Byron. State and federal officials say this may be one of the worst inland oil spills on record. While impacts on the local environment have not been fully assessed, the Wyoming game and fish department reports that a number of furbearing animals and fish species will be affected. Environmentalists, already worried about government proposals to expand oil and gas leasing near national parks and wilderness areas, see the spill as a sign of what may happen if the Department of Interior proceeds with its plan.

EARTH SCIENCES

Missing ships: Did the hydrates do it?

It is well-known lore in legend and in nautical and aviation history that sometimes, for no apparent reason, ships and low-flying aircraft fail and perish while traveling over ocean waters. Richard D. McIver, a Houston-based oil industry consultant, in the June AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS BULLETIN identifies a possible culprit: gas hydrates. Hydrates — gassy ice — form, depending on seawater temperatures, at depths of 300 meters or 400 meters or more. As an ice-like substance, hydrates could form a fairly solid, dome-like seal that could trap pools of natural gas. If the seal were broken suddenly, the gas could escape rapidly, breaking into ever-smaller bubbles as it ascended to the surface. A vessel sailing through this gassy patch of water could lose buoyance and sink quickly, McIver says. Likewise, given a sufficient amount of gas, a plume of free gas could burst above the ocean surface, an event that could induce engine failure in a low-flying aircraft that encountered the concentrated gas. Intermittent gas blowouts, McIver writes, "might explain some of the many mysterious disappearances of ships and planes — particularly in areas where deep-sea sediments contain large amounts of gas in the form of hydrate."

The preceding is a "rational scenario," says Roland von Huene of the United States Geological Survey in Menlo Park, Calif. However, he says, his experience in drilling well into hydrate layers on Legs 67 and 84 of the Deep Sea Drilling Project (SN: 8/25/79, p. 133; 4/3/82, p. 231) has not convinced him that the hydrates form a solid layer, even though they show up on seismic profiles. "What we've encountered up to now is only a disseminated form of the hydrate, and no large continuous layers." McIver's theoretical scenario, he says, would occur under conditions "that are quite different from what has been sampled to date."

Part of the significance of the hydrates other than the hazard they may pose for surface and low-flying vehicles is that a rapid shift of bottom sediments could endanger drilling vessels and oil-drilling platforms. The *Glomar Challenger,* for instance, has never intentionally drilled completely through a hydrate layer because the drill lacks safety mechanisms needed to prevent blowouts. It is possible, says von Huene, that DSDP drills did penetrate through gas hydrate layers before their existence was known. A drop in pressure or increase in temperature might cause hydrates to decompose and revert to a fluid state. Such a change may be responsible for transporting huge quantities of sediment, McIver writes, and may be related to such seafloor phenomena as mud volcanoes and mud flows.

Broader distribution of ocean minerals

Discoveries of polymetallic sulfides along spreading centers in the Pacific are common by now. But samples taken from the southwest Pacific island arc reveal that the deposits, formed where superheated waters are emitted from the crust, are even more widespread than previously assumed. D.S. Cronin of the Imperial College of Science and Technology, London, and colleagues from the United Kingdom and New Zealand report in the July 29 NATURE the recovery of manganese deposits associated with hydrothermal activity. The authors note that this is the first time such deposits have been found at an island arc setting.

The hydrothermal nature of the deposits is indicated through analysis of uranium isotopes. One sample of manganese oxide crust indicates that it accumulated at rates much faster than those of manganese nodules that precipitated in the more widely recognized manner. The authors suggest that further exploration of the area also may turn up caches of polymetallic sulfides, and that modern island arcs, as well as spreading centers along the mid-ocean ridge, should be included in plans for prospecting for potentially mineable sulfide deposits.