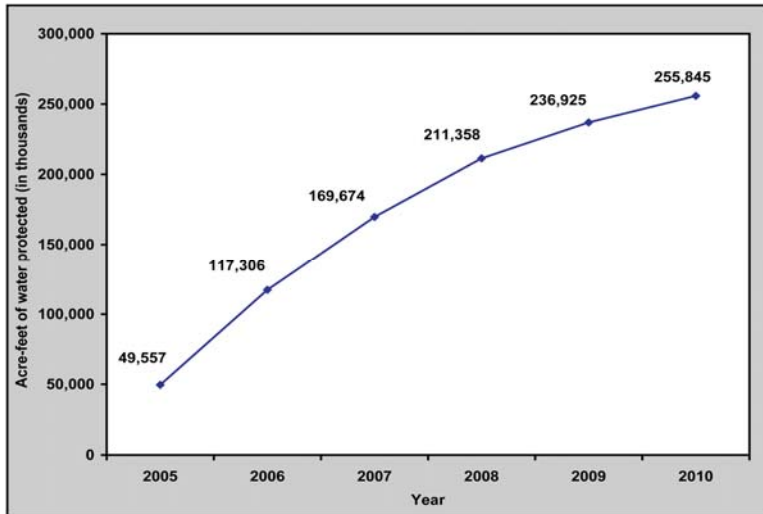


# FCRPS BiOp tributary habitat accomplishments from the Action Agencies' 2010 Progress Report

**Acre-ft of water protected**



**Figure 1**

## Water added to streams

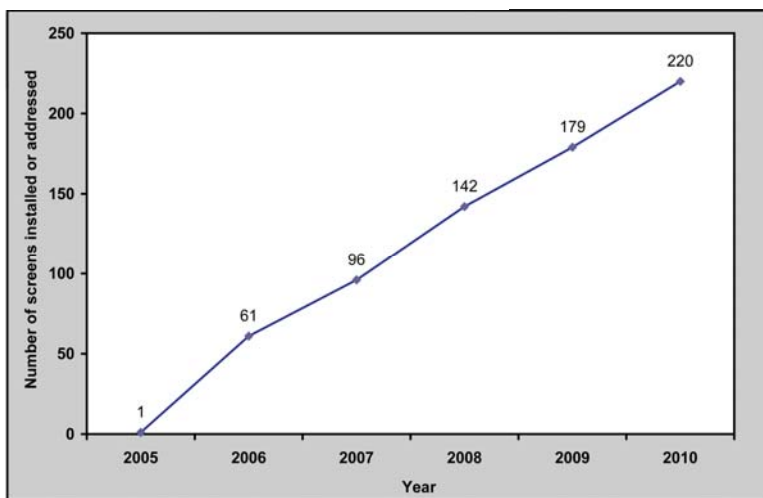
(Fig. 1)

Irrigation and other water withdrawals during the peak growing season can cause stretches of many streams and rivers run low – and sometimes dry.

One of the most effective and immediate steps the Action Agencies may take to improve fish habitat is to lease or purchase water rights or install water efficiency improvements to increase the amount of water in streams.

Since 2005, the Action Agencies acquired instream water to conserve or protect close to 260,000 acre-feet of water in the Columbia River Basin. In 2010, the volume of water added – 195 cubic feet per second – was more than the annual usage for the City of Portland and surrounding area.

**Number of fish screens installed**



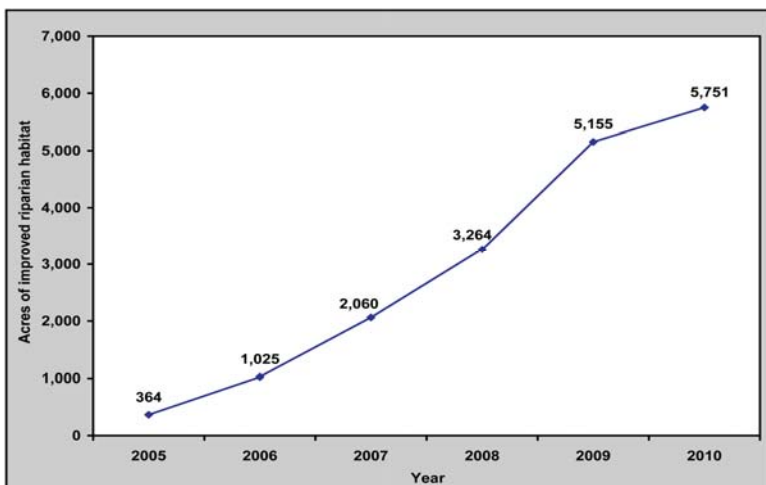
**Figure 2**

## Fish screens installed

(Fig.2)

Fish screens at irrigation diversions prevent fish from becoming trapped in irrigation ditches, providing immediate improvements to juvenile fish survival. Related projects help consolidate irrigation diversions and replace instream diversions with groundwater wells, reducing or eliminating entirely the need for an associated fish screen. In 2010, the Action Agencies addressed fish entrainment with installation of 41 fish screens.

**Acres of improved riparian habitat**



**Figure 3**

## Riparian habitat improved

(Fig. 3)

Riparian habitat—the streamside environment—makes a major contribution to water quality and long-term salmon survival. Riparian habitat can be protected through land purchases or conservation easements. Plantings or natural revegetation can reestablish a viable riparian zone by providing shade and other benefits for the stream.

Because they can help keep water cool and clean, these projects are an important hedge against the longer term effects of climate change.

More than 5,700 acres of riparian habitat have been improved since 2005.

## FCRPS BiOp tributary habitat accomplishments from the Action Agencies' 2010 Progress Report

Miles of improved stream complexity

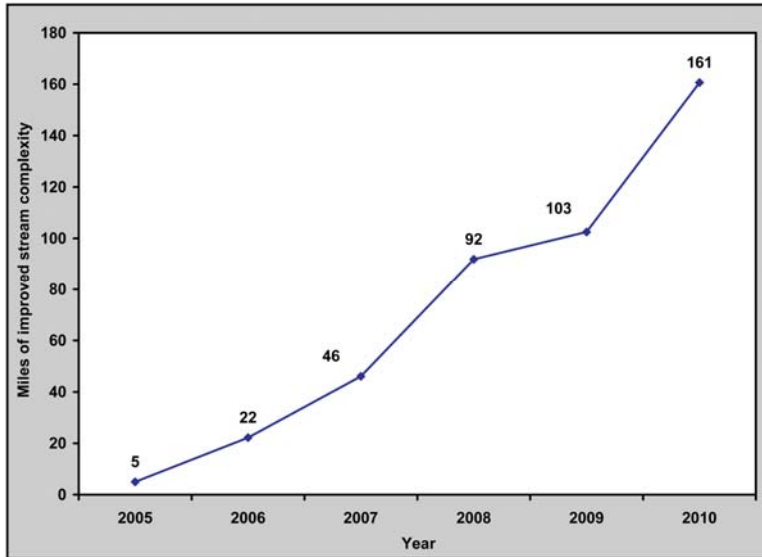


Figure 4

### Stream complexity improved

(Fig. 4)

Salmon evolved in streams that meandered, created multiple channels, and flooded seasonally. The complex habitats these processes created provided important rearing areas for juvenile salmon and steelhead, as well as cool-water refuges during the heat of summer. Human development has changed the nature of most of the Columbia River Basin's river systems, depriving salmon of some of these habitat attributes.

Action Agency habitat projects help improve channel complexity by reconnecting side channels and, where feasible, increasing floodplain function.

Since 2005, the Action Agencies have improved 161 miles of spawning and rearing stream 2010 habitat, with almost 60 miles completed in 2010 alone.

Miles of improved access to habitat

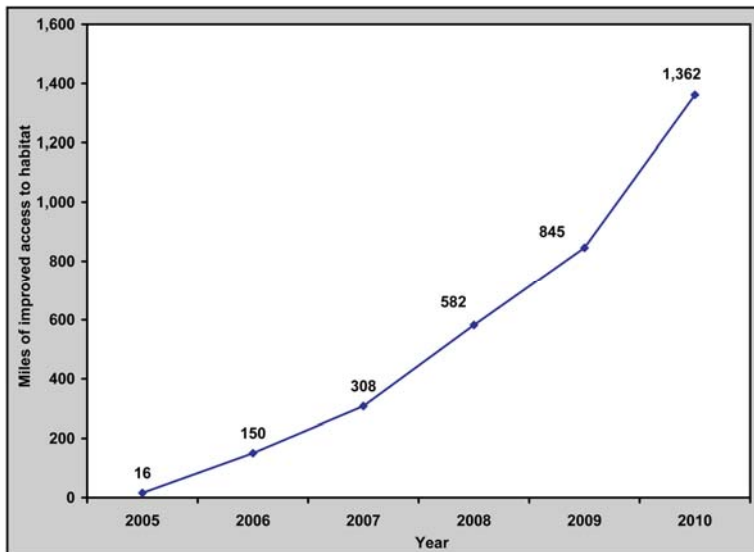


Figure 5

### Habitat opened to fish

(Fig. 5)

In many Columbia River tributaries, human development has restricted access to significant portions of the historical range of Columbia River basin salmon and steelhead. Many of these blockages can be fixed with negligible economic impact, providing a big biological boost to fish.

In 2010, the Action Agencies funded projects that opened more than 510 miles of salmon and steelhead spawning and rearing habitat.

*The federal agencies that manage the system of dams in the basin include the U.S. Army Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration, collectively known as the Action Agencies. Together, they are implementing actions to improve the survival of salmon and steelhead listed under the Endangered Species Act, as called for in NOAA Fisheries' Biological Opinion for operation of the federal hydrosystem.*

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