



An Overview of the Select Area Fishery Enhancement Project A Salmon For All White Paper

The Select Area Fishery Enhancement Project can be traced to modest beginnings at the local level in Clatsop County, Oregon. The State of Oregon had begun setting commercial fishing seasons in Youngs Bay as early as 1962. ¹ Looking to supplement stocks available for harvest in Youngs Bay, “investigations of terminal fisheries in the lower Columbia River began in the early 1970s with release of Mitchell Act hatchery coho salmon smolts into Youngs Bay.” ²

The Clatsop Economic Development Council (CEDC) fisheries project was begun under the guidance of Dr. Duncan Law, *professor emeritus* of the Oregon State University Seafood Laboratory, and Ted Bugas, retired state legislator and long-time fishing industry leader. Beginning with three earthen rearing ponds, egg incubation, and early rearing facilities, smolts released in 1971 contributed to ocean and in-river fisheries at a much higher rate than those reared at the more traditional hatchery facility on the North Fork Klaskanine River, which dates back to the 1930s.

The first release of Mitchell Act funded hatchery coho stocks from CEDC’s new South Fork hatchery on the Klaskanine River began in 1977. Early results continued to indicate that innovations in propagation techniques, such as volitional release of hatchery smolts into Youngs River, in which retaining screens were removed to allow outmigration when it was naturally triggered (Hill and Olson, 1989), showed promise of increasing smolt to adult returns, when compared to standard hatchery methods of the period.

In 1987, the late Jim Hill, CEDC fisheries project manager from 1985–2000, began a new rearing program in Youngs Bay, utilizing net pens of his own design. The program greatly expanded the available rearing capacity, and provided a ready made laboratory for experiments in over-wintering, local imprinting, and acclimating smolts. Increasing success with adult returns garnered additional funding support from ODFW, Youngs Bay fishers and processors, BPA, Clatsop County, Port of Astoria, National Coastal Resources Research and Development Institute, and the US Economic and Development Administration.

Beginning in 1993, the Bonneville Power Administration initiated the Columbia River Terminal Fisheries Project. Extensive sampling of 1992 and 1993 Youngs Bay spring fisheries had shown that salmon catches in the terminal fishery consisted of 98% targeted hatchery fish and less than 2% upriver fish (ODFW 1994), indicating significant opportunities to mitigate for lost fishing opportunity in the Columbia River mainstem without impacting weak upriver stocks. In 1994, the Northwest Power Planning Council recommended the expansion of the terminal fisheries program. In 1995, the BPA provided funding to formulate a *Lower Columbia River Salmon Business Plan for Terminal Fisheries*. ³

Initial surveys of sites off the Columbia River mainstem indicated that 25 sites merited consideration, including:

<u>Washington</u>	<u>RM</u>	<u>Oregon</u>	<u>RM</u>
Grays Bay	22	Baker Bay	5
Steamboat Slough	34	Skipanon Waterway	11
Elochoman River	36	Youngs Bay Expansion	12
Cathlamet Channel	40	Tongue Point Basin	18
Coal Creek Slough	56	Svensen Island	23
Fisher Island Slough	60	Big Creek	27
Cowlitz River	68	Blind Slough	28
Carroll's Channel	70	Clifton Channel	36
Martin Slough	80	Coffee Pot Island	43
Lewis River	87	Westport Slough	44
Lake River	89	Wallace Slough	49
Camas Slough	120	Bradbury Slough	55
		Wahkeena Pond	135

The selected sites were reviewed under ten criteria.⁴ (See Appendix A.) The sites chosen for further study included:

1. Tongue Point Basin (OR): Tongue Point has the largest rearing potential and harvest area of all sites studied. Potential impacts with upriver stocks and problems with straying of hatchery stocks released from Tongue Point have hindered the full utilization of the site. Straying rates for spring Chinook released at the Tongue Point site ranged as high as 22.1%, as a result of which, production level releases of spring Chinook were discontinued in 2000. In 2002, the net pens were relocated from North Tongue Point to the Marine Environmental Training Station (MERTS) site at South Tongue Point. Releases from the new site 2003–2006 showed promise, allowing reestablishment of the Tongue Point spring Chinook fishery. Experiments with Upriver Bright (URB) and Select Area Bright (SAB) fall Chinook stocks were judged to be largely unsuccessful, and were discontinued. Coho production continues into the present.
2. Deep River (WA): Despite being judged to have the highest ranking in terms of site-selection criteria of all Washington sites, Deep River can accommodate only a limited number of net pens, and an equally limited number of boats. As a result, Deep River has proven to be an under-utilized site with respect to commercial fishing, but helps support mainstem and tributary recreational fisheries in the area. Initial straying rates with spring Chinook were nearly as high as those at Tongue Point, but the program continued under adaptive management. In recent years, experiments with towing the net pens out of the river for smolt release directly into Grays Bay have begun in an effort to avoid potential conflicts with listed native chum salmon in local waters. Deep River utilizes stocks originating from Washington hatcheries, which in turn are derived from stocks native to Southwest Washington.
3. Blind Slough (OR): Highest ranking of the Oregon sites studied, Blind Slough has proven successful in its spring Chinook and coho rearing programs. Protected from storms and debris, its narrow channel accommodates a limited number of boats, but its hydrological properties limit impacts on upriver stocks. Blind Slough's well-defined boundaries also simplify regulatory management. Experimental SAB releases were discontinued in 1997 due to poor survival and high stray rates. In-season adjustments in recent years have combined the Blind

Slough and Knappa Slough areas into an enlarged Select Area fishery when practicable, thereby taking in the Big Creek site evaluated as one of the original study sites. Weak returns of Lower River hatchery fall Chinook stocks to Big Creek hatchery in recent years have placed constraints on the viability of the Knappa Slough fishery during the fall time period. On the other hand, recent improvements at Gnat Creek hatchery, particularly the successful implementation of experimental oxygen supplementation, will allow increased spring Chinook production for Select Area fisheries in Blind Slough and South Tongue Point, as well as Youngs Bay, holding promise for higher value fisheries in the near future.

4. Steamboat Slough (WA): Despite its high ranking in terms of site selection, Steamboat Slough is emblematic of the limitations of the terminal fishery concept in the face of hard reality. Coho releases from Steamboat Slough, 1997–1999, yielded unacceptably high straying rates, exceeding 33%. Equally troubling was lack of fisher participation. Apparently, it isn't that good a place to fish. Releases from Steamboat Slough were discontinued in 2004.

In addition to the sites discussed above, three other sites merited initial study, and yielded at least moderate chance for future consideration should funding and adequate smolts become available. One concern with all of these sites is that they are major migratory routes for listed stocks during certain parts of the year, in addition to comprising well-known and popular sportfishing locales, with attendant regulatory concerns:

1. Clifton Channel (OR): has adequate depth and size to accommodate a moderately large number of net pens and boats. Clifton Channel is known to be both an important migratory route and a rearing area for listed juvenile salmonid stocks. Another concern not considered during the Select Area evaluation process is the proposed development of a liquid natural gas terminal at Bradwood Landing on the upper end of Clifton Channel.
2. Cathlamet Channel (WA): is currently used for gillnet fisheries, with established receiving facilities, and has adequate depth and size for a relatively large select area fishery should one be developed there. It also contains a well-developed marina. It does not afford a sheltered rearing site, and would be subject to storm surges and freshets, as would Clifton Channel. Cathlamet Channel also is an important migratory route for listed upriver stocks.
3. Wallace Slough (OR): already is served by receiving facilities for commercial fisheries. It is also relatively popular with sport fishermen. Non-local spring Chinook frequent Wallace Slough, which would limit its utilization during the spring season. Fall Chinook and coho bound for the Clatskanie River were not considered a potential problem at the time of the initial site surveys. Recent ESA listings of lower Columbia River coho and fall Chinook would require reevaluation of that assessment.

Of all Select Area sites, perhaps the most successful over the long term has been Youngs Bay, the original location for experiments into terminal fisheries. However, Youngs Bay is not without its own set of limitations. Although the expansion of Youngs Bay net pen facilities begun in the mid 1990s has allowed greater utilization of the available harvest area, difficulties in gaining access to adequate smolts have kept from operating Youngs Bay and the other Select Areas at full capacity. During the 2006 Northwest Power and Conservation Council funding cycle, the Independent Scientific Review Panel initially questioned continuing the Select Area program without first assessing the carrying capacity of the Pacific Ocean — a requirement for which no funding and no currently existing methodology is available.⁵ Although continued funding was approved for the three-year period covering 2007–2009, raising such an issue certainly places in doubt the possibility of operating the Select Area fisheries at full capacity any time in the near future.

Other issues impacting the Youngs Bay Select Area fishery include presence of listed stocks in the lower bay during high-water spring floods, the rapid siltation of the bay following the construction of the causeway for the new Youngs Bay bridge, and the increasing prevalence of marine mammal predation during Select Area fisheries:

- From mid-March until mid-April, the Youngs Bay fishery is constrained above the Old Youngs Bay bridge, and then even farther upstream to the Walluski area, in order to avoid impacting listed stocks of upriver spring Chinook coming into the Columbia River during that time period. Stocks of concern frequently are swept in and out of the bay during high-water conditions prevalent in the spring. There simply isn't enough room for even a moderate number of boats to deploy above the Old Youngs Bay bridge.
- The hydrography of Youngs Bay was quite different than it is today back when experiments in establishing a terminal fishery there began. In the late 1960s, construction began on the New Youngs Bay bridge, which features an impervious causeway across most of the bay's width from Warrenton to Astoria. Only a relatively small section over the deepest part of the channel was spanned with a drawbridge. The net result was that Youngs Bay quickly began to be subject to siltation. Today's Youngs Bay is dominated by tide flats.
- Constrained maneuvering space and a mostly stationary fishery are made to order for the opportunistic feeding habits of the California sea lion. Youngs Bay fishermen must patrol their cork-lines with an eye to beating their pinniped competitors to any fish striking the net.

The Select Areas have become an important tool for management to provide high value fish for commercial fishermen to supply to the general public. But the SAFE program is no panacea, and offers very little real opportunity to provide for a commercial fishery completely relegated to areas off the mainstem. Existing Select Areas all are bound within constraints that limit the number of fishers who can participate, and each has an array of management and practicality issues that limit the times of year when it can afford a viable fishery. Though some of the additional areas studied during the evaluation period offer some chance for expanded fisheries farther upriver, each comes with a complex mix of limiting factors that would have to be overcome before such fisheries could become reality.

In conclusion, the theory recently expounded by sport fishing advocates that the needs of the commercial fishery can be met adequately in the Select Area fisheries alone, thus opening an avenue to get the non-Treaty drift gillnet fleet off the Columbia River mainstem completely, simply fails to match up with the facts. The prime Select Areas have already been developed; and none of them has ever been able to operate at full capacity. None has the capacity for anything even approaching a full fleet fishery. In addition, some of the terminal areas that initially looked promising simply didn't pan out, and have had their programs discontinued. All the options remaining to be explored for Select Area expansion in the Columbia River itself come with drawbacks, making expansion of the program into reaches farther upriver problematic at best. It remains to be said, however, that the greatest potential for establishing additional terminal fisheries probably exists in the tributaries, where limited impacts could be used most effectively. Another concept is that of corridor fisheries, similar to those administered by Alaska Fish and Game in Cook Inlet. Both ideas would require entirely new management strategies.

The SAFE program overall has been a remarkable success in meeting its real program objectives: to provide for recreational and commercial harvest opportunities not constrained by weak stock management; to operate a fisheries enhancement program in the most cost-effective manner

possible, far surpassing those elsewhere in the Columbia River basin; and to maximize adult survival rates for smolts released from the program. Smolt to adult survival rates can be up to four times as great as those released from traditional hatchery programs farther upriver. SAFE stocks not only support commercial harvest in the Select Areas, but support ocean fisheries (both recreational and commercial), and provide a large percentage of the coho and fall Chinook that comprise the mainstay of the popular Buoy 10 sport fishery. Harvest of SAFE stocks minimize impacts on endangered upriver stocks, while providing for terminal fisheries approaching 100% efficiency, thus virtually eliminating problems with SAFE released hatchery stocks straying onto natural spawning grounds.

Hobe Kytr
Salmon For All
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Endnotes

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- ¹ Joint Columbia River Management Staff. "2007 Joint Staff Report: Stock Status and Fisheries for Fall Chinook Salmon, Coho Salmon, Chum Salmon, Summer Steelhead, and White Sturgeon," (ODFW, WDFW, 2007). p. 21.
 - ² "Lower Columbia River Terminal Fisheries Research Project: Final Environmental Assessment," US Dept. of Energy, Bonneville Power Administration, DOE/EA-1040 (Portland, 1995), p.7; citing (Vreeland et al. 1975, Vreeland and Wahle 1983).
 - ³ Eaton, Robert, et al, "Lower Columbia River Salmon Business Plan for Terminal Fisheries: Final Report," prepared by Salmon For All, Bonneville Power Administration (Portland, 1996). Retitled the Select Area Fisheries Evaluation (SAFE) Project in 1997, Annual Reports of the Years 1995 & 1996 (Hirose et al. 1998), and 1997–2000 (Miller et al. 2002) were published. A Final Report of the entire 12-year study period, 1993–2005 (North et al. 2006), also was released, after which the project was re-designated the Select Area Fisheries Enhancement Project in recognition of the overall success of the concepts and methodology set forth therein.
 - ⁴ BPA. "Lower Columbia River Terminal Fisheries Research Project: Final Environmental Assessment," Bonneville Power Administration, DOE/EA-1040, (Portland, 1995). p. 55.
 - ⁵ ISRP. "Preliminary Review of FY 2007-09 Proposals for the Columbia River Basin Fish and Wildlife Program," Independent Scientific Review Panel, ISRP 2006-4, June 2006.

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