

## Ladders Could Aid Anadromous Species in New York, Virginia

New and proposed fish ladders in New York and Virginia hold hope of improving runs of salmon and of shad, striped bass, and river herring, respectively, state officials predict.

New York Environmental Conservation Commissioner Robert F. Flacke, in dedicating the new Willsboro Fishway at the Willsboro Dam on the Bouquet River, stated that it is "providing upstream passage for spawning salmon for the first time since the early 1800's." Between 1 and 26 October 1982, more than 100 Lake Champlain salmon—some approaching 8 pounds—were observed passing upstream.

The new facility establishes an ad-

ditional opportunity for salmon fishing in 40 miles of the Bouquet River and its major tributary, the North Branch. Salmon also now have access to excellent spawning habitat in the North Branch where cool, clear water and a clean gravel bottom should result in abundant natural reproduction.

An upstream trap in the fishway allows biologists to monitor spawning runs, to evaluate stocking programs, to assess the contribution of natural reproduction, and to improve the DEC's salmon management program. A lighted viewing window provides a close view of salmon as they make their way up the "steps" of the fishway.

Above the fishway, DEC personnel have purchased fishing rights easements along key sections of the Bouquet and the North Branch to guarantee angling access to some of the most productive fishing areas.

The Department estimates that the new Bouquet River fishery will eventually attract more than 10,000 angler-trips each year, generating an expenditure in the local area of more than \$194,000.

In Virginia, shad, river herring and striped bass stocks may be boosted by a research project at the Virginia Institute of Marine Science (VIMS).

VIMS scientist Joseph Loesch has begun a feasibility study of installing fish ladders to pass these fishes through the James River dams at Richmond. "These species lost their last access to ancestral spawning grounds of the James around 1890 when the Kanawha Canal gates at Richmond were closed," Loesch said.

Such fish passage facilities have succeeded elsewhere, the VIMS scien-

tist noted, pointing out that Atlantic salmon, American shad, river herring, and striped bass, pass over the Connecticut River's Holyoke Dam by a fish lift, then continue through a fish ladder to Vernon, N.H. Shad runs, absent for 100 years, have been restored to the Pawcatuck River, R.I., after installation of a fish ladder, and fish ladders for American shad and Pacific salmon in the Pacific Northwest's Columbia River are well-known success stories.

All anadromous stocks have declined in the last century, according to Loesch. "Some have exhibited dramatic decreases within the last decade," he said, citing striped bass, shad, sturgeon, and herring.

Loesch expects several benefits to follow installation of fish ladders in the James River: 1) Increased spawning and nursery grounds; 2) More young forage fishes (river herring) for important predator species; 3) Enhancement of sport fisheries and supporting businesses; and 4) Increased commercial fishing downriver from Richmond.

The Virginia General Assembly passed legislation last February directing the Virginia Commission of Game and Inland Fisheries, in coordination with VIMS and the Virginia Marine Resources Commission, to study the need for fish passage facilities through low profile dams in the James River at Richmond.

Subsequently, the James River Fish Passage Facilities Committee was formed of members of those organizations, together with representatives of the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. This committee defined the tasks to be addressed by Loesch.

## Pacific Halibut Catch Nears 28 Million Pounds

The 1982 fishery for Pacific halibut, *Hippoglossus stenolepis*, ended on 16 September with the closure of Area 2B (all waters off the coast of British Columbia), with preliminary figures showing the catch during the

## Alaskan Abalone Harvests Increase

The average annual commercial harvest of abalone in southeastern Alaska has increased dramatically since 1977, according to the Alaska Department of Fish and Game. From 1963 through 1977, the average harvest was only 4,000 pounds. In 1978, the harvest leaped to 181,000 pounds, then took another big jump in 1979 to 357,000 pounds.

Although the harvest decreased slightly in 1980 to 250,000 pounds, its value to fishermen was estimated at \$3 per pound, for an estimated worth of close to \$1 million. Abalone is also an important noncommercial resource for it is collected at extreme low tides by an increasing number of recreational divers. Noncommercial harvests are regulated by size and bag limit restrictions.

fifth and final fishing period in Area 2B was 550,000 pounds. Total catch for the area was 5.2 million pounds, slightly below the 5.4 million pound catch limit. The commercial fishery for halibut will now remain closed until reopened in 1983.

The total halibut catch for the 1982 season, again based on preliminary figures compiled by the International Pacific Halibut Commission (IPHC), was 27.8 million pounds, slightly above the 27.5 million pound catch limit. A recap of the catch limits and the catch for the six regulatory areas is given in Table 1.

Table 1.—Catch of Pacific Halibut for 1982 (preliminary data).

Regulatory area	Catch limit (Million pounds)	Total catch (Million pounds)
2A	0.2	0.2
2B	5.4	5.2
2C	3.4	3.4
3A	14.0	13.2
3B	3.0	4.4
4	1.5	1.4
Total	27.5	27.8

Source: IPHC

The IPHC, which is responsible for the management of Pacific halibut, had earlier recommended catch limits for 1982 totaling 27.5 million pounds—2.5 million pounds more than in 1981—to the Governments of Canada and the United States. The Commission's scientific staff presented stock assessment information indicating that halibut stocks were rebuilding, particularly in the Gulf of Alaska. The staff also reported that the abundance of young fish is increasing, an encouraging sign for the future. The Commission continued to express concern that the incidental catch of halibut in fisheries targeting on other species was also increasing, partially due to the greater halibut abundance.

### Marine Angling: Worth \$5 Billion in Florida

Florida saltwater recreational fishing during a 12-month period in 1980-81 generated \$5 billion in business and accounting, directly or indirectly, for employing 124,000 people, according

to a recent Florida economic study.

The investigators, Frederick W. Bell, Philip E. Sorenson, and Robert Leeworthy, Florida State University, Tallahassee, found that more than 2 million residents and 3 million tourists  $\geq 18$  years of age participated in marine angling during the 12-month period. Residents spent about \$1.1 billion on nondurable goods (i.e., fuel, boat maintenance, etc.) and tourists spent \$760 million. This resulted in a direct impact of \$1.86 billion on the Florida economy with 44,108 retail employees in the state depending on these expenditures for their livelihood.

In addition, the study showed that tourist dollars spent on recreational saltwater fishing created a multiplier effect of an estimated \$3.18 billion which indirectly stimulated employment for nearly another 80,000 people.

Copies of the full report, "The economic impact and valuation of saltwater recreational fisheries in Florida," SGF-47, are available from the Sea Grant Marine Advisory Program, G022 McCarty Hall, University of Florida, Gainesville, FL 32611 for \$3 per copy.

### Alaska Rears, Releases Record Numbers of Salmon

An estimated 178.4 million young Pacific salmon, *Oncorhynchus* spp., were released from Alaska Department of Fish and Game (DFG) hatcheries during 1982, nearly 50 million more than in 1981, and a new record high, the Department reports. Stanley A. Moberly, Director of the DFG's Division of Fisheries Rehabilitation, Enhancement and Development, said the releases included 106 million pink salmon, *O. gorbuscha*; 40 million chum salmon, *O. kata*; 28 million sockeye salmon, *O. nerka*; and more than 3 million king, *O. tshawytscha*; and coho, *O. kisutch*, salmon.

Releases of pink salmon at the Kitoi Bay Hatchery on Afognak Island and the Cannery Creek Hatchery in Prince William Sound were responsi-

ble for most of the production increase, Moberly said. Chum salmon production came largely from four hatcheries: Snettisham near Juneau, Hidden Falls near Sitka, Beaver Falls near Ketchikan, and Russell Creek near Cold Bay. The most successful sockeye producer was the Crooked Creek Hatchery near Soldotna, which released more than 17 million young fish. With the 1982 releases complete, Moberly said that State hatchery personnel were actively taking salmon eggs to provide fish for the 1983 releases.

### Oregon Rockfish Landings Show Continued Growth

Landings of rockfish, *Sebastes* spp., in Oregon increased again in 1981 to about 50.9 million pounds, a considerable increase over previous years (Table 1.)

Table 1.—Oregon rockfish landings, 1972-81.

Year	Pounds	Year	Pounds
1972-76 (avg.)	4,220,000	1979	19,194,400
1977	4,731,100	1980	35,173,200
1978	11,559,800	1981	50,900,000

Of the 50.9 million pounds of rockfish landed in 1981, 32 million pounds were widow rockfish, a comparatively new fishery on the Oregon coast. Widow rockfish are filleted and used for food. During 1981 the ex-vessel price for widow rockfish ranged from \$0.14-0.17 per pound, with most being at \$0.14 per pound. To produce a superior quality of widow rockfish, some fishermen are bleeding the fish at sea and are receiving an ex-vessel price of \$0.20 per pound. Toward the latter part of 1981 there was a scarcity of widow rockfish on the Oregon coast. It is not clear why, but possibly extremely poor weather conditions caused the relocation of the widow rockfish and they have not been found yet. Also, there was some speculation that the resource may be dwindling.