

# FISHERIES DEVELOPMENT BY LOCAL STAKEHOLDERS

## The Prince William Sound Aquaculture Corporation

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**C**o-management fisheries agreements between government and fishers' communities or organizations can involve any or all aspects of fisheries management. Harvest planning, enforcement, habitat protection, enhancement, co-ordinated regional planning, allocation, and policy-making are all possibilities. In the case of Prince William Sound, Alaska, the arrangement began with specific enhancement projects and regional enhancement planning. These proved so successful that co-management then expanded to include harvest planning and allocation.

This case is of particular interest to community economic development practitioners, because it began with a development project which then became lucrative enough to support more extensive locally-based management activities. It is a useful illustration of how co-management can be driven by and can dovetail with community-based development to the benefit of both.

### ARRESTING RESOURCE DEPLETION

This co-management arrangement is between the Alaska Department of Fish and Game and a regional fishermen's association, the Prince William Sound Aquaculture Corporation (PWSAC). PWSAC formed in 1974 for the purpose of increasing the salmon runs in the local area through artificial enhancement techniques. The original impetus for the arrangement came from the local

fishermen, desperate to counter resource depletion and to buffer themselves against natural fluctuations in the abundance of salmon.

Salmon hatch in fresh water, but spend most of their adult life fattening up in distant oceans. They are usually caught when they return as mature fish to their place of origin to spawn a new generation.

In the early 1970s, pink salmon returned to many Alaskan regions in historically low numbers, causing great alarm. Prince William Sound, an area with a history of strong unionism and socialist struggle, led the effort to set up a state-wide system whereby fishermen could restore the salmon runs by reducing vulnerability in the salmon's first stages of life.

The technology for artificial enhancement of salmon runs was already well known and practiced in Washington and

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Oregon. A good wild stock is selected, eggs incubated and young raised in a hatchery past the most vulnerable stage, then released into the ocean to mature. The returns are harvested when they returned to the hatchery site. A portion is saved to propagate the next generation. A large portion of the returns are also intercepted by fishermen before they reach the hatchery site.

#### **A DIFFERENT STRUCTURE OF AUTHORITY**

Alaskan fishermen accepted the technology, but rejected the institutional forms used for salmon enhancement in other jurisdictions. If salmon enhancement was left to private companies as in Oregon, it was feared they would try to capture a large share of the returns for themselves. If practiced by the state, as in the case of Washington and an earlier Alaskan program, hatchery sites and species might be selected in ways the fishermen considered undesirable and politically motivated. In British Columbia, salmon enhancement programs were run by local tribes or voluntary associations in co-operation with the federal government. They did not have the right to become self-supporting, however; they could not sell a portion of the returning fish to pay operational costs.

In contrast, Alaska fishermen felt salmon enhancement should be conducted by nonprofit regional associations made up of the fishermen licensed to fish in that region. Prince William Sound led the struggle for state legislation, eventually passed in 1976, to create a mandate for such associations to form, to levy taxes on their members by democratic vote, to borrow start-up money from a revolving state fund, and to sell a portion of the returning salmon to pay for operations and capital costs.

Two pre-conditions made this kind of association economically and politically feasible. The first was licence limitation.

It restricted the number of fishermen who could own licences to a specific number, deemed to be supportable by the resource. The second condition was area licensing, which attached a licence to a specific area in which the fisherman could fish. Alaska got both licence limitation and area licensing in the early '70s.

A restriction on both area and numbers of fishermen meant that individual fishers had considerable incentive to invest in and protect the area's salmon runs. This follows and is consistent with a general rule of common property resource management by collective action. Groups which are able to restrict the access of outsiders and regulate the activities of insiders can achieve sustainable management of common property resources such as fish. They will not suffer from "the tragedy of the commons" situation in which no individual has an incentive to protect the resource, because the activities of too many others will destroy it anyway.

This also has an economic corollary: a known and relatively small number of beneficiaries who have an institutionalized relationship with one another have a strong incentive to invest in a resource which benefits all. Under the right conditions, this incentive can also generalize to improving management of the resource.

#### **LOCAL RESPONSIBILITY - LOCAL BENEFITS**

The people licensed to fish Prince William Sound have in fact responded to these incentives, have enjoyed the benefits, and have moved toward improving management. They began by forming an association in 1974 under existing laws for nonprofit corporations. They then assisted the Alaska legislature in writing statutes to enable other nonprofit corporations to form and receive regional association status.

A series of statutes and regulations passed in 1976 and afterwards granted a

qualified regional association the power to decide by majority vote to tax its commercial fishing members 2-3% of the value of their catch in order to finance and manage salmon enhancement projects, chosen by them and approved by the state. It could borrow capital costs from the state. The board was required to have representation from local communities, native corporations, and sport and subsistence fishers to balance the majority of commercial fishermen board members. In this way accountability to the local economy was built into the association.

PWSAC chose to enhance mostly pink salmon, which have a 2-year life cycle. The first hatchery was built in 1975, the first returns harvested for brood stock in 1976. By 1979, returns were substantial enough to net the hatchery a sale of 700,000 fish, and to begin a dramatic climb in pink salmon returns from an historical average of five million (since the 1920s) to a 10-year average of 18 million fish 1979-88. The average annual income from salmon of the some 250 seiners licensed to fish salmon in Prince William Sound went from an average of \$90,992 in 1980-84 to an average of \$215,874 in the 1985-88 period. The income increase for the 440 gillnetters is not as dramatic, because gillnetters earn more of their livelihood from the adjacent Copper River, which is calculated separately. (Data is not yet analyzed for later years.)

In the early 1980s, wild stocks rebounded and contributed to the abundance. But by the late '80s, a downturn in wild stocks meant that in some years the enhanced fish contributed up to 80% of the commercial harvest. The hatchery contribution has of course been particularly important in stabilizing the fishermen's catch in years when wild stocks are low. (Extreme winter temperatures will reduce wild egg survival. In the mid-'80s, however, fishing patterns caused interception of an inappropriate number of wild fish together with the hatchery fish

in one approach area. This placed too much pressure on some wild stocks, but the problem has since been recognized and the fishing pattern is being altered).

The fishery was managed so that 30% of the hatchery returns were taken by PWSAC for broodstock and to pay capital and operating costs. Seventy per cent was harvested by commercial fishermen in their regular fishery. A new form of benefit appeared when the volume of the 30% sold by PWSAC became large and predictable enough to attract competitive bids from processors. Since this fish was kept live in floating pens until sold, it was of high enough quality to attract a premium price. Since 1983, the price of PWSAC pink salmon has averaged 10-20% higher than the average "grounds" or "ex-vessel" price paid to commercial fishermen, both in Prince William Sound and in other areas of Alaska. This has allowed PWSAC to enlarge the scope of its activities to address allocation and harvest management planning issues. The association was able to take these initiatives both because it had built up the credibility, and because it could afford to do so more than the state could.

#### **A GROWTH IN LOCAL ORGANIZATIONAL CAPACITY**

Allocation of the new benefits between seiners and gillnetters was a contentious issue. Traditionally, sub-areas have been fished exclusively by one or the other gear group. Hatchery siting and harvesting must be based on the best ecological opportunities and the soundest biological planning, even if these create inequities in opportunity.

In other areas of Alaska, court cases have resulted from this situation. In Prince William Sound, PWSAC hired a planner who worked creatively with the fishermen to produce an acceptable allocation plan. At one point the planner simply ordered small mixed working groups of seiners and gillnetters not to come out

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of their assigned rooms until they had a fair allocation strategy. The ideas of all the working groups were meshed and an acceptable plan eventually produced and ratified. PWSAC had achieved what neither the state nor a state-wide citizen's allocation board had been able to achieve elsewhere. Hiring its own planner and formulating its own strategy was key in this contentious area of management.

The new abundance of hatchery stocks also required new harvest management planning so that wild stocks were not overfished during fisheries on the larger hatchery returns. PWSAC did not have a mandate to be involved in harvest management. But the State of Alaska accepted and implemented the plan developed by the association, just as it did with the association's allocation plan. Once a community-based institution has gained expertise, experience, and credibility through one role, it is possible to expand that role into other areas without a formal mandate, especially if the financial capability exists.

### IMPLICATIONS FOR CED

In sum, the creation of PWSAC and its pursuit of various kinds of management activities has allowed the following types of community economic development to occur:

- Local fishers and communities choose the location and enhancement species which they believe will make the most sense, both ecologically and economically.
- Local fishers and communities decide how much to borrow, to tax themselves, and at what rate to develop enhancement activities.
- Local fishers and communities put in weeks of volunteer time in the plan-

ning of these developments. In return they get results superior to what outsiders could have planned for them.

- Local fishers enjoy the benefits of increased and more stable supplies of fish in the local area. The local community enjoys more stable and more numerous local processing jobs as more fish are harvested and processed in the area.
- Local fishers and communities become more involved in a wider range of management and policy issues which have long-range effects on the future of their fishery. They thus become more educated and competent to take more control over their economic future.
- The fishers' association is able to capture more of the benefits from the fish and become more sophisticated in bargaining with wholesalers over larger volumes. The ultimate goal toward which they are working is to tie the price of the fish to the final retail sales price and to develop new products and markets for increased supplies.

PWSAC has challengers who have recently attempted in various ways to undermine its strategy. Seattle-based processors, having enjoyed an advantageous price position in the past, do not appreciate the price competition which the increased volume of PWSAC has attracted. U.S. law requires the governor to license foreign processors to buy Alaska fish if the supply is greater than local processors can handle. At some points domestic processors have been able to convince the governor not to license foreign processors.

The resulting oversupply has lowered the price of PWSAC fish and even resulted in dumping in one year. This in

turn has caused economists to question the large-volume strategy of PWSAC, without being fully aware of the great community economic development benefits or the politics of the situation.

Recent political change in the former Soviet Union, resulting in the rapid development and marketing of Russian pink stocks through Russo-Japanese joint ventures, has dislocated the old pink salmon markets. Now PWSAC must use the economical pink salmon in new products which it is developing. The former domination of the market by canneries will end, but PWSAC is bearing the brunt of new research and development without government assistance.

This situation reminds us that, even with successes, a great deal more educational work must be done before there is a general awareness of the full range of benefits from such efforts. ❧

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