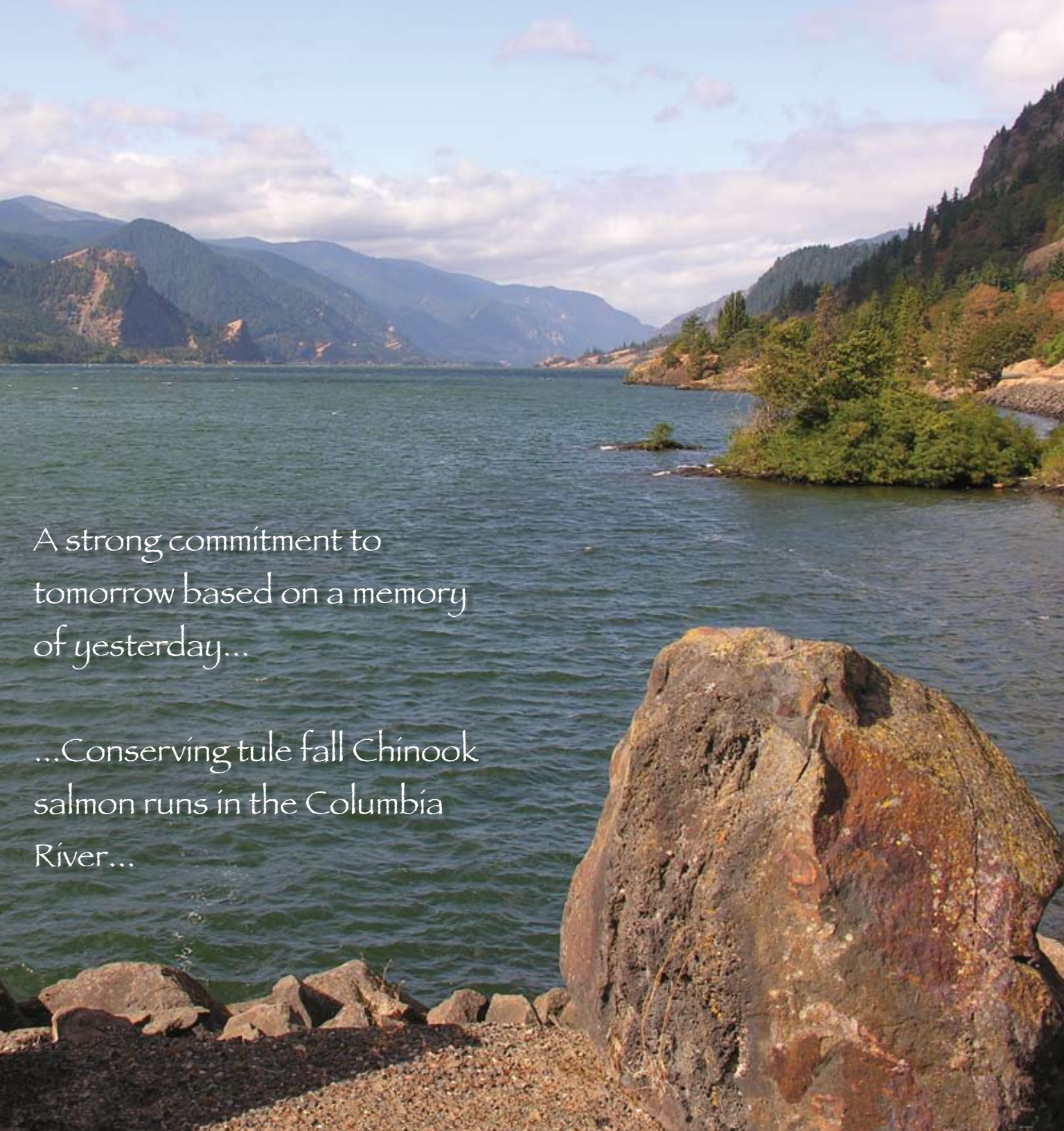
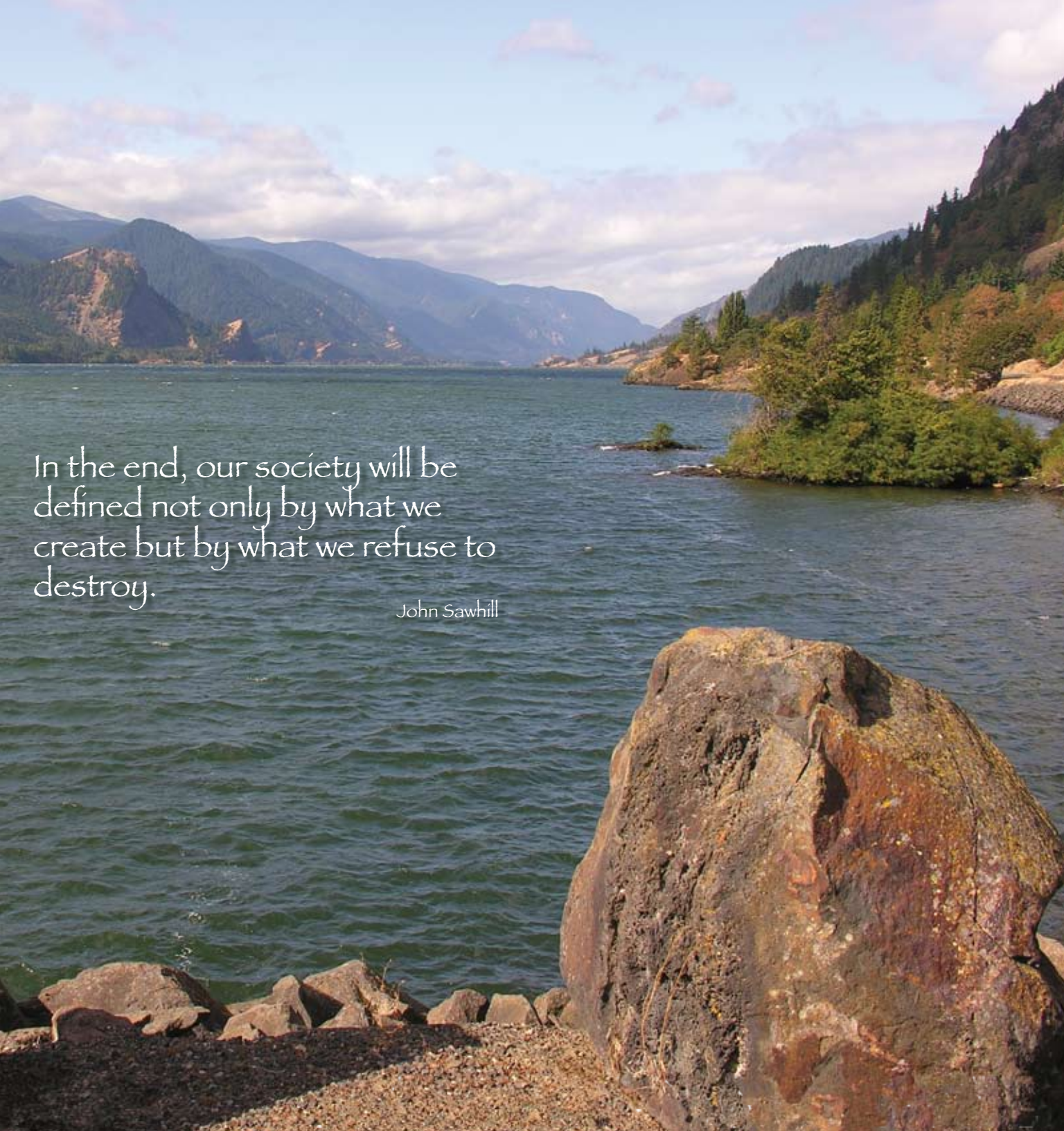
U.S. Fish & Wildlife Service

Spring Creek
National Fish Hatchery


A strong commitment to
tomorrow based on a memory
of yesterday...
...Conserving tule fall Chinook
salmon runs in the Columbia
River...


In the end, our society will be defined not only by what we create but by what we refuse to destroy.
John Sawhill

The 15.1 million smolts (young salmon) raised at the Spring Creek NFH spend 2-5 months in ponds or raceways while they continue to grow and develop. Water in the ponds, like that in the incubators, is warmed to 52˚F. This helps young fish grow faster and reach a larger size before release. Fish hatched the previous fall are released in March, April and May, when they are 3.3 to 4.5 inches long. Smolts move quickly on their 167-mile journey, generally reaching the estuary within 10 to 14 days.

Each fall, tule fall Chinook salmon migrate from their ocean feeding ground to the river – or the hatchery- where they began their lives. Guided by the unique chemical "fingerprint" of the hatchery's spring water supply, the adult salmon locate the hatchery and swim up the fish ladder into the holding ponds.

Returning adult fish are moved into the spawning building, where the eggs are taken from the female fish and fertilized by milt (sperm) from the males. Each female produces nearly 5,000 eggs. Salmon that are spawned are chemically anesthetized making them unfit for consumption. These carcasses are rendered and made into fish pellets which are utilized for nutrient replacement in streams throughout Washington and Oregon. Salmon that are surplus to the needs of the hatchery are donated to the Department of Justice and utilized for food purposes. Fertilized eggs are moved to the incubation

building. After being rinsed, eggs are put into incubation trays where they will hatch in 6-7 weeks. Once hatched, the "sac fry" feed on their nutrient rich yolksac for several more weeks. After their yolk sac is absorbed completely the tiny fry are transferred into raceways where they are hand fed by hatchery workers.

The Spring Creek hatchery was built on this site to take advantage of the pure water available from springs that emerge at the base of the basalt cliffs just north of the hatchery. To conserve water and reduce pollution, the present-day hatchery recycles its water through oyster shell filtration beds, where naturally occurring bacteria convert wastes to harmless nitrates. Ninety percent of the water used in the hatchery's rearing ponds is recycled. About ten percent of the water is diverted into settling ponds before finally draining into the Columbia River.

The "White Salmon" of the Columbia River

Tule fall Chinook salmon are native to this part of the Columbia River and have historically provided food for people living along the river. Columbia River Indians called them mitula (funky punctuation added on that last word), or "white salmon," since the tule fall Chinook's flesh is light-colored.

Chinook, or King, salmon are the largest of the Pacific salmon. Adults average 23 pounds and fish 50 to 80 pounds are not uncommon. All Pacific salmon are anadromous, meaning they spend their adult lives feeding in the ocean but return to their natal (or birth) rivers to spawn. Both male and female salmon die after spawning.

Unlike other Chinook, which spend weeks or months in fresh water before spawning, tule fall Chinook spawn quickly after reaching their home rivers. Their strategy is to convey as much of their fat to muscle as possible into eggs or milt. Thus, they typically appear darker and in worse condition when they arrive at the spawning grounds than other types of Chinook.

Because of the migration pattern of the adult fish, this stock is still a major contributor to the commercial and recreational salmon harvest along the Washington coast as well as in the Columbia River.

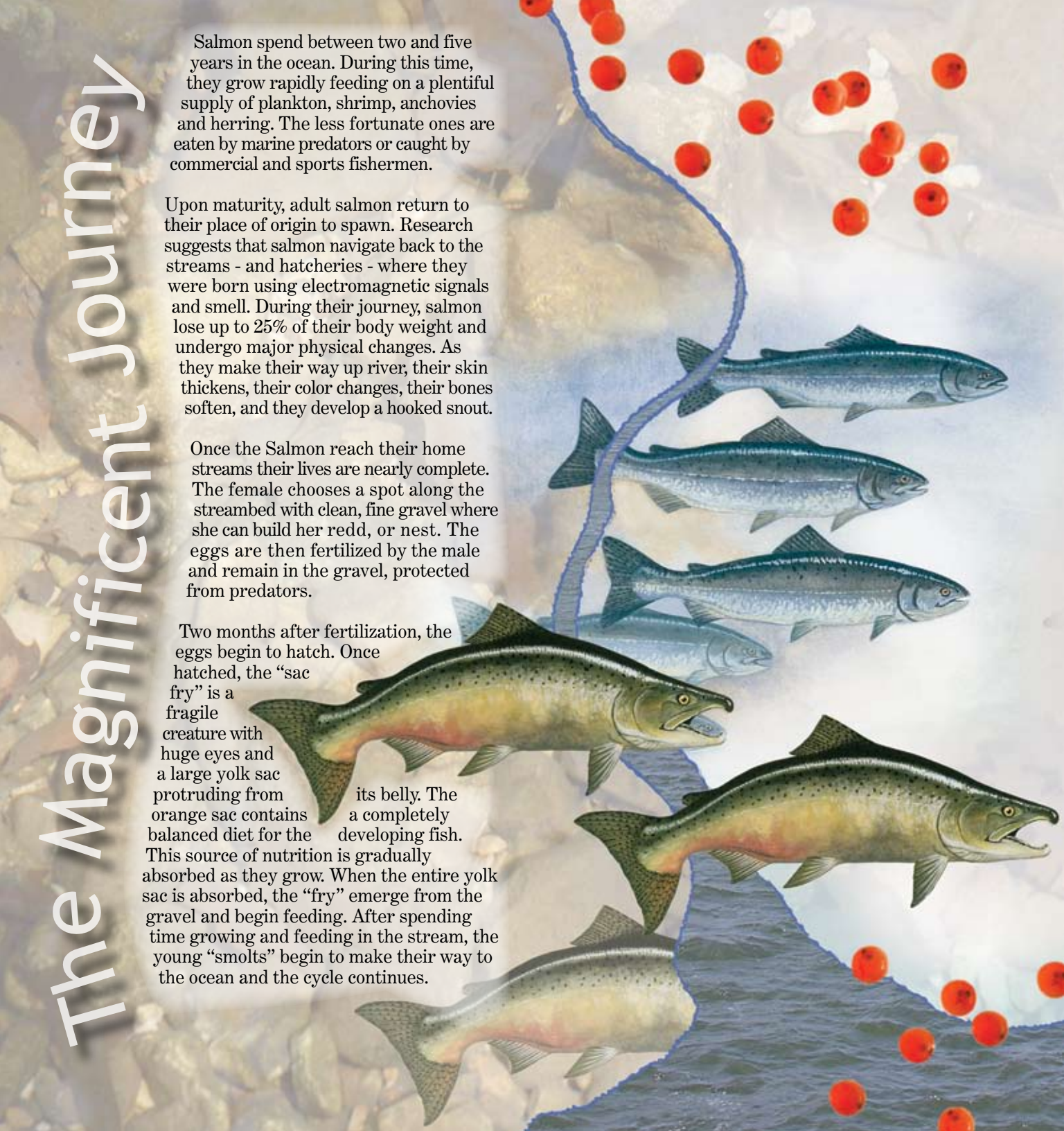
The Magnificent Journey

Salmon spend between two and five years in the ocean. During this time, they grow rapidly feeding on a plentiful supply of plankton, shrimp, anchovies and herring. The less fortunate ones are eaten by marine predators or caught by commercial and sports fishermen.

Upon maturity, adult salmon return to their place of origin to spawn. Research suggests that salmon navigate back to the streams - and hatcheries - where they were born using electromagnetic signals and smell. During their journey, salmon lose up to 25% of their body weight and undergo major physical changes. As they make their way up river, their skin thickens, their color changes, their bones soften, and they develop a hooked snout.

Once the Salmon reach their home streams their lives are nearly complete. The female chooses a spot along the streambed with clean, fine gravel where she can build her redd, or nest. The eggs are then fertilized by the male and remain in the gravel, protected from predators.

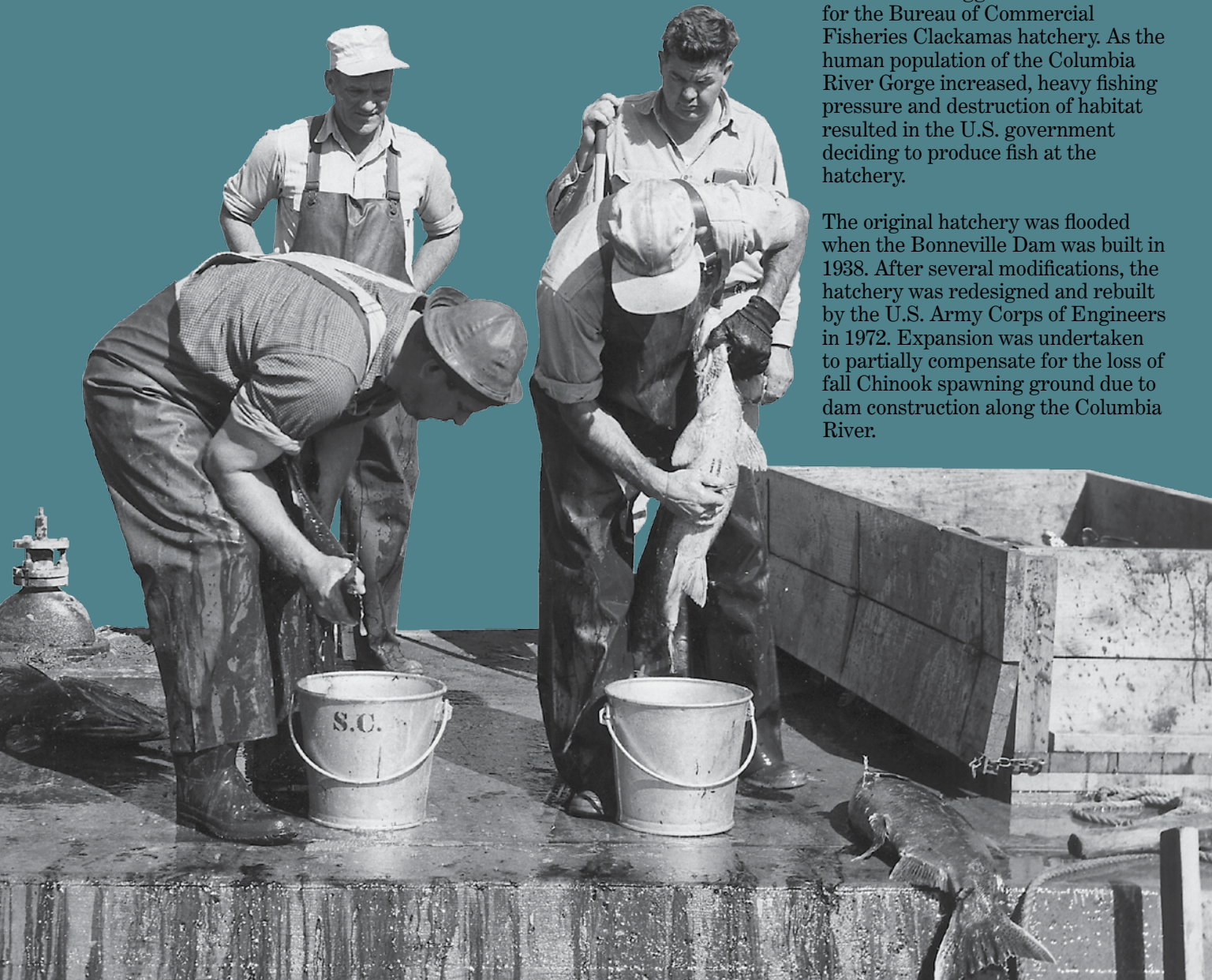
Two months after fertilization, the eggs begin to hatch. Once hatched, the "sac fry" is a fragile creature with huge eyes and a large yolk sac protruding from its belly. The orange sac contains a completely balanced diet for the developing fish. This source of nutrition is gradually absorbed as they grow. When the entire yolk sac is absorbed, the "fry" emerge from the gravel and begin feeding. After spending time growing and feeding in the stream, the young "smolts" begin to make their way to the ocean and the cycle continues.



Hatchery Beginnings

The Spring Creek National Fish Hatchery was established in 1901 as one of several egg collection stations for the Bureau of Commercial Fisheries Clackamas hatchery. As the human population of the Columbia River Gorge increased, heavy fishing pressure and destruction of habitat resulted in the U.S. government deciding to produce fish at the hatchery.

The original hatchery was flooded when the Bonneville Dam was built in 1938. After several modifications, the hatchery was redesigned and rebuilt by the U.S. Army Corps of Engineers in 1972. Expansion was undertaken to partially compensate for the loss of fall Chinook spawning ground due to dam construction along the Columbia River.



Mass Marking

Where do our fish go after they leave the hatchery, and how many are being harvested? To answer these questions, up to one million fingerlings each year are marked with tiny coded wire tags. Workers insert the hair-thin wire into the fish's nose, and clip the adipose fin to show that the fish carries a tag. Biologists recover tags from adult salmon caught in ocean and river fisheries. Special codes on the wire tell where and when the fish was raised and if it was part of an experimental study.

A substantial level of planning and coordination has been conducted for the Columbia River in order to prepare for the implementation of the Congressional mandate to mass mark all federally funded hatchery fish produced for harvest and will initiate the largest marking operation ever attempted. Mass marking refers to removing the adipose fin from nearly all salmon and steelhead reared at all federally funded hatcheries so these fish are available for harvest in selective fisheries. Hatchery fish produced for restoration, recovery, tribal harvest and research are not marked where it is determined that mass marking would conflict with the purposes of these programs. The Service works with co-managers to make such determinations.

For the second year, Spring Creek National Fish Hatchery (NFH) will mass mark the 15.1 million tule fall Chinook salmon raised to mitigate for losses from dams in accordance with U.S. v. Oregon release goals. This operation will require daily handling of about 264,000 fish in 16 hour days from January 23 to April 8, 2006. In the past, only 450,000 fish (66,000 to 88,000 per day) were marked and tagged with coded-wire, requiring fewer than 14 eight hour days.

Conservation

Spring Creek NFH is responsible for conserving the tule stock of fall Chinook as identified in the Mitchell Act, 1938. Spring Creek is the only hatchery above Bonneville Dam that produces this native stock originating in the White Salmon River. The hatchery maintains the genetic diversity of this population by adhering to strict spawning protocols, maintaining a large returning population and not mixing with other fall Chinook stocks.

Future habitat improvements along the White Salmon River will provide the hatchery on opportunity to restore a natural spauning population of tuly's. Utilizing the Big White Ponds, a substation on the White Salmon River, and working with comanagers to identify the appropriate restoration strategies for the tule stock and other fish populations that historically spawned in the White Salmon River, the hatchery can provide production capabilities and expertise to accomplish those restoration goals.

Outreach & Education

Spring Creek NFH is home to the Columbia Gorge Information and Education Office which offers a year-round public outreach and education program.

Our goals are to provide activities that are informative and relevant to our local and visiting public, promote involvement, improve stewardship of our natural resources, and bring a greater understanding of the complex issues involving salmon recovery in the Columbia River Basin. We strive to promote awareness of the Columbia Gorge hatchery facilities and the mission of the U.S. Fish & Wildlife Service.

Outreach goals are met through a variety of on-site and off-site activities including: hatchery tours, school programs, information booths and presentations, annual open houses and free fishing days. Many of these programs are accomplished through a variety of partnerships with other federal agencies, non profit groups and local special interest groups.

Spring Creek National Fish Hatchery
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http://www.fws.gov
http://www.fws.gov/pacific/gorgefish

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