Circle Hooks Outfish Traditional Halibut Hooks

In recent years, Pacific halibut fishermen have experimented with different types of hooks and reported higher catches with a circle-shaped hook as compared with the traditional J-shaped hook. Although relatively new to the halibut fishery, circle hooks have been used for many years in other fisheries such as the tuna longline fishery, and they appear to share similar characteristics with hooks used by Native American fishermen prior to the 1900's.

To examine the relative efficiency of circle hooks, the International Pacific Halibut Commission (IPHC) chartered the M/V *China B* during July-August 1983. The vessel used snap gear and fished near Sitka, Alaska. The National Marine Fisheries Service played a key role in the study by providing a two-man submersible with a support vessel to observe the hooks along the bottom. Results from the submersible were not yet available, but should provide additional information on the fishing characteristics of the two types of hooks.

Two experimental designs were used in the study. The first involved alternating each hook type (i.e., a circle hook followed by a traditional hook, etc.). The second design called for alternating the hook type on every skate.

The results (Table 1) clearly indicate that circle hooks outfished traditional halibut hooks: Circle hooks caught 39 and 61 percent more poundage in the two experiments. Circle hooks tended to catch slightly smaller halibut than the traditional hook, although more observations are needed to confirm this difference.

The use of circle hooks contributed to the high catch rates observed in the 1983 halibut fishery which in turn resulted in taking the catch limit in fewer days than expected. The use of circle hooks also presents a problem in standardizing data collected from the commercial fishery for stock assessment purposes. Consequently, IPHC needs more information on the fishing characteristics of circle hooks. Additional experiments were planned later in 1983 or early 1984 to determine more precisely the differences in hook efficiency and to relate those differences to factors such as soak time, levels of abundance, and size of fish. (Source: IPHC.)

Table 1. — Halibut hook experiment results.

	Alternate hook experiment			Alternate skate experiment		
	No. of hooks	Halibut/100 hooks		No. of hooks	Halibut/100 hooks	
Hook type	observed	No. of fish	Pounds	observed	No. of fish	Pounds
Circle hooks	1,410	24.9	647	991	30.0	768
Traditional hooks	1,388	16.3	466	1,122	17.7	478

Pacific Halibut Take Exceeds 1983 Limits

The 1983 fishery for Pacific halibut closed 21 September with the final closure of Area 4B (the Aleutian chain west of long. 172° W), with preliminary data showing the harvest about 7 million pounds over the catch limit. The fishery will remain closed until reopened in 1984.

Preliminary catch figures compiled by the International Pacific Halibut Commission show that the catch during the final opening in Area 4B was 1.1 million pounds. The total catch for the area was 1.3 million pounds, well above the catch limit of 800,000 pounds.

The total halibut catch for the 1983 season, based on preliminary figures, was 37.6 million pounds, substantially above the 30.6 million pound catch limit. A summary of the catch limits and total catch for the nine regulatory areas is given in Table 1.

The excessive catch in four of the nine regulatory areas is attributed to substantially more fishing effort than was anticipated by the Commission, and by increases in the catch per unit of effort (CPUE), particularly in Alaskan waters. Some of the increase in CPUE can be attributed to increased use of circle hooks by halibut fishermen, and some is likely due to further increase in halibut abundance.

Table 1. — Preliminary 1983 harvest data for Pacific halibut.

Regulatory area	Catch limit (10^6 lb)	Total catch (10^6 lb)
2A	0.2	0.2
2B	5.4	5.4
2C	3.4	6.2
3A	14.0	14.0
3B	5.0	7.4
4A	1.2	2.5
4B	0.8	1.3
4C	0.4	0.4
4D	0.2	0.2
Total	30.6	37.6

Texas' Wilson Hatchery Produces Red Drum Crop

The Texas Parks and Wildlife Department's new John Wilson Hatchery at Flour Bluff produced its second crop of red drum with 1.8 million fingerling-sized fish stocked in Nueces Bay in late September. Gene McCarty, biologist in charge, said the 1- to 3-inch fish were

released at two locations in the bay in the northeast corner of the Corpus Christi Bay system. The first group of red drum spawned at the saltwater hatchery during May produced 2.4 million fingerlings which were placed in Espiritu Santo Bay near Port O'Connor in June.

Hatchery personnel induce mature red drum to spawn in indoor tanks, manipulating light and water temperatures to simulate the fishes' spawning season. McCarty said he is optimistic that bay stockings will revive the fishery in Texas bays, since net surveys at Espiritu Santo Bay indicate the stocked fish are enjoying good survival and growth rates. He added that the new fingerling class was hardly in the water before the same 12 brood fish began another spawn. This new batch of fingerlings would be ready for harvest from the ponds and release into the wild by around 3 November, McCarty said. The Wilson hatchery, billed as the only one of its kind in the world, was constructed with funds raised by the Gulf Coast Conservation Association and built on land donated by Central Power and Light Co. of Corpus Christi.

Texas Boasts Record Production Year for Striped, Hybrid Basses

Production of striped bass and striped-white bass hybrids reached an all-time high during 1983, according to Texas Parks and Wildlife Department officials. Three hatcheries were involved in the year's output of 1.5 million stripers and 2.5 million hybrid fingerlings for stocking across the state.

Regional Fish Culturist Charles Gray of Fort Worth said the 4 million-plus fish not only were the best crop in terms of numbers, but the fish were the healthiest ever shipped out of the hatcheries. "We have developed improved methods for fertilizing our rearing ponds to assure that maximum numbers of zooplankton are available when the ponds are stocked with fry," Gray explained. "If the fry are fed well and healthy in the ponds they will have better survival rates in the lakes when stocked as fingerlings." Hatchery workers treat the rearing ponds with inorganic phosphoric acid and ammonium nitrate as well as organic materials such as cottonseed meal.

The fish are produced by using wild brood fish from which eggs and milt are stripped by hand. The fertilized eggs are kept in aquaria for 5 days until they develop the ability to swim, then are placed in the rearing ponds. Gray commented that even better production may be possible in the future because of recent advancements in fungus and bacteria control used during the critical five-day period when the newly hatched fry are in the containers.

Striped bass are anadromous, live in salt water, and swim up freshwater rivers to spawn. However, they are able to survive in freshwater impoundments and in some cases can reproduce if sufficient flowing water is present. Hybrid stripers are nonreproducing fish which usually are stocked in smaller impoundments, notably power-plant-heated reservoirs.

Washington Razor Clams and Season "Disappear"

Washington Department of Fisheries Director Bill Wilkerson signed an emergency order late last summer that indefinitely postponed the razor clam season on coastal beaches. The action followed a Department discovery in early September that two-thirds (13.5 million) of the razor clam population could not be found.

When the spring digging season expired on 15 June, the Department estimated the razor clam population at slightly over 20 million. But later test digs suggested the population had dropped to 6.5 million razor clams. Following this discovery, the Department met with the public in Ilwaco and Aberdeen to review the razor clam resource status.

"We cannot afford to open the season when we have apparently lost two-thirds of a natural resource," Wilkerson said. "Our shellfish management staff has begun an investigation on this strange phenomenon. Hopefully, we can determine an answer to the problem. At that point, we will be in a much better position to consider a razor clam season."

Initial reports indicated the problem was caused by a new microscopic parasite, previously unknown to science, which causes a respiratory ailment in the razor clams. (Source: Washington Department of Fisheries.)

Texas Biologists Cross Redfish and Black Drum

Biologists at the Texas Parks and Wildlife Department's Marine Fisheries Research Station in Palacios have successfully produced a hybrid cross between the red drum (redfish) and black drum. They hope the hybrid will prove to be a hardy, fast-growing sport fish.

About 500,000 fertilized eggs were produced by a female black drum and a male redfish earlier in 1983. The resulting fry were placed in ponds until they reached about 1½ inches in length, and then were stocked experimentally in Lake Creek Reservoir near Waco. Nick Carter, inland fisheries research coordinator in Austin, said although subsequent netting surveys failed to retrieve any of the hybrids, he believes the fish may have gone into deep water areas out of the reach of nets. "We are fairly optimistic about the hybrid drum because they are easy to produce and appear to have high egg fertilization and survival rates," Carter noted. "The fish we stocked in Lake Creek appeared to be in excellent shape."

Carter said the hybrid more closely resembles the popular redfish in appearance, but it is deeper-bodied like the black drum. It is mottled black and silver in color, lacks the characteristic black tail spot seen on redfish, and also has lost the black vertical bars of the black drum.

There are several reasons for optimism about the future of hybrid drum as a freshwater sport fish. Stocking of saltwater redfish already has proven successful in certain reservoirs where the water chemistry is favorable. Also, hybrid crosses of striped and white bass have shown their worth as sport fish in scores of Texas lakes. "There is much yet to be learned about the hybrid drum, since it is a new fish," Carter said. "However, if they survive and grow as well as we think they can, they have excellent sport fish potential."