

Selective Fisheries

SELECTIVE FISHING STRATEGIES have been used to manage the harvest of salmon and steelhead on the Columbia River for more than half a century. Through regulations on fishing time, areas and gear, resource managers have designed recreational and commercial fisheries to target specific stocks while avoiding others.

That ability has become increasingly important in recent years, as additional stocks have been listed for protection under the federal Endangered Species Act (ESA). “Impact rates” established by federal resource agencies on the incidental mortality of ESA-listed fish are now the primary limitation on many fisheries in the Columbia River and its tributaries. Regardless of how robust a targeted stock may be, impact limits on listed stocks that often commingle with them determine the duration of a fishery in any given year.

The need to avoid impacts on listed fish has prompted a number of changes in management strategies by fishery managers in Washington and Oregon. Mark-selective fisheries, made possible by the advent of mass marking, have become an important tool in providing or maintaining fisheries while protecting wild fish. SAFE fisheries – those in off-channel or terminal areas, funded through the Select Area Fishery Evaluation project – have also proven to be an effective tool in promoting selectivity, especially in the commercial sector.

Over the past decade, *selective* fisheries have become synonymous with *sustainable* fisheries in the Columbia River Basin and throughout the Pacific Northwest. In addition, they are expected to play an increasing role in the recovery of wild stocks as part of the states’ ongoing hatchery-reform effort. For both of these reasons, fishery managers continue to look for new ways to increase the selectivity of salmon fisheries throughout the region.

Mark-Selective Fisheries

The first mark-selective fisheries in the Columbia River Basin were established some years before any stock was listed for protection under the ESA. As wild steelhead became increasingly depleted in the mid-1980s, fish and wildlife departments in Washington and Oregon began marking hatchery fish for identification by clipping their adipose fins. By 1986, anglers were required to release any unmarked summer steelhead they caught below Bonneville Dam

This same strategy was applied to sport fisheries for coho salmon on the lower Columbia River in 1998, as well as a pilot ocean fishery off Ilwaco. Mark-selective fishing rules took effect in all recreational ocean salmon fisheries the following year. Currently, mark-selective fishing rules for coho fisheries in the Columbia River Basin

apply only in waters downriver from the Hood River Bridge, because few harvest-directed coho programs operate upstream from the Klickitat River.

Perhaps no mark-selective fishery made a more dramatic debut than the one for spring Chinook salmon in 2001. For more than a decade, all fisheries for spring Chinook in the lower Columbia River had been severely constricted – and in many years closed – due to concerns about upriver runs. But a record run in 2001, coupled with a mark-selective sport fishery below the Interstate 5 bridge, reestablished spring Chinook as a major fishery on the Columbia River. Because a portion of the upriver run is listed as “endangered” under the ESA, the popular fishery would not be as successful without mark-selective regulations.

In 2002, the first mark-selective commercial fishery was initiated, testing the use of tangle nets and recovery boxes during the spring Chinook season on the lower river. The fishery handled an unexpectedly high number of steelhead that year, but interception rates declined after new mesh limits were adopted. In recent years, tangle nets have been reserved for later in the season when steelhead are less abundant, but the release of unmarked upriver spring Chinook is still a requirement in the fishery.

Also in 2002, Washington and Oregon opened the first sport fishery for adult summer Chinook on the mainstem Columbia River since 1973. Mark-selective fishing rules were in effect from 2002-04 but changed in 2005, when the management period for summer chinook was pushed back from June 1-July 31 to June 16-July 31 to protect significant numbers of listed Snake River spring/summer Chinook present in the early part of the run. This change allowed for higher harvest rates on the healthy upper Columbia summer run, including unlisted wild fish. At this time, Washington fishery managers have determined that a mark-selective fishery is not warranted for summer Chinook, because returns continually exceed escapement goals and hatchery/wild ratios are consistent with program goals. In addition, elevated water temperatures in the upper Columbia River pose a greater risk to released fish.

The most recent move to advance mark-selective fisheries in the Columbia River Basin was sparked in 2003 by congressional approval of a measure requiring all hatcheries receiving federal Mitchell Act funds to mark all fish they release. By 2005, Washington and Oregon were engaged in a universal marking program for all fall Chinook salmon reared in state hatcheries. The fact that healthy, wild Hanford Reach stocks constitute a significant portion of the fall Chinook run will complicate full implementation of mark-selective fisheries for that species in the Columbia River. Nonetheless, fishery managers opened mark-selective fisheries for fall Chinook jacks on several Columbia River tributaries in 2008 and plan to expand those fisheries to include adult fish in the next two-to-three years.

SAFE Fisheries

While mark-selective rules are now standard for many sport fisheries, management strategies for most commercial fisheries on the Columbia River are based on time, area and gear restrictions. (The spring Chinook tangle net fishery is the primary exception.)

Fishery managers have, however, continued to refine all of these management tools to improve the selectivity of the commercial harvest.

In this regard, the SAFE project stands alone. Funded since 1993 by the Bonneville Power Administration, the project uses existing hatchery facilities to spawn, hatch and conduct initial rearing of juvenile salmon for subsequent out-planting to net pen facilities at four sites in or around bays in the lower Columbia River. Current sites include Deep River Slough in Washington and Youngs Bay, Tongue Point and Blind Slough in Oregon. Consistent with the project design, these sites provide conditions for commercial fisheries where ESA-listed fish are either not present or are present at very low levels.

The Youngs Bay site has been the most successful to date, due in large part to the fact that it is the largest body of water included in the program. The size of Youngs Bay allows for both increased rearing potential and participation levels in fisheries. Current production goals for Youngs Bay include 450,000 spring Chinook, 1,250,000 coho and 1,500,000 bright fall Chinook. Actual releases during 2005-2007 averaged 422,500 spring Chinook, 1,143,000 coho and 1,100,000 bright fall Chinook.

Tongue Point has been less successful due to poor survival rates, increased stray rates and higher impacts on listed species. The Tongue Point site is a side channel to the Columbia River and therefore can act as a migration route for listed species. Current production goals for Tongue Point include 100,000 spring Chinook and 200,000 coho. Actual releases during 2005-2007 averaged 80,000 spring Chinook and 191,000 coho.

Blind Slough has shown some success, but has been limited due to poor survival rates of some species and its smaller size. Current production goals for Blind Slough include 450,000 spring Chinook and 300,000 coho. Actual releases during 2005-2007 averaged 385,000 spring Chinook and 307,000 coho.

Deep River is Washington's only successful location to date, but its contribution is somewhat limited due to size. The spring Chinook program has struggled with poor survival rates due to a later than normal release timing (May) required to protect listed juvenile chum salmon. Recently the net pens have been towed to the Columbia River to allow for a more normal March release time, which is expected to significantly increase survival rates. Adults from the March releases are just now beginning to return. Current production goals for Deep River include 250,000 spring Chinook and 350,000 coho.

A second site in Washington at Steamboat Slough was discontinued after several years. Stray rates at this location were very high with the majority of the adults returning to Elochoman Hatchery. Also, because Steamboat Slough is a side channel of the Columbia, fisheries there had higher impact rates on listed species using this slough as an upstream migration corridor.

The primary purpose of Select Area sites is to fuel commercial and sport fisheries in these terminal areas; however, production does contribute to Columbia River and ocean fisheries also. Coded-Wire tag (CWT) recovery data for spring Chinook indicate that on average 73% of the run is caught in SAFE commercial fisheries, 7% are caught in

Columbia River commercial fisheries, 7% are caught in ocean commercial fisheries, 4% are caught in sport fisheries and 9% return to freshwater escapement areas. Coded-Wire tag (CWT) recovery data for coho indicate that on average 67% of the run is caught in SAFE commercial fisheries, 21% are caught in Columbia River fisheries, 10% are caught in ocean fisheries and 2% return to freshwater escapement areas. The economic contribution of the SAFE project to Columbia River commercial fisheries has varied from year to year, but has been especially apparent in years when fishing in other areas has been highly limited. From 1994 through 1998, for example, SAFE fisheries accounted for 80% to 99% of all coho salmon harvested by commercial vessels.

Expansion of the existing SAFE program – either at new or existing sites – is currently under discussion for increasing the selectivity of Columbia River fisheries. Increasing production at existing sites would likely be the most cost-effective method because it requires less investment in infrastructure and staff. Establishing new sites would, however, have the benefit of increasing the number of locations that support this kind of fishery.

The Washington Department of Fish and Wildlife has also investigated the benefits, risk, logistics and costs associated with the development of a hatchery spring Chinook SAFE fishery in Willapa Bay. That analysis was presented to the Washington Fish and Wildlife Commission at a meeting in August 2008.

Future Considerations

In addition to providing sustainable harvest opportunities, selective fisheries can play an important role in hatchery-reform efforts throughout the Columbia River Basin. This message is clear from the findings of the Hatchery Scientific Review Group to the Lower Columbia River Salmon Recovery Plan. A major goal in these and other recovery efforts is to reduce interference by hatchery fish on wild fish, and effective, selective fisheries are an obvious way to do that.

Moreover, the need to expand selective fisheries for conservation purposes may increase significantly over the next decade. Under the agreement on the Pacific Salmon Treaty reached in May 2008, approximately 325,000 more Chinook salmon are expected to return to the Columbia River over the next 10 years – fish that would have otherwise been caught in Canada and Alaska. Of that total, approximately 70% will be hatchery fish that could compromise recovery efforts if allowed to spawn with wild fish.

Despite these trends, funding poses a significant challenge to state agencies seeking to expand selective fisheries. Mass-marking is just one of many additional costs associated with mark-selective fisheries, which also require additional monitoring of both the run composition and the catch. Creating new SAFE fisheries, or expanding additional ones, involves construction costs as well as those needed to rear the fish. The prospect of additional costs presents a significant challenge at a time when funding for hatchery programs through the Bonneville Power Administration and the federal Mitchell Act are in decline. The cost of expanding selective fisheries is just one of several financial pressures Columbia River fishery managers face in the years ahead.