

Insurance dropped for barrier floods

Conservationists eager for protection of the fragile barrier islands and peninsulas that rim the Gulf and Atlantic coasts of the United States gained unexpected support last week from the same congressional bill that will cut \$35 billion from next year's federal budget. Though often caught glaring at one another from opposite sides of a philosophical fence, environmentalists and the budget cutters of President Ronald Reagan's administration united behind a provision in the 1982 Omnibus Budget Authorization package (SN: 7/4/81, p. 4). The provision prohibits the federal government from issuing any more flood insurance for new housing or new commercial construction on "undeveloped coastal barriers" after Oct. 1, 1983.

The coastal barriers are ribbons of unstable sediment whose shorelines constantly drift under the forces of storm and surf. Ranging from one-quarter mile to 20 miles in length, the barriers protect and sustain the marine life on their shore sides from the ravages of a stormy ocean.

Conservationists argue that commercial development of many islands has led to a rapid, destructive erosion much more damaging to bayland ecology than the natural erosion on undeveloped barriers (SN: 1/17/81, p. 43). By offering flood insurance for vulnerable structures built on the shifting sands, the federal government has entered a costly no-win battle with nature, conservationists maintain. On the other hand, many developers who cite the finan-

cial success of beach resorts think responsible development on the barriers can be profitable.

Controversy over which sand barriers should be covered by the legislation, and the debated definition of "undeveloped" kept the prohibition from taking effect in October 1981 as was first proposed. Instead, the provision grants a two-year delay to permit Secretary of Interior James Watt ample time to identify the coastal barriers in question and to pass on his designations and definitions to Congress for approval.

The approved coastal barriers provision represents "a fair compromise," Thomas B. Evans (R-Del.) told fellow members of the House of Representatives July 31. "It establishes a date certain to end federal involvement and taxpayers' subsidies in coastal barrier flood insurance, yet it allows a transition period of two years for those who have purchased coastal barrier properties with the expectation of receiving federal flood insurance."

Tom Franks of the National Association of Realtors disagrees with the congressional compromise. Rather than prohibit federal insurance, he thinks Congress should have raised premium rates to reflect the added risk of building on the beach. "The precedent is the important thing here," he told SCIENCE NEWS. This is the first time Congress has legislated some people out of the [federal flood-insurance] program." The two-year delay in designation of the barriers will "leave the door open," Franks suggests, for changes in the current policy. "If Congress thinks they've made a wrong decision here, they can still undo what they've done." □

Flood insurance cutbacks may affect future development of Padre Island, Tex.



Williams/Nat. Park Serv.

Adrenergic nerves: Brain's gate keepers

Adrenergic nerves — those that use norepinephrine as their chemical messenger — are known to be involved in a range of complex mammalian behaviors, from appetite and sleep to memory and mood disorders. And now still another role for these nerves is reported in the July 24 SCIENCE by Sheldon H. Preskorn and colleagues at the University of Kansas Medical Center in Kansas City: Adrenergic nerves help regulate the flow of blood and other substances into the brain through a network of tiny blood vessels in the brain called the blood-brain barrier.

Actually, Preskorn and his co-workers obtained a first inkling of this in 1979 when they found that tricyclic antidepressants, which intensify the actions of adrenergic nerves, also opened the blood-brain barrier to water, ethanol and some other compounds. In other words, the strengthening of adrenergic nerve action seemed to be linked with the opening of the blood-brain barrier. The researchers decided to test whether the reverse held true by determining whether two treatments known to weaken the actions of adrenergic nerves — lithium and electroconvulsive shock — blunted the passage of blood through the blood-brain barrier, and to see whether a drug known to strengthen adrenergic nerve action — amitriptyline — increased the passage of blood through the barrier. They report that these hypotheses were confirmed.

These results also have two intriguing implications, the investigators point out. Because all four treatments found to alter the blood-brain barrier — tricyclic antidepressants, lithium, electroconvulsive shock and amitriptyline — also influence adrenergic nerves and are used to treat depression or mania, not only adrenergic nerves but the blood-brain barrier may underlie depression and mania. In fact, last year other researchers reported a reduction in cerebral blood flow in depressed patients and an increased cerebral flow in manic patients. And because all four treatments altered adrenergic nerves and the blood-brain barrier in a manner consistent with their therapeutic effects, it is possible that the treatments exert their effects on depression or mania via adrenergic nerves and the blood-brain barrier. For instance, lithium and electroconvulsive shock both weaken the action of adrenergic neurons, both blunt the passage of blood through the blood-brain barrier and both are effective in treating mania; in contrast, there is increased blood flow into the brains of manic patients. Lithium and electroconvulsive shock may well counter mania by weakening the action of adrenergic nerves and by reducing the flow of blood through the blood-brain barrier. □