

 US Fish and Wildlife Service Pacific Region

 NOAA Fisheries Service*

 Idaho Department of Fish and Game

 Oregon Department of Fish and Wildlife

 Washington Department of Fish and Wildlife

 Confederated Tribes and Bands of the Yakama Nation

 Nez Perce Tribe

 Confederated Tribes of the Umatilla Indian Reservation

 Confederated Tribes of Colville Reservation

Shoshone-Bannock Tribes

 Northwest Marine Technologies

 Westport Charterboat Association

 Puget Sound Anglers State Board

 Northwest Sportfishing Industry Association

 Recreational Fishing Alliance

Oregon Anglers

Hans Radtke, Natural Resource Economist

*ex officio

Mitchell Act

C o a l i t i o n

Mitchell Act Success Stories

Introduction: Mitchell Act Hatcheries are the mainstay of commercial, recreational and treaty-Tribal and non-treaty fisheries in the Columbia River Basin and contribute to distant ocean fisheries from California to Alaska. These hatcheries produce nearly 50 percent of the salmon and steelhead released annually into the Columbia River. Fish produced by these hatcheries partially compensate for fish and habitat losses caused by the construction of dams within the Federal Columbia River Power System. In recent years Congress has appropriated about \$17 million annually under the Mitchell Act for operation and maintenance of 18 Federal, State and Tribal hatcheries in Oregon and Washington. Hatchery raised fish comprise about 75% of present salmon and steelhead runs in the Columbia River basin. Under the Mitchell Act the appropriated funds are also used for the construction and maintenance of fish passage facilities such as irrigation

To provide for the conservation of the fishery resources of the Columbia River, establishment, operation, and maintenance of one or more stations in Oregon, Washington, and Idaho, and for the conduct of necessary investigations, surveys, stream improvements, and stocking operations for these purposes.

- Mitchell Act PL 75-502 Chapter 1

diversion screens and fish ladders. These facilities prevent the annual loss of thousands of juvenile salmon and steelhead and improve adult fish migration to spawning and rearing habitat. Funds are also used to support important research and monitoring activities at the hatcheries. The Mitchell Act Program can be described with four H's: **H**atcheries to produce fish for **H**arvest and to mitigate for fish **H**abitat lost due to **H**ydro development.

Legislative History:

- In 1938, Congress passed the Mitchell Act providing federal agencies with the authority to work with the states to set up and operate a series of hatcheries and passage facilities to counter declining fish runs in the Columbia River.
- On August 8, 1946, the Act was amended by Congress to allow the Secretary of Interior to transfer funds to the states for specific projects to develop salmon resources (i.e. hatcheries, screens and fishways).
- In 1947, the Columbia River Fisheries Development Program (CRFDP) was formed to plan and coordinate the use of Mitchell Act funds.
- In 1956, Congress expanded the Mitchell Act to include the preservation of fisheries resources above McNary Dam.
- The Reorganization Plan of 1970 shifted the administration of the Mitchell Act from the Department of the Interior to the Department of Commerce.

- Today, the Mitchell Act is administered by the National Oceanic and Atmospheric Administration (NOAA) Fisheries which directs funding to the US Fish and Wildlife Service, Oregon,

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Washington and Idaho along with treaty Tribes for operation and maintenance of mitigation hatcheries.

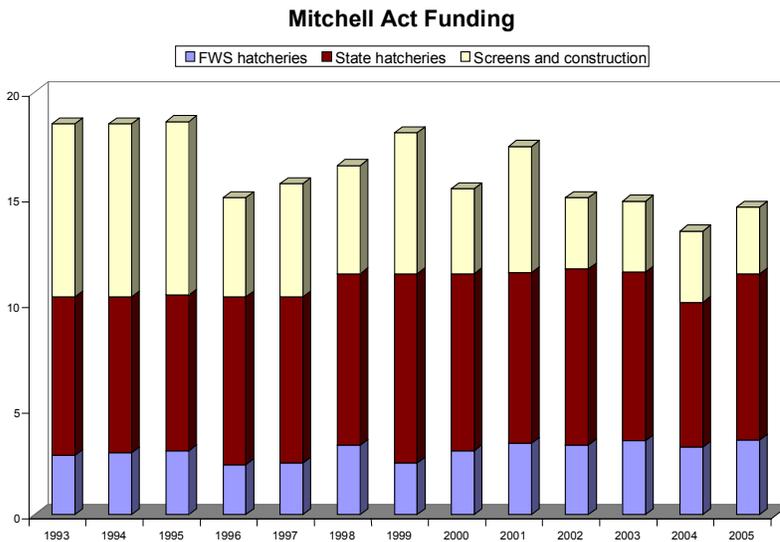
- The Mitchell Act, through the CRFDP, includes providing for upgrades to irrigation diversion, screening, and fishways and for stream improvement programs.

Funding: Mitchell Act Program funding has remained flat over the past 10 years, essentially starving the hatchery production

December 2005 report titled “*Economic effects from Columbia River Basin Anadromous Salmonid Fish Production,*” these anglers spend about 12 million days fishing within the Columbia River Basin for a variety of resident and anadromous species. The direct trip and equipment expenditures (e.g., gasoline, fishing tackle, etc.) from angler trips, are estimated to be about \$2 billion total for the Pacific Northwest. The geographic area of the

Columbia River Basin accounts for 46 percent of these expenditures or \$883 million annually. In addition, fish produced from the Columbia River Basin are also an important economic component of the Canadian and Alaska ocean fisheries.

- The total Columbia River Basin household personal income generated from



programs from being able to keep up with inflation. In 1993, the Mitchell Act funded 23 hatcheries and two large rearing ponds in the Columbia River Basin. In total, these hatcheries produced over 110 million fish per year, making major contributions to the diverse fishing interests in this region. Starting in 1996, production at five of these hatcheries (one federal and four state facilities) and two rearing ponds was discontinued due to inadequate funding. This resulted in a 40% reduction in annual production to 65 million fish released per year.

Economic Benefits of Mitchell Act Fisheries:

- The estimated number of anglers, within the Columbia River Basin, may be as high as 1.2 million. Based on research conducted by the Independent Economic Analysis Board in their

Columbia Basin fisheries are about \$408 million, of which \$142 million (63 percent in the Basin and 37 percent coastal) come from anadromous wild and hatchery salmon and steelhead.¹

- Of that amount, a preliminary estimate is that roughly 30 percent or \$42.5 million can be attributed to harvest of hatchery-produced fish from Mitchell Act facilities, as this is the approximate proportion of hatchery smolts produced annually in the Columbia River Basin by these facilities.²

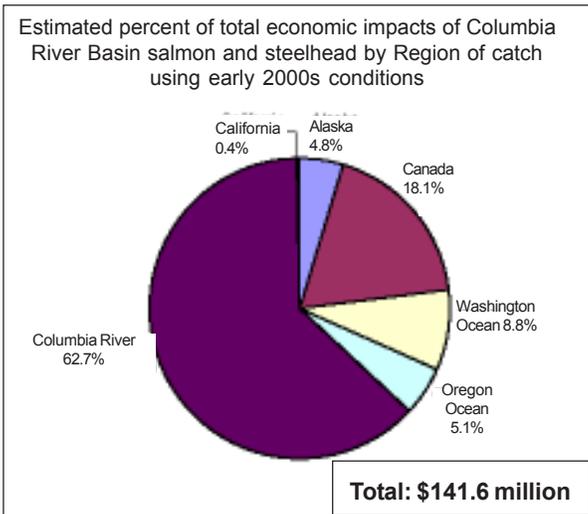
- In addition the expenditures on hatchery-related and other Mitchell Act funded activities generate an estimated total \$25 million of personal income in regions where hatcheries are located.

- Therefore, for every dollar appropriated these facilities generate about \$4

total income for fishery harvest and fish production related activities. This is based on the amount appropriated (~\$17.0 million) versus the total personal income generated (\$42.5 million harvest income plus \$25 million from Mitchell Act funded operations equals \$67.5 million).

settlement. Returns in more recent times have varied from a low of 750,000 in 1995 to a high of 3.2 million in 2001. There are today over 250 reservoirs that inundate much of the spawning and juvenile rearing habitats in the basin and around 150 hydro-electric projects that affect fish passage. These impacts in combination with other factors have dramatically affected the number of fish that can be naturally produced in the Basin. As a result fish produced by hatcheries have become an increasingly important component of returning fish: nearly three of every four returning salmon and steelhead originates from a hatchery. It is unlikely that the Basin's Tribal, recreational, and commercial fisheries could be maintained without support from the Mitchell Act and its hatcheries. The following examples are fishery resources supported in whole or in part by the Mitchell Act.

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- This analysis does not take into consideration cultural, religious, and ceremonial value to Native Americans; Tribal and international treaty obligations; or non-use values (e.g., wildlife watching). Consideration of these values would add substantially to the importance of Mitchell Act production facilities.

(Footnotes)

¹ This figure is based on hatchery production, Smolt to Adult Returns (SAR), and harvests at early 2000's levels which is higher than historical survival rates but is more indicative of current fishery management strategies. (per Hans Radtke, Natural Resource Economist).

² Each Mitchell Act facility's economic contribution may be different based on the species they produce and their location within the Columbia River Basin. The economic contribution for each Mitchell Act facility will be available in the upcoming NOAA-Fisheries Mitchell Act Environmental Impact Statement.

Fisheries supported by Mitchell Act:

An estimated 10-16 million adult salmon and steelhead returned annually to the Columbia River Basin prior to European

Tribal Fisheries - Salmon catches in the tribal commercial fisheries declined five-fold between 1988 and 1994 and some, like the summer Chinook commercial fishery, ended 40 years ago. The cultural and spiritual value of salmon to the Tribes is incalculable but economically, it is estimated that restoration of salmon runs is worth millions in personal income each year for tribal communities. The Columbia River Fisheries Development Program initiated restoration of coho and fall Chinook salmon runs above the Bonneville Dam. As a result of negotiations and using Mitchell Act funding, Federal, State and Tribal



Drano Lake Tribal gillnet fishery

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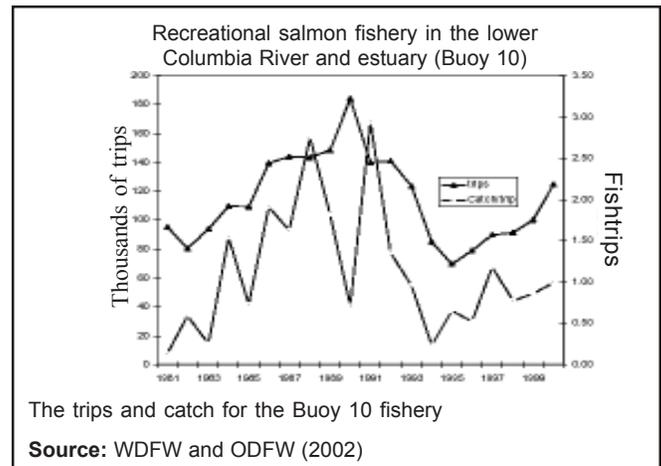
governments have cooperated to re-establish extinct or severely depleted runs of coho and fall Chinook salmon for the Yakama, Umatilla, and Nez Perce Tribes. Other species like spring Chinook salmon and steelhead are also funded. Mitchell Act-funded facilities have all contributed to Tribal restoration efforts: Eagle Creek NFH, Little White Salmon/Willard Complex (USFWS); the Washougal Hatchery Complex, Ringold Springs, Washington Department of Fish and Wildlife (WDFW), and the Bonneville/Cascade Complex and Umatilla H, Oregon Department of Fish and Wildlife (ODFW).

- The Yakima/Klickitat Fisheries Project is rebuilding coho and fall Chinook salmon runs in the Yakima and Klickitat Rivers and to other streams important to the Yakama Nation. To rebuild from a historical low of 5,000 returning adult fish, over 20 million eggs and fish have been transferred from Mitchell Act funded hatcheries to Prosser Hatchery and to acclimation sites in the basin. In addition, two substocks of fall Chinook (Yakima and Marion Drain) are being recovered. Adult fish trapped at Prosser Dam and Marion Drain are spawned and their progeny used for supplementation after rearing at Prosser Hatchery. Goals are to support annual harvests by Tribal and other anglers.

- The Mitchell Act funded Klickitat Hatchery, recently leased from WDFW to the Yakama Nation, supplements and enhances natural production of spring Chinook salmon while maintaining augmentation of fall Chinook and coho salmon for harvest. Coho smolts (2.5 million) from the Washougal Hatchery are planted into the Klickitat River solely for harvest by tribal and recreational fishers. The proposed Lyle Falls local Broodstock Collection & Monitoring Facility

increases fish access to high quality habitat and allow collection of broodstock to meet supplementation goals and to provide for harvest.

- The Yakama Nation’s mid-Columbia Basin Program restores coho to the Wenatchee and Methow Rivers annually using up to 1.5 million fish from Mitchell Act-funded hatcheries. Until runs have been re-established and suitable habitat is available, fertilized eggs from locally adapted returning adults are reared at available hatcher-

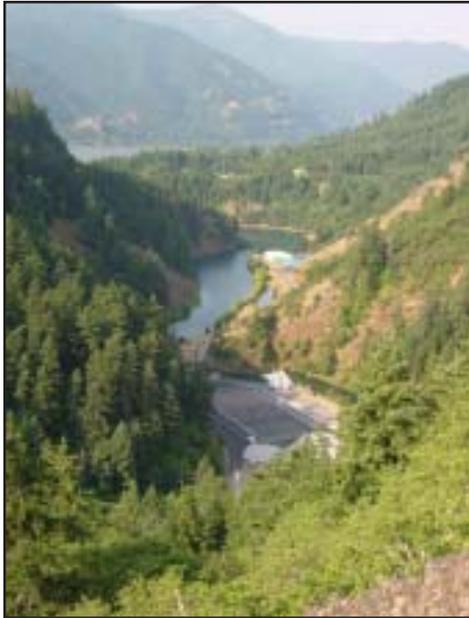


ies. At the smolt stage, these are returned and released back to the Wenatchee/Methow Basins.

- Over 4.5 million eggs and yearling coho from Eagle Creek NFH have been stocked by the Nez Perce Tribe to initiate a tribal and sports fishery in the Clearwater River of Idaho.

Buoy 10 Fishery - The Buoy 10 fishery encompasses the lower Columbia River from the legal boundary of the Pacific Ocean (i.e., Buoy 10) upstream to Rocky Point, Washington and Tongue Point, Oregon. Buoy 10 has been an important recreational fishery for well over 60 years with an average annual catch in the late 1940s of 13,500 Chinook and 3,800 coho. The popularity of this fishery increased sharply in the 1980s, as the adjacent ocean area outside of Buoy 10 was closed during most years between 1982 and 1993. Over this period the number

of angler trips increased to an average of 94,400 with catches of 67,000 coho and 12,800 Chinook annually. In the mid 1990s near record low returns and Endangered Species Act (ESA) protections afforded to listed fall Chinook constrained the fishery to



Little White Salmon National Fish Hatchery

3,800 coho and 700 Chinook salmon. But by 2001, improved fish management strategies and liberalized bag limits, increased catches to 132,000 mass marked coho and 12,700 Chinook. The number of angler trips also increased seven fold to 122,000. Mitchell Act hatchery production contributes significantly to this fishery.

Terminal Fisheries - Mitchell Act funding has been used to establish and maintain numerous terminal fisheries throughout the Basin. For example, two successful spring Chinook stocks return above Bonneville Dam to the Little White Salmon and Wind Rivers. Both sport and Tribal harvest occurs in these terminal fisheries that concentrates effort on the catch of hatchery-origin fish. A lottery tribal gillnet fishery occurs coincident with the spring Chinook sport fishery in the Little White Salmon River (Drano Lake). The Wind River and Drano

Lake fishery provides approximately 10,300 and 7,600 fish respectively per year.

- The Columbia River Terminal Fisheries Project was initiated in 1993 to capitalize on fish cultured in net pens. Coho salmon harvested at Select Area (SAFE) fisheries have contributed from 14% to 99% of the lower Columbia River commercial coho harvest. The economic benefits of these terminal fisheries to local communities totaled \$4.6 million in personal income in 2003. Annual coho smolt releases from the SAFE sites were about 4.0 million in 1998 but declined to 1.66 million by 2003. Production of one million coho salmon by the Mitchell Act for the SAFE project was discontinued because of funding shortfalls.

Zone 6 Fishery - Zone 6 is a 146 mile stretch of the Columbia River and tributaries between Bonneville and McNary Dams. This tribal fishing area was appropriated by the Treaty of 1855 and reaffirmed under the *U.S. v Oregon* agreement to Native American tribes for subsistence and commercial fishing due to the loss of fishing area resulting from the construction of several hydropower projects (i.e., Bonneville, The Dalles, and John Day dams). The Native American tribes that have access to fish these waters include the Yakama, Warm Springs, Umatilla and Nez Perce Tribes, represented by the Columbia River Inter-Tribal Fish Commission (CRITFC). Target species for subsistence use or commercial sale and produced at Mitchell Act funded facilities include adult spring Chinook, fall Chinook salmon (tule and up-river bright), coho salmon, and steelhead. The Mitchell Act also supports substantial recreational fisheries throughout Zone 6 for these species.

Ocean Fishery - Due to the migratory behavior of Pacific salmon and steelhead, fish originating from Mitchell Act hatcheries contribute significantly to recreational and commercial ocean

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fisheries off the coasts of California, Oregon, Washington, British Columbia and Alaska. To put the production from these facilities into perspective, one of the 18 hatcheries funded by the Mitchell Act, Spring Creek National Fish Hatchery has historically contributed up to 9% of the Chinook salmon catch in the West Coast Vancouver Island fishery and 27% of the Chinook catch off the Washington and northern Oregon Coasts. These fisheries are all multi-million dollar industries that benefit local rural communities dependent on recreational tourist dollars for their survival.

Conservation/Restoration/Hatchery Reform Benefits:

Since the initial ESA salmon listings in the 1990's, Mitchell Act hatcheries have been given a new role in addition to supporting fisheries — that of conserving naturally produced salmon and steelhead. Many programs have been revised to support this new role. Production from long standing Mitchell Act funded programs of spring Chinook, coho and fall Chinook salmon at Federal and State hatcheries have been used to initiate Tribal restoration programs in a number of upper Columbia and Snake River watersheds where native populations had been extirpated. Other reintroductions are planned for areas that are currently blocked by impassable dams (e.g., Condit Dam), but that are expected to become accessible.

Mitchell Act hatcheries, operated by the US Fish and Wildlife Service, are undergoing a review to determine what retooling needs to be incorporated to meet ESA and recovery goals. New or upgraded facilities, to sort and handle returning hatchery and naturally produced adults, are needed to meet conservation and broodstock management goals. Examples of facilities were upgrades are needed include the Elochoman, Grays River, North Fork Toutle, Skamania, and Big Creek hatcheries.

- Mitchell Act funded spring Chinook salmon from Ringold Springs hatchery (WDFW), Carson and Little White

Salmon NFH's helped the Confederated Tribes of the Umatilla Indian Reservation initiate a spring Chinook salmon restoration program in the Umatilla River from which salmon have been absent for nearly 100 years.

- Mitchell Act funds contributed to the *reintroduction of an extirpated stock of coho salmon* in the Wenatchee River, Washington. Coho salmon are reared at the Oregon Department of Fish and Wildlife Cascade Hatchery (a stock that has been maintained by the Mitchell Act program). Successive generations of coho returning to the Wenatchee River are collected and spawned at Dryden Dam. The subsequent use of these progeny has led to the development of a locally adapted stock of fish in the Wenatchee River.

- Mitchell Act funds at Little White Salmon NFH are used to rear and transfer spring Chinook salmon for release into the South Fork Walla Walla River to assist the Confederated Tribes of the Umatilla Indian Reservation with the development of locally adapted broodstock for restoration purposes. Spring Chinook salmon had been extirpated from the Walla Walla River over 75 years ago.



Condit Dam USGS photo by Pat Connolly

- Mitchell Act funded coho salmon are provided to the Yakama Nation for restoration efforts in the Yakima River, in Washington, and to the Nez Perce Tribe for restoration efforts in the Clearwater River in Idaho. Native

coho salmon populations in both of these areas had been extirpated because of past habitat degradation and over-fishing. Adult returns from these programs are now allowing some level of local broodstock collection in the tribal-guided programs to transition to locally adapted broodstocks.

- Tule stock fall Chinook salmon at Spring Creek NFH will be used to restore runs to the Big White Salmon River after the removal of Condit Dam within the next five years. For the past 50 years Mitchell Act and John Day Dam mitigation funding has supported hatchery production of this stock which originated from the Big White Salmon River over 100 years ago. This unique genetic stock would have been lost decades ago without Mitchell Act funding support.
- Cascade and Oxbow State Hatcheries provide Mitchell Act funded coho salmon to the Confederated Tribes of the Umatilla Indian Reservation for restoration in the Umatilla River. Adult returns from these upriver releases have provided natural production and tribal and sport fishery opportunities where native salmon populations had been absent for nearly 100 years. More recently, Confederated Tribes of the Umatilla Indian Reservation, State of Oregon, and federal parties are reviewing a master plan to initiate a coho salmon restoration program in the Grand Ronde River in northeast Oregon. This reintroduction program will utilize approximately one-third of the Mitchell Act coho salmon production from Cascade and Oxbow hatcheries that is currently released into the Umatilla River.
- ODFW, NOAA Fisheries, and Portland General Electric (PGE), have worked together to change the source of broodstock for the Sandy River Hatchery spring Chinook salmon program. The goal is to change to a locally adapted broodstock prior to the removal of Marmot Dam in 2007. When Marmot Dam is removed, fish

managers will no longer be able to prevent hatchery spring Chinook from spawning with naturally produced spring Chinook salmon in the upper Sandy River basin. To minimize adverse genetic effects on listed Sandy River spring Chinook salmon, naturally produced (unmarked) spring Chinook salmon were collected at Marmot Dam and used as broodstock. These endemic spring Chinook salmon are now returning to the basin, and will be the only hatchery-produced spring Chinook salmon present in the basin once the dam is removed.

- To minimize the genetic adverse effects of hatchery winter steelhead spawning naturally, ODFW also changed the source of the broodstock for Sandy Hatchery-reared winter steelhead and Clackamas Hatchery-reared winter steelhead. These hatchery programs now better mimic the naturally spawning populations. Broodstock was collected from wild late-run winter steelhead in each of the basins. The program in the Sandy River basin will also minimize genetic impacts on the naturally spawning population when Marmot Dam is removed. Currently, the strategy of releasing the fish at the hatchery instead of in the upper basin has reduced the number of hatchery-reared winter steelhead reaching Marmot Dam to less than 3% in the last few years.

Research, Monitoring and Evaluation (RM&E): These activities are essential to carrying out an effective mitigation program. More recently, the emphasis on studies has declined, not because they are not important or needed, but because hatchery operational and maintenance dollars have been eroded to critical levels from years of flat or declining funding. Except for some small evaluation studies being funded through normal hatchery operational costs, most RM&E activities have gone unfunded. The following are examples of current RM&E successes:

- Mitchell Act continues to fund intensive studies at the WDFW Kalama

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River Research Station evaluating the effects of using hatchery steelhead to supplement naturally produced populations. These studies have been instrumental in the development of current steelhead management plans and hatchery operations throughout the Columbia River Basin and the Pacific Northwest.

- Mitchell Act funding has been used in the development and evaluation of alternative methods of anesthetizing adult Chinook and coho salmon during sorting and spawning operations. The electro-anesthetizing systems at Carson and Eagle Creek NFHs have proven very successful in processing large numbers of adults, quickly and easily while minimizing human labor and injury to the fish.

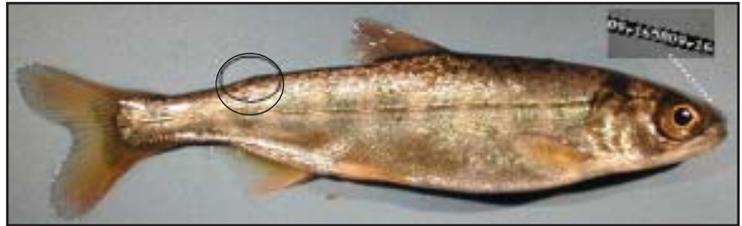
- Monitoring of Mitchell Act hatchery production programs, to evaluate hatchery performance and contribution, is conducted through tagging techniques such as coded-wire tagging (CWT) and passive integrated transponder (PIT).

- Healthy fish translate to increased success for recovery, reintroduction and mitigation projects. Mitchell Act funding of fish health centers ensures that fish produced from Mitchell Act programs are healthy and meet necessary fish health standards prior to their release.

- Hatchery evaluation studies have demonstrated the effectiveness of hatchery-production programs and extensive rearing density studies have directly informed rearing protocols for salmon hatcheries throughout North America.

The following are examples of past RM&A successes that can no longer be carried out or are limited under current budget constraints:

- Mitchell Act hatcheries are implementing hatchery reform efforts to ensure they are operated using the best scientific principles and contribute to sustainable fisheries and the recovery of naturally spawning populations of salmon. However, they are required to seek funding sources other than the Mitchell Act to develop and implement these reforms.



Marking with coded-wire tag and removal of adipose fin

- Funding through the Mitchell Act led to the development of new, more effective fish feeds such as the Abernathy Dry Diet. Today these feeds support a multi-million dollar aquaculture industry and fish production programs throughout the world.

- In the early Mitchell Act era more effective ways of identifying juvenile salmon were pioneered including the development of the color coded wire tags (a precursor to the coded wire tag).

Marking: Most coho, spring and fall Chinook salmon produced at Mitchell Act hatcheries are mass marked with an adipose fin clip for external visual identification. This allows for a selected harvest of these fish in a mixed-stock fishery composed of both hatchery and wild-origin fish. Sport anglers are allowed to harvest fin-clipped fish while releasing non-clipped fish to help protect ESA-listed and naturally produced salmon stocks. Since 2004, mass marking at Mitchell Act facilities has been facilitated through Congressional add-ons.

Screening Program: The death and injury of juvenile fish at water diversion intakes have long been identified as a major source

of fish mortality. Fish diverted into power turbines incur up to 15 percent mortality, while also experiencing injury, disorientation and delay of migration that may increase predation-related losses. Fish entrained into agricultural and municipal water diversions can experience up to 100 percent mortality. Nearly 80 percent of all water diversions in the Pacific Northwest are unscreened. Historically the Mitchell Act funded the construction of new screens annually and is responsible for screening nearly 1,000 irrigation diversions. Today the program is focused almost solely on the operation and maintenance of aging screens because of limited funding.

- In order to maintain and operate the more than 750 screens and over 500 gravity pumps, Federal and State fishery agencies work with screen shops in Salmon, Idaho; The Dalles, John Day, and Enterprise, Oregon; and Yakima, Washington. Mitchell Act provides significant funding for the operation of these important fish screening facilities.

Fishways & Ladders: The Mitchell Act began constructing fishways (fish ladders) and removing or modifying fish barriers as another means to increase the abundance of salmon and steelhead in the Columbia

River Basin. Data on various populations of salmon and steelhead were collected in the mid 1940's to identify impassable waterfalls, log and debris jams, splash dams, and sources of pollution. After the 1946 Mitchell Act amendment and the first appropriation of money in 1949 a fishway and stream improvement program was initiated. Since its inception, The Mitchell Act Program has improved access to more than 2,500 miles of anadromous fish habitat and passage by constructing approximately 45 fishways ranging in size from simple step pool-and-weir fishways over small barriers to large multi-entranced fish ladders built to pass fish above the 60-foot high Willamette Falls. In addition to fishways, the Mitchell Act has constructed 49 rock cut fish ladders to ease passage or provide access to areas once accessible to salmon.

More Information:

- NOAA Mitchell Act Program website:
<http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/Hatcheries/Mitchell-Act-Programs.cfm>
- NOAA Mitchell Act Economic Impact Statement website:
<http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/Hatcheries/NEPA-Activities-Mitchell-Act-EIS.cfm>