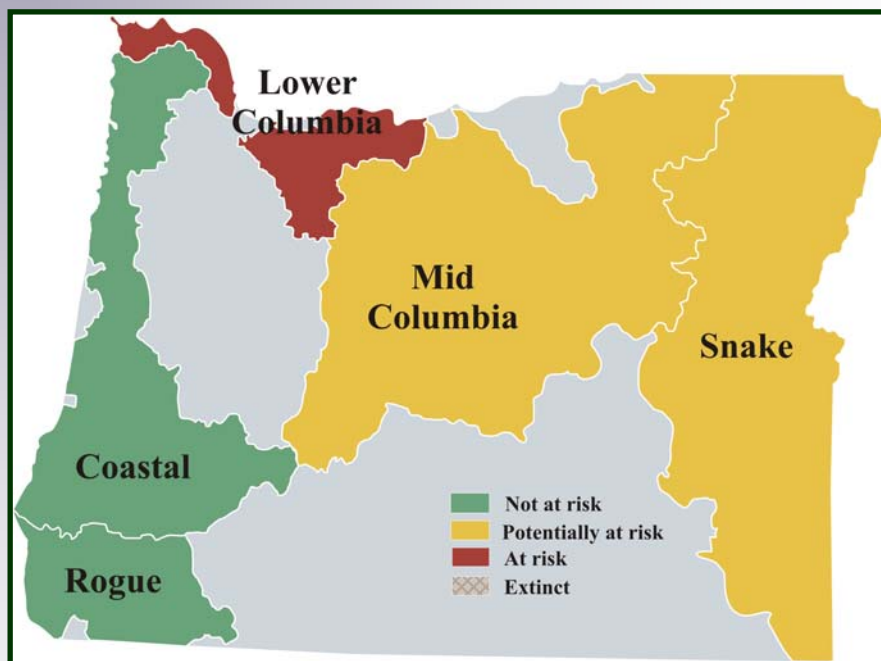


## Fall Chinook



Fall Chinook return to spawn in large streams and river mainstems throughout the Oregon Coast and Columbia River, typically from October through December. Young fall Chinook emigrate to the ocean during the first summer and return 1-5 years later as the largest of the salmon species. Adults are generally 20-40 pounds and occasionally reach 70 pounds. In the ocean, they range from California to southeast Alaska with different distributions depending on river of origin.



A total of 41 historical populations are distributed among five SMUs. No fall Chinook SMU is extinct although a number of Columbia basin populations have disappeared. Lower Columbia SMUs are currently at risk due to low numbers, low productivity, and significant hatchery fractions. The mid-Columbia SMU is potentially at risk although the single remaining population is relatively healthy. Recent strong returns have improved the outlook for the Snake SMU which was rated as potentially at risk. Coastal and Rogue fall Chinook SMUs are not at risk. Immediate risks have been at least temporarily ameliorated for many Chinook SMUs by recent large returns produced by favorable ocean conditions. Lower Columbia and Snake river populations are listed under the ESA. Oregon Coastal and mid-Columbia fall Chinook populations are not federally listed.

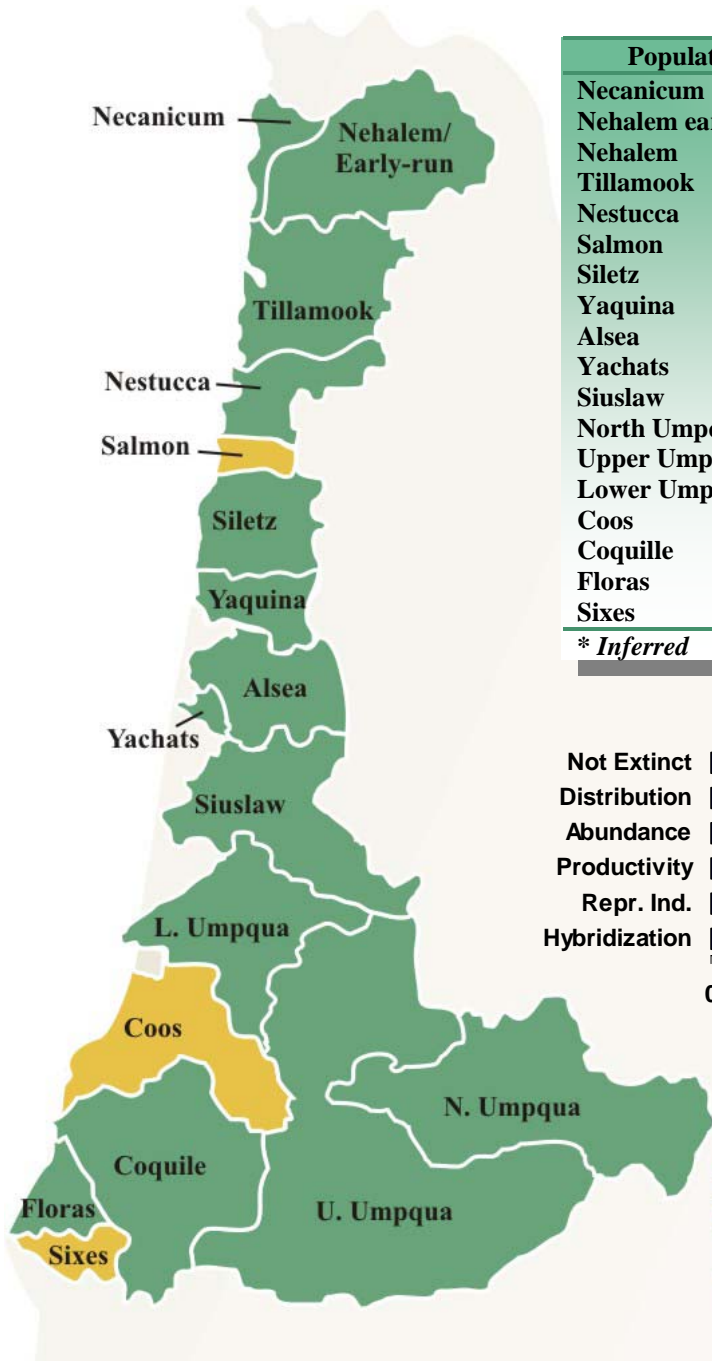
# Coastal Fall Chinook SMU

ESA Designation:  
*Not Warranted 1999*

State Status:  
*Not Listed*

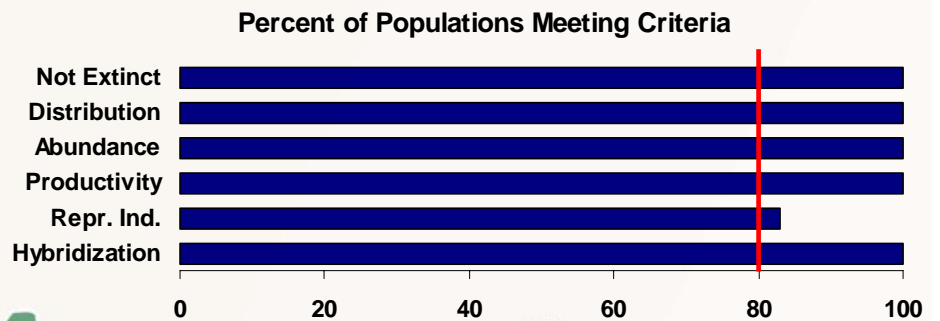
Interim Assessment:  
*Not at Risk*

The Coastal Fall Chinook SMU includes 18 populations between the Necanicum and Sixes basins. Spawner returns to these basins have been strong in recent years, and hatchery influence is generally low. The SMU met all six criteria so the near-term sustainability of the population is not at risk. Suitable data and other information on populations in this SMU provide a moderate level of confidence in the assessment of the interim criteria.



Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Necanicum	Pass	Pass*	Pass*	Pass	Pass*	Pass
Nehalem early-run	Pass	Pass*	Pass*	Pass*	Pass*	Pass
Nehalem	Pass	Pass*	Pass	Pass	Pass*	Pass
Tillamook	Pass	Pass*	Pass	Pass*	Pass*	Pass
Nestucca	Pass	Pass*	Pass	Pass	Pass*	Pass
Salmon	Pass	Pass*	Pass	Pass*	<b>Fail</b>	Pass
Siletz	Pass	Pass*	Pass	Pass*	Pass*	Pass
Yaquina	Pass	Pass*	Pass	Pass	Pass*	Pass
Alea	Pass	Pass*	Pass	Pass	Pass*	Pass
Yachats	Pass	Pass*	Pass*	Pass*	Pass*	Pass
Siuslaw	Pass	Pass*	Pass	Pass	Pass*	Pass
North Umpqua	Pass	Pass*	Pass	Pass	Pass*	Pass
Upper Umpqua	Pass	Pass*	Pass	Pass	Pass*	Pass
Lower Umpqua	Pass	Pass*	Pass*	Pass*	Pass*	Pass
Coos	Pass	Pass*	Pass	Pass	<b>Fail*</b>	Pass
Coquille	Pass	Pass*	Pass	Pass	Pass	Pass
Floras	Pass	Pass*	Pass	Pass	Pass*	Pass
Sixes	Pass	Pass*	Pass	Pass	<b>Fail*</b>	Pass

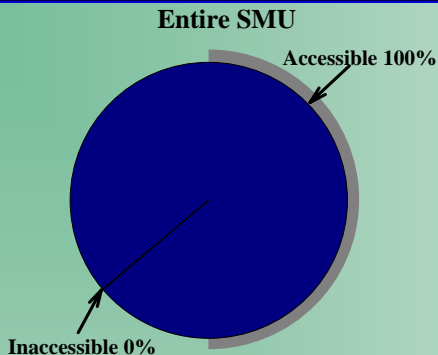
\* Inferred



■ All criteria met  
■ 4-5 criteria met  
■ < 4 criteria met  
■ Extinct

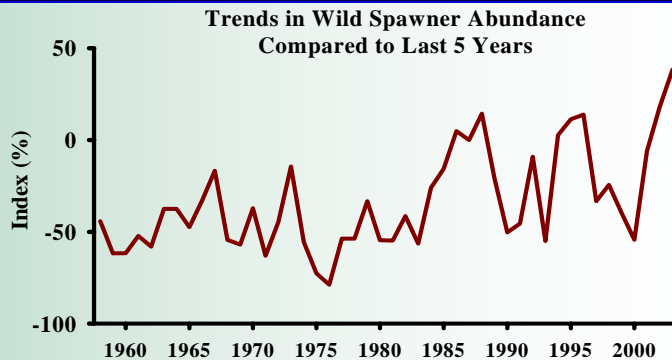


## Distribution – Pass



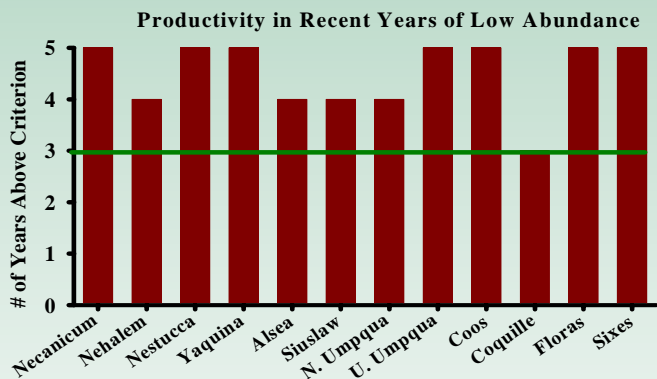
- Essentially all of the historically-accessible habitat for fall Chinook within the SMU remains accessible today.
- Distribution and habitat use patterns within accessible habitats may vary annually, and likely do not include all of the available habitat in each year.

## Abundance – Pass



- All of the 18 populations passed this criterion.
- Wild fall Chinook abundance, averaged for populations across the SMU, has fluctuated but shown a general increasing trend since the 1950s.
- Returns in from 2001-2004, have been among the largest recorded in the last 45 years.

## Productivity - Pass



- All 18 populations passed this criterion. All 12 populations with at least five years of productivity estimates passed the criterion. The remaining six populations passed based on anecdotal information.
- The Tillamook and Siletz passed the criterion because juvenile data indicate that these populations have been well seeded in recent years, and that in years of low seeding, recruit per spawner estimates were greater than 1.2.

## Independence - Pass

- 15 of 18 populations passed the criterion based on the absence of hatchery releases, or low proportions of hatchery fish observed during spawning surveys.
- No hatchery fall Chinook are released into the Nehalem, Siletz, Alsea, Yachats, or Siuslaw basins.
- Hatchery Chinook are released into both the Necanicum and Yaquina. The Necanicum passed because release levels are low relative to basin size, and the Yaquina passed because data from spawning surveys indicate very few hatchery fish are spawning naturally.
- Trapping data from the Coquille indicate that hatchery fractions among natural spawners are low in this basin.
- Hatchery releases are nearly 200,000 smolts annually in the Salmon River. Hatchery fish comprise more than 50% of natural spawners.
- Straying of Elk River fall Chinook into the Sixes has resulted in high hatchery fractions there.

## Additional Information

- The Nehalem contains a unique early-run population that have also been known as a “summer run”. These fish begin entering the Nehalem as early as July, and the end of their arrival overlaps with the arrival of the later-run Nehalem fall Chinook in October. These two populations are distinguished in the assessment as the “Nehalem early-run” and “Nehalem” populations.

# Rogue Fall Chinook SMU

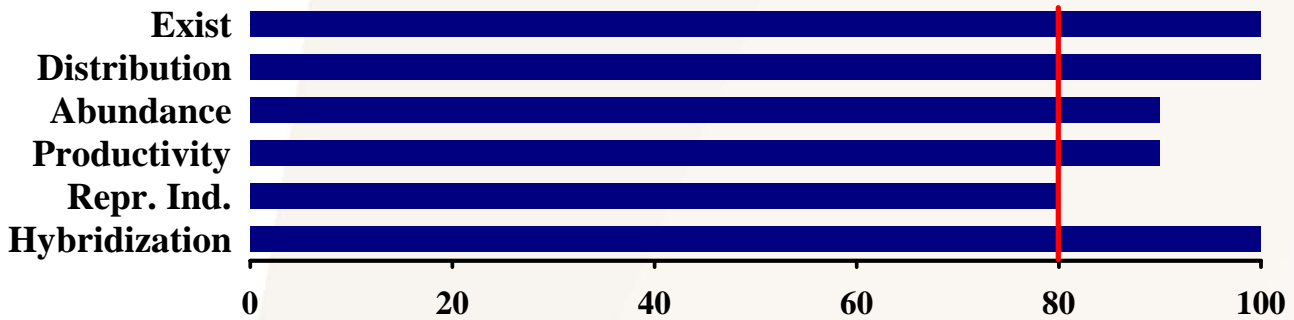
ESA Designation:  
*Not Warranted 1999*

State Status:  
*Critical*

Interim Assessment:  
*Not at Risk*

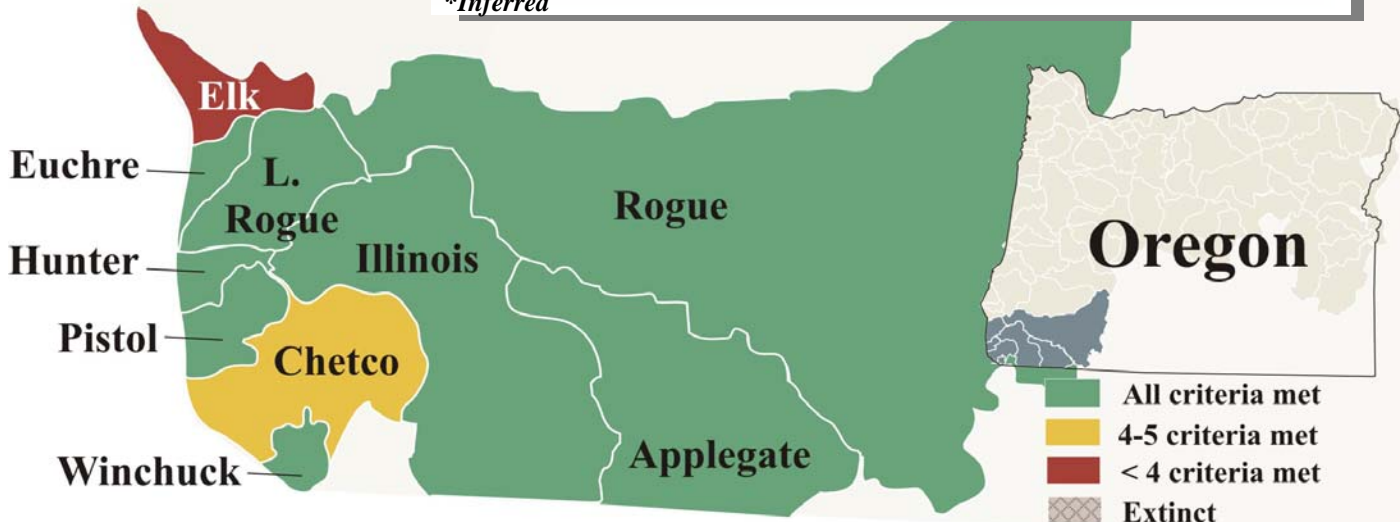
This SMU includes ten populations within coastal basins of the Klamath Mountains Province in southwestern Oregon. Spawner returns to these basins have been strong in recent years, and hatchery influences are generally low. The SMU met all six criteria so its near-term sustainability is not at risk. Significant spawning by hatchery fish within the Elk Basin caused that population to fail three of the six interim criteria. Suitable data and other information on populations in this SMU provide a moderate level of confidence in the assessment of the interim criteria.

Percent of Existing Populations Meeting Criteria



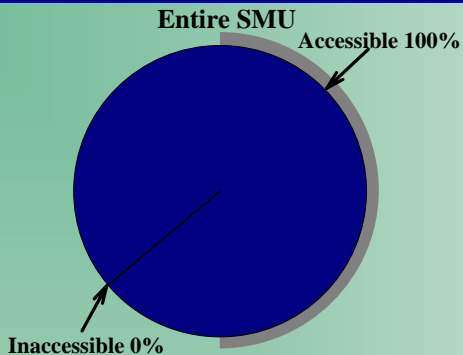
Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Winchuck	Pass	Pass*	Pass	Pass	Pass*	Pass
Chetco	Pass	Pass*	Pass	Pass	<i>Fail*</i>	Pass
Pistol	Pass	Pass*	Pass	Pass	Pass*	Pass
Lower Rogue	Pass	Pass*	Pass	Pass	Pass*	Pass
Hunter	Pass	Pass*	Pass	Pass	Pass*	Pass
Euchre	Pass	Pass*	Pass	Pass	Pass*	Pass
Illinois	Pass	Pass*	Pass*	Pass*	Pass*	Pass
Rogue	Pass	Pass*	Pass	Pass	Pass*	Pass
Applegate	Pass	Pass*	Pass	Pass	Pass*	Pass
Elk	Pass	Pass*	<i>Fail</i>	<i>Fail</i>	<i>Fail</i>	Pass

*\*Inferred*



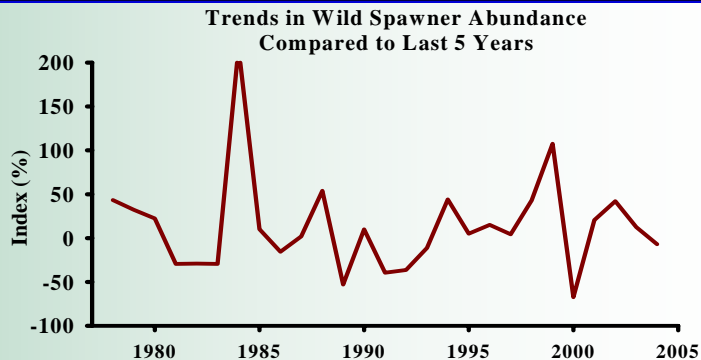


## Distribution – Pass



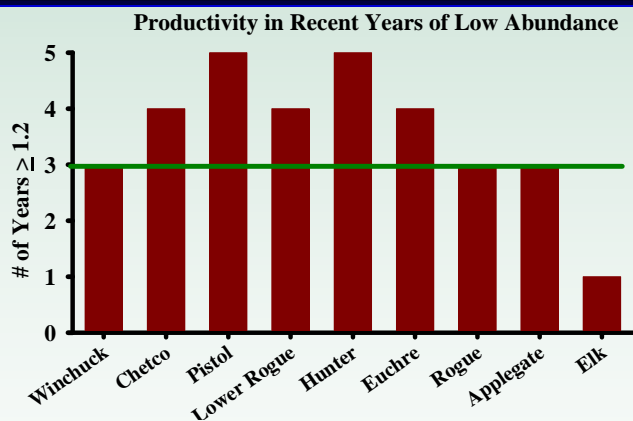
- All of the historically accessible habitat for fall Chinook within the SMU remains accessible today.
- Distribution and habitat use patterns within accessible habitats may vary annually, and likely do not include all of the available habitat each year.

## Abundance - Pass



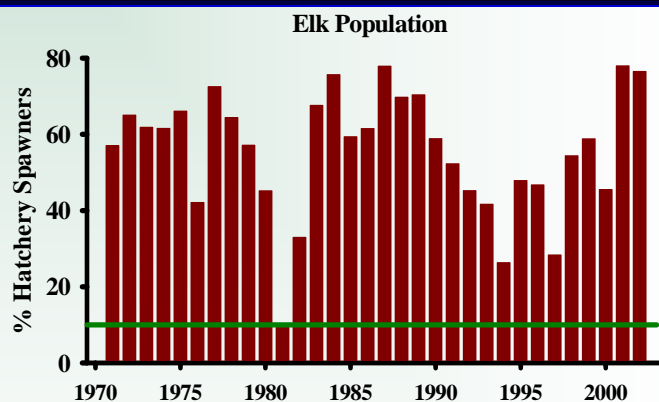
- Nine of ten populations passed the criterion. The Elk population failed because abundance has been driven by natural spawning of hatchery fish.
- No data were available for the Illinois, but it was assumed to have passed based on representative results from the rest of the SMU.
- Average abundance across the SMU has varied with no consistent trend since the late 1970s. Since different metrics are used to describe abundance in these populations, a relative index was used in the graph above.
- Recent returns in some populations have been noteworthy. Returns in 2003 were the 2nd highest observed in 26 years of monitoring.

## Productivity - Pass



- Eight of ten populations passed the criterion. The Elk population failed this criterion. The Elk population has only reached or exceeded 1.2 recruits per spawner once in the past 28 years.
- A 10<sup>th</sup> population in the Illinois basin was inferred to pass because a majority of the populations within the SMU passed.

## Independence - Pass



- Eight of ten populations passed this criterion.
- Spawning ground surveys in 2002 and 2003 and hatchery release levels indicate that the Winchuck, Lower Rogue, Illinois, Rogue, Pistol, and Applegate populations typically have <10% hatchery spawners.
- The Elk (graphed above) is the largest hatchery program in this SMU and hatchery spawners typically account for greater than 50% of the natural spawning population.
- The Chetco has averaged 36% hatchery spawners over the last 17 years. No year has been less than 10%.

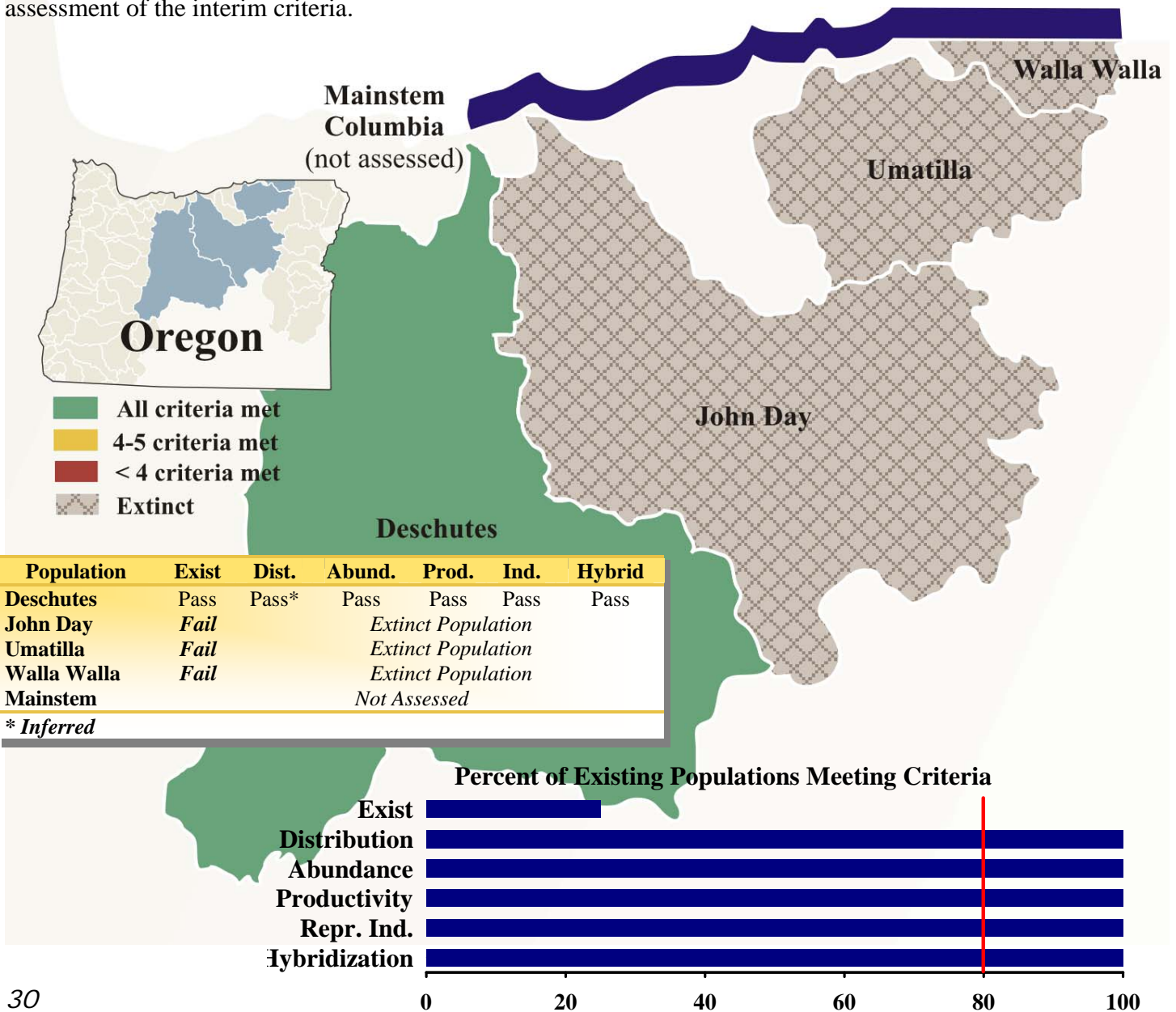
# Mid Columbia Fall Chinook SMU

**ESA Designation:**  
*Not Warranted*

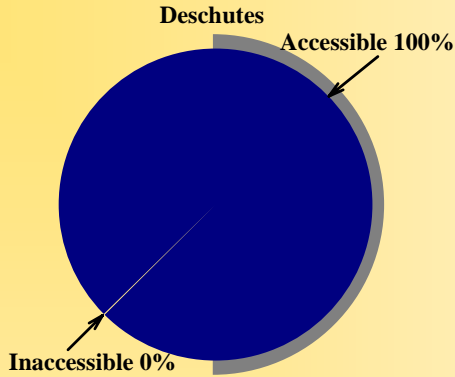
**State Status:**  
*Not Listed*

**Interim Assessment:**  
*Potentially At Risk*

This SMU historically included five populations in Oregon tributaries between The Dalles Dam and the Snake River. A mainstem Columbia River population may exist, but it was not assessed under this report because it is poorly understood. Three of the four historical populations in Oregon tributaries are extinct causing the SMU to fail the existence criterion. The Deschutes population still exists and met each of the five population-specific, interim criteria. The SMU met five of the six interim criteria so the near-term sustainability is potentially at risk. The loss or uncertainty in status of four of the five populations reflects the significance of historical habitat impacts but the strength of the remaining population in the Deschutes ameliorates risks of further population losses. The mainstem Columbia population was not considered in the assessment outcome of this SMU because its status and dynamics with tributary populations in both Oregon and Washington are poorly understood. Suitable data and other information on populations in this SMU provide a moderate level of confidence in the assessment of the interim criteria.

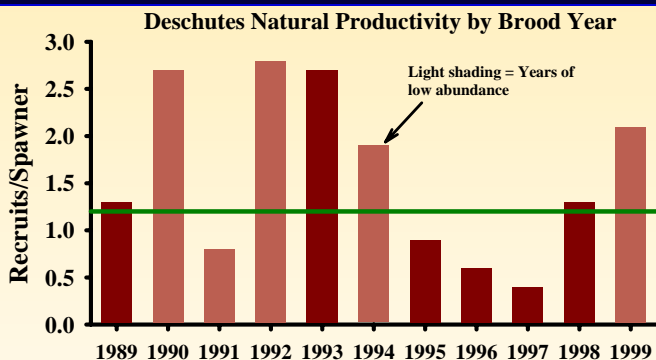


## Distribution - Pass



- Deschutes fall Chinook did not historically occur in significant numbers upstream of the current site of Pelton Dam, hence, all of the available habitat in the Deschutes basin is still available today.
- The distribution of fall Chinook in this SMU was drastically reduced by the loss of the John Day, Umatilla, and Walla Walla populations – this effect is reflected in the existence criterion.

## Productivity - Pass

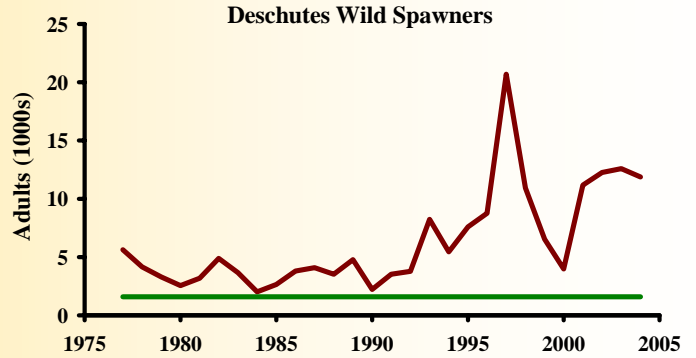


- Productivity of the Deschutes population exceeded 1.2 in seven of 11 brood years that estimates are available, including most years when spawner numbers were low.
- Recent low production rates likely resulted from large returns causing density-dependent factors to limit juvenile survival.

## Additional Information

- The John Day, Umatilla, and Walla Walla populations became extinct in the early 1900s due to degradation of their lower mainstem habitats. Primary impacts included reduced flows, increased temperatures, and increased sedimentation, primarily as a result of water diversion and land use.
- While the Deschutes fall Chinook population passed all of the interim criteria, there is concern that the SMU has only one population still in existence. The persistence of an SMU is more secure if it contains several healthy populations.
- Reintroduction efforts for fall Chinook have been underway in the Umatilla since 1982. Data are not currently available to determine if these efforts are being successful in restoring a self-sustaining natural population.
- Mid Columbia fall Chinook must navigate from two to four Columbia River dams that have increased juvenile and adult mortality beyond pre-development conditions. Passage improvement efforts are ongoing.

## Abundance- Pass



- Recent Deschutes spawner numbers are substantially greater than the 26-year average, the interim criterion threshold.
- The 2003 Deschutes run was the second highest since monitoring began in 1977.

## Independence - Pass

- No hatchery fall Chinook have ever been released in the Deschutes basin.
- Hatchery strays from other basins made up less than 1% of the Deschutes fall Chinook observed at Sherars Falls in years of available data (1998-2002).



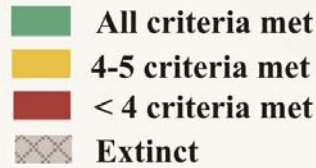
# Snake Fall Chinook SMU

**ESA Designation:**  
*Threatened 1992*

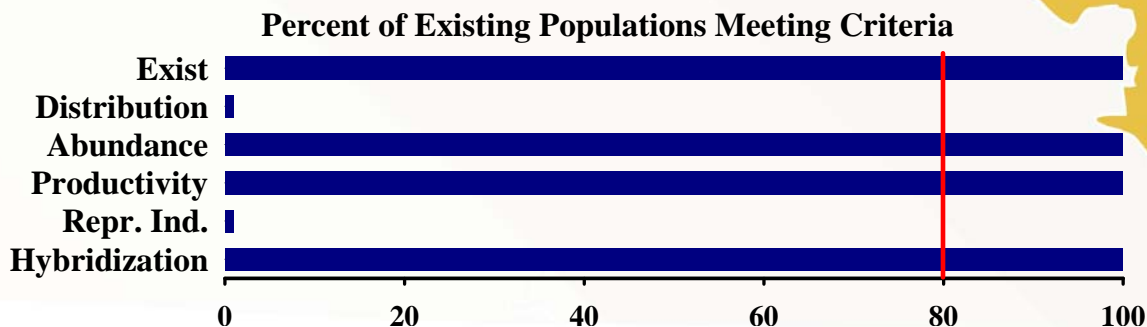
**State Status:**  
*Threatened*

**Interim Assessment:**  
*Potentially At Risk*

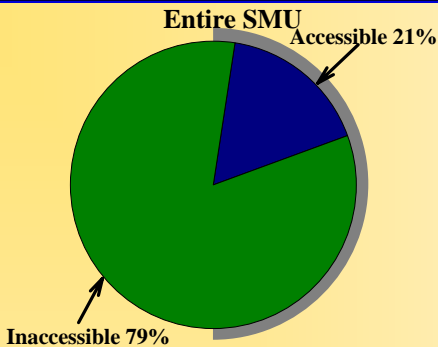
This SMU includes a single remnant population currently limited to Oregon, Washington, and Idaho portions of the Snake River between Lower Granite Reservoir and Hells Canyon Dam. Construction of three dams in Hells Canyon eliminated access to historic spawning areas in tributary mainstems and the Snake mainstem as far upstream as Shoshone Falls in central Idaho. Numbers today are near 5% of estimates in the 1940s, but in the last few years have approached the capacity of remaining habitat due to aggressive hatchery supplementation and favorable ocean conditions. The Snake population met four of six interim risk criteria leading to the conclusion that its near-term sustainability is potentially at risk. Suitable data and other information on populations in this SMU provide a moderate level of confidence in the assessment of the interim criteria.



Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Snake	Pass	<i>Fail</i>	Pass	Pass	<i>Fail</i>	Pass

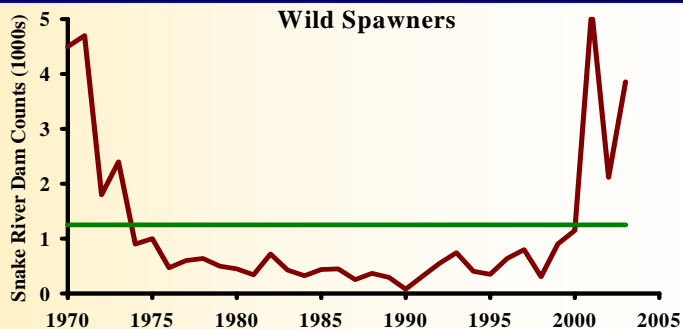


## Distribution – Fail



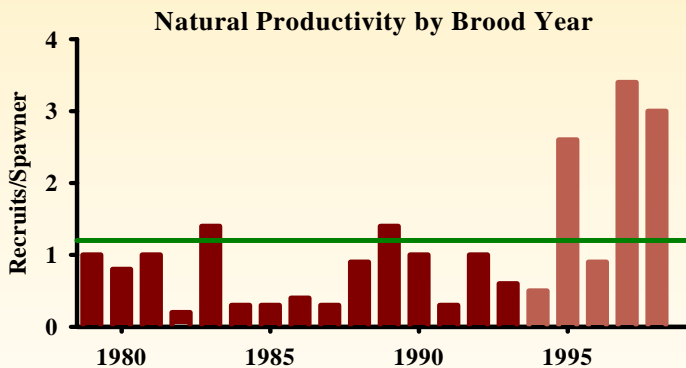
- Only 21% of the habitat area historically available to fall Chinook in the Snake basin remains accessible.
- Construction of the lower Snake and Hells Canyon dam complexes eliminated much of the historical habitat. Prior to dam construction, adults migrated as far upstream as Shoshone Falls, Idaho.
- Current spawning areas include the Snake mainstem – between the upstream end of Lower Granite Reservoir and Hells Canyon Dam - and the lower portions of large tributaries including Oregon’s Grande Ronde and Imnaha rivers.

## Abundance - Pass



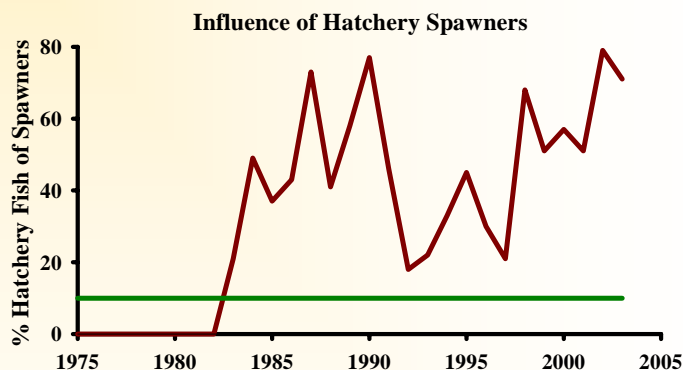
- In the early 1940s, the Snake return averaged 72,000 fish. By the 1950s the number dropped to 15,000-29,000. In the early 1970s, counts at Little Goose Dam were near 5,000. Between 1975 and 2000, counts at Lower Granite Dam ranged between 75 and 1,000 fish.
- Returns in 2001-2003 are the first since 1973 to be above the criterion threshold. These returns are associated with aggressive hatchery supplementation and good ocean conditions.
- Recent redd counts in the Grande Ronde and Imnaha rivers have increased in conjunction with Lower Granite escapements.

## Productivity - Pass



- Productivity has exceeded 1.2 recruits per spawner in only five of the last 25 years despite consistently low parent abundance levels.
- Recent productivities of greater than 1.2 recruits per spawner coincide with good ocean conditions.

## Independence - Fail



- The independence criterion was exceeded in each of the last 21 years for the single Snake River population.
- Hatchery conservation programs are an important tool in attempts to preserve Snake River fall Chinook. Fish are released from a series of acclimation sites upstream from Lower Granite Dam.
- Hatchery fish have made up 47% of the natural spawning population since 1983.

## Additional Information

- Snake fall Chinook numbers are affected by, mixed stock fisheries, downstream and upstream passage mortality at eight Snake and Columbia river dams, as well as migration effects of flow and temperature changes related to hydropower system operation.