

## Summer Steelhead



Summer steelhead naturally occur in some coastal basins and most large Columbia River tributaries from Hood River upstream. They return from March through November, and spawn from January through April. Young steelhead rear for 1-4 years in freshwater and return to spawn after 1-3 years in the ocean. Oregon populations of summer steelhead typically average 6-10 pounds. Seven summer steelhead SMUs include a total of 29 populations. The upper Snake



population has been blocked by impassable dams and is extinct. The near term sustainability of both the Rogue and Snake SMUs is not at risk. Remaining populations are all either at risk or potentially at risk. The Klamath SMU has been blocked from a large part of its historical range but unknown numbers of fish still return to a few accessible tributaries.

# Coastal Summer Steelhead SMU

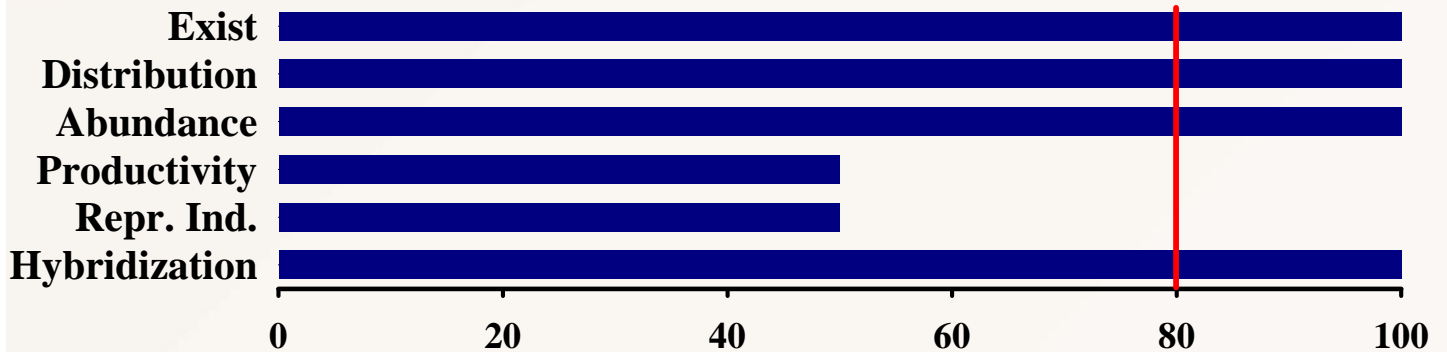
ESA Designation:  
*Candidate 1998*

State Status:  
*Vulnerable*

Interim Assessment:  
*Potentially At Risk*

This SMU includes the North Umpqua and Siletz populations. The lack of reproductive independence by the North Umpqua population and low productivity for the Siletz indicate the near-term sustainability of the SMU is potentially at risk. Roughly 20% of the spawners in the North Umpqua are hatchery fish. Productivity in the Siletz should improve in the future because ODFW has ceased passing hatchery steelhead onto the spawning grounds above Siletz Falls. 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



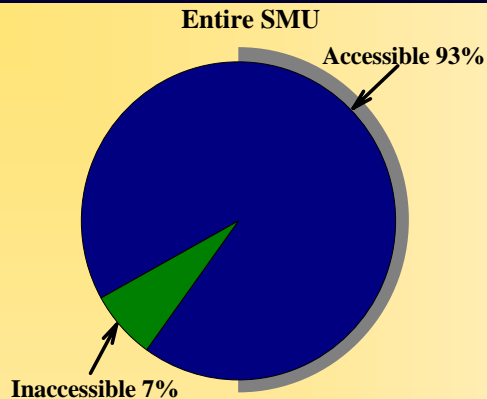
Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Siletz	Pass	Pass*	Pass	<i>Fail</i>	Pass	Pass
North Umpqua	Pass	Pass*	Pass	Pass	<i>Fail</i>	Pass

*\*Inferred*

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

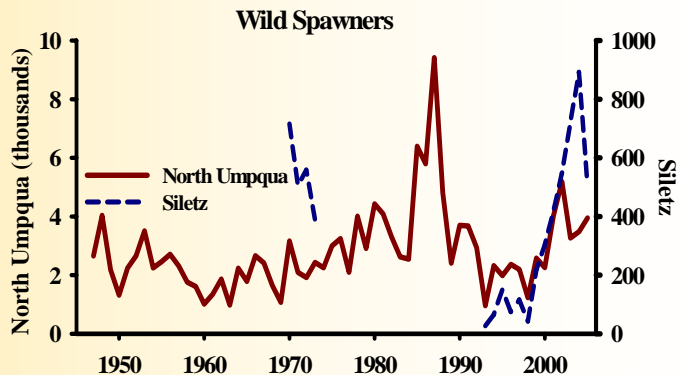


## Distribution – Pass



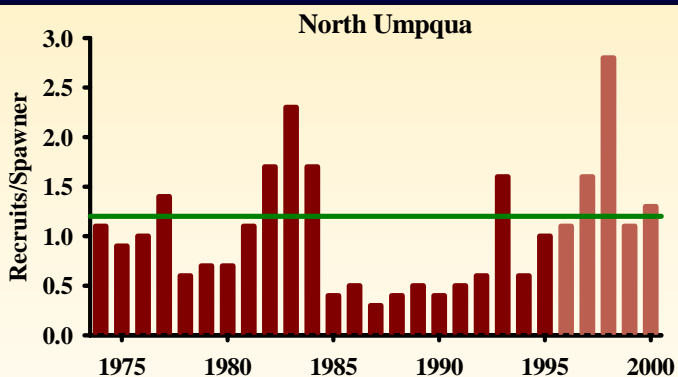
- 93% of the habitat used by spring Chinook in the past remains accessible.
- All of the habitat within the Siletz remains accessible, and 92% of the habitat within the North Umpqua can still be accessed.

## Abundance - Pass



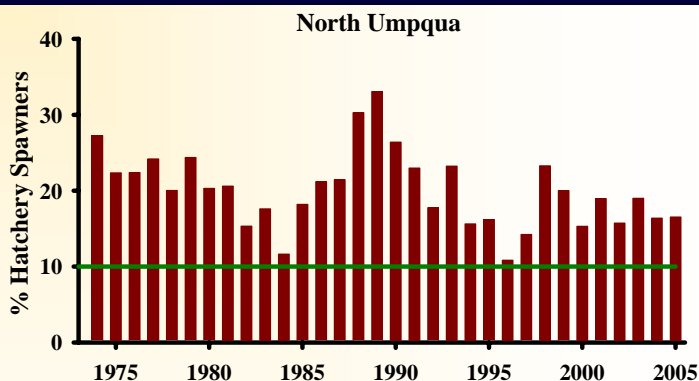
- Both populations exceeded the minimum abundance criterion in each of the last five years.
- Returns to the North Umpqua have been monitored at Winchester Dam since the 1946-47 run year and numbers have only twice fallen below the interim criterion of 849 spawners.
- Wild returns to the Siletz increased for six consecutive years prior to the 2004/2005 run year and have now rebounded to levels observed around 1970.

## Productivity - Fail



- The North Umpqua passed the productivity criterion, but the Siletz did not.
- Productivity in the North Umpqua has been greater than 1.2 in six of 11 years of low abundance including three of the last five.
- Productivity in the Siletz ranged from 0.1 to 1.1 recruits per spawner in the seven years where data were available. High numbers of hatchery spawners pushed abundance levels beyond the average wild abundance in each of those years raising the possibility of density dependence.

## Independence - Fail



- In the North Umpqua, hatchery fractions in natural spawning areas have been 10-35% since 1974.
- Many hatchery fish that spawn naturally in the North Umpqua do not spawn in the same areas as wild fish.
- Between 1992 and 1999, hatchery fish made up 72-97% of the spawning population in the Siletz.
- In the Siletz, adult steelhead are trapped at Siletz Falls, which is below the primary spawning grounds. Beginning in 2000, wild fish were selectively passed at Siletz Falls, and hatchery fish were either recycled downstream into the recreational fishery, or were removed from the system.

# Rogue Summer Steelhead SMU

ESA Designation:  
*Not Warranted 2001*

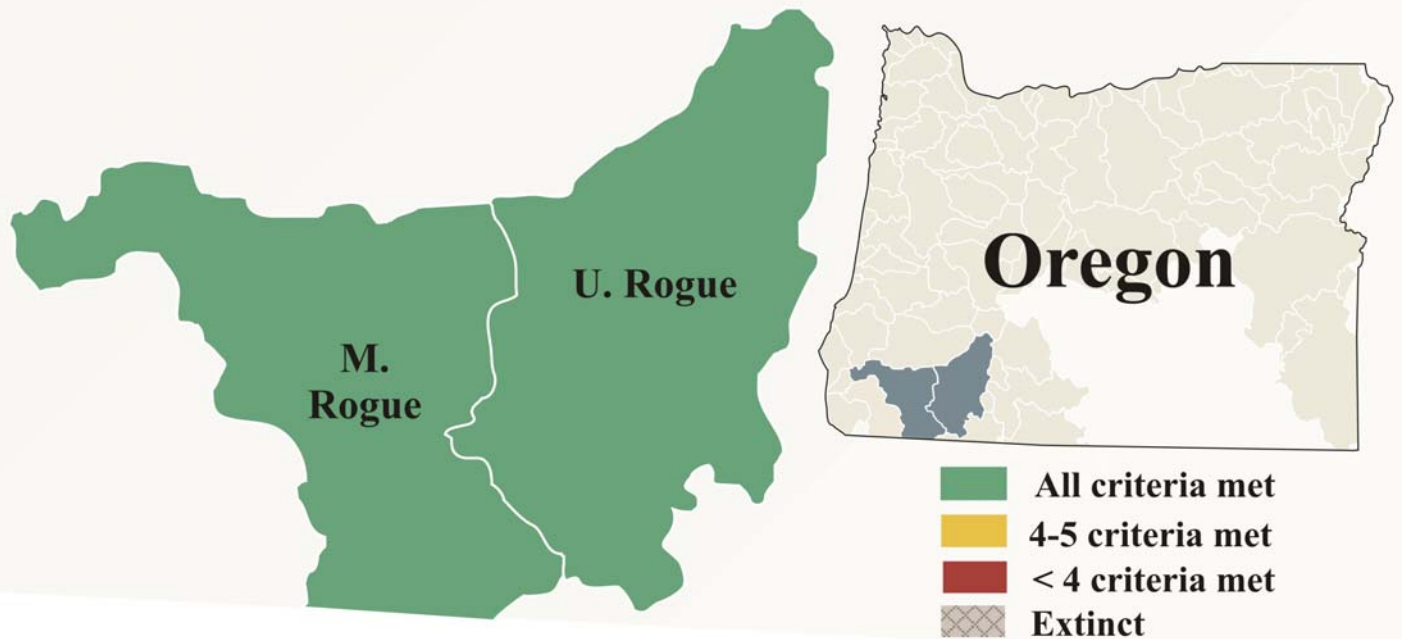
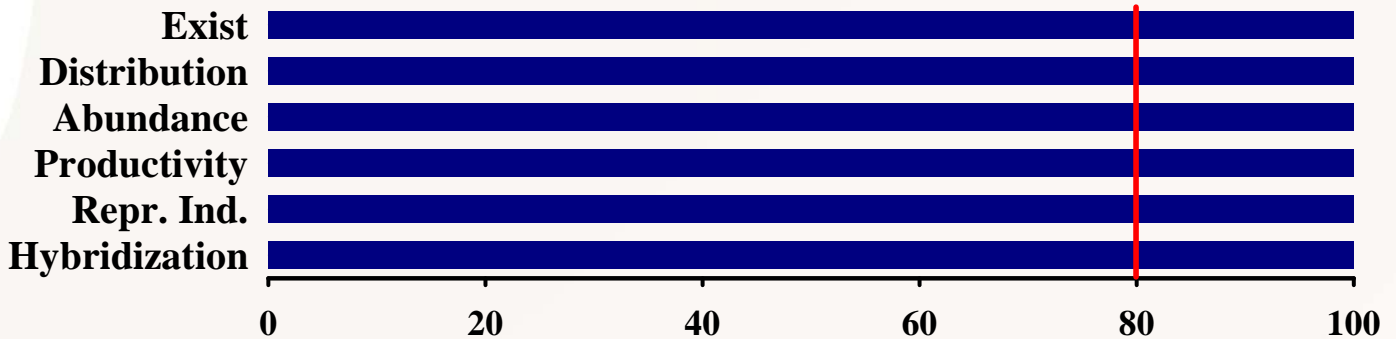
State Status:  
*Vulnerable*

Interim Assessment:  
*Not at Risk*

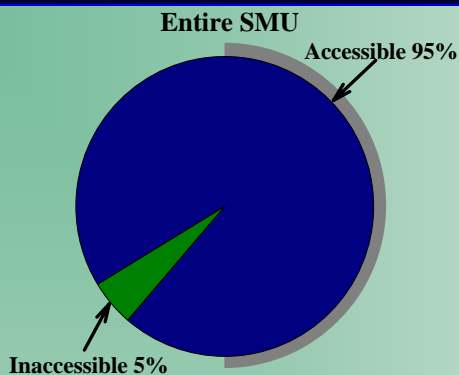
This SMU included Middle and Upper Rogue populations. Monitoring data for the Middle Rogue includes spawner surveys in Kane and Foots creeks. Abundance in the Upper Rogue is monitored by passage at Gold Ray Dam. The near-term sustainability of the SMU is not at risk because both populations met each of the interim criteria.

Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Middle Rogue	Pass	Pass *	Pass	Pass	Pass *	Pass
Upper Rogue	Pass	Pass *	Pass	Pass	Pass	Pass

Percent of Existing Populations Meeting Criteria

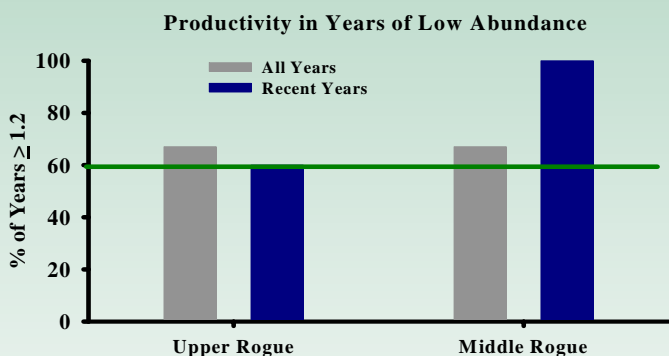


## Distribution – Pass



- Each of the two populations maintains access to at least 50% of their historical habitat. Frequent spawning escapements above full seeding ensure that most of the available habitat is in use.
- Construction of Lost Creek Dam and Applegate Dam eliminated 5% historical steelhead habitat for the population.

## Productivity - Pass

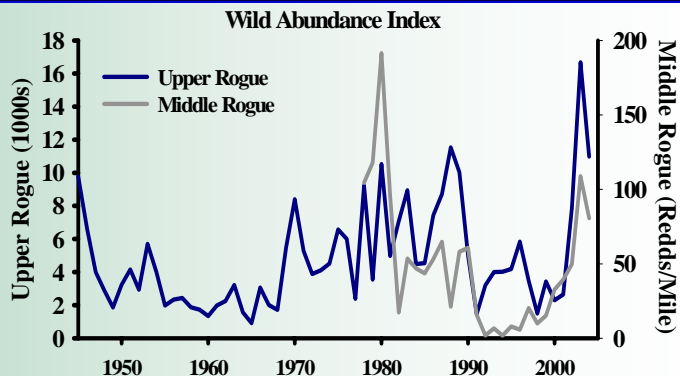


- Both populations exceeded 1.2 recruits per spawner in at least three of the last five years when returns were below the 30 year average.
- Both populations have shown productivity above the interim criterion in years of low abundance over the long term.
- The Middle Rogue has been above 2.0 recruits per spawner over the past eight years.

## Additional Information

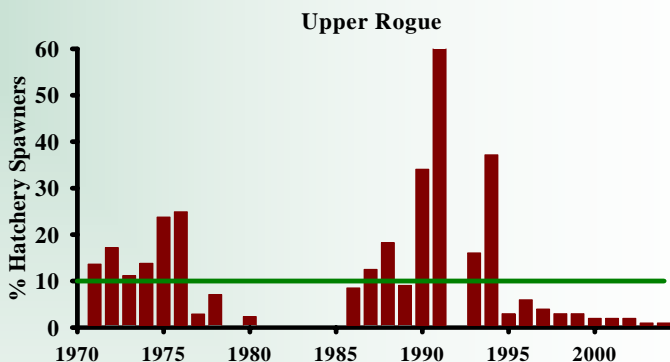
- The Rogue basin is home to a unique steelhead life history pattern involving a false spawning run known as “half-pounders.” These fish migrate to the ocean as smolts, return temporarily to freshwater, then go back to the ocean before returning again in subsequent years to spawn. Returns of “half-pounders” were not included in this assessment since they do not spawn upon initial return.

## Abundance - Pass



- Both populations passed the abundance criterion in each of the last five years.
- Returns to the Upper Rogue have been higher in the last 2 years than in any year since 1943.
- Returns to Kane and Foots Creek in the Middle Rogue have been steadily increasing since the early 1990s.

## Independence - Pass



- Hatchery fractions on the spawning grounds have been low for both populations over the past decade.
- For instance, hatchery fractions in the Upper Rogue escapement have been 7% or less since 1995.

# Lower Columbia Summer Steelhead SMU

ESA Designation:  
*Threatened 1998*

State Status:  
*Critical*

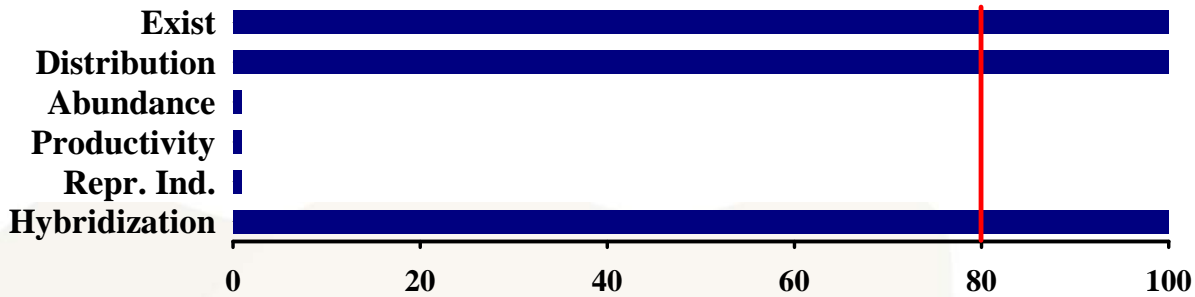
Interim Assessment:  
*At Risk*

This SMU consists of a single population in the Hood River. Hood River summer steelhead primarily inhabit the West Fork. The inherent habitat productivity in Hood River is limited by high gradient and glacial turbidity. The population met three of six criteria and its near term sustainability is at risk. Extensive and detailed data on populations throughout this SMU provide a high level of confidence in the assessment of interim criteria.

Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid.
Hood	Pass	Pass*	Fail	Fail*	Fail	Pass

\*Inferred

Percent of Populations Meeting Criteria



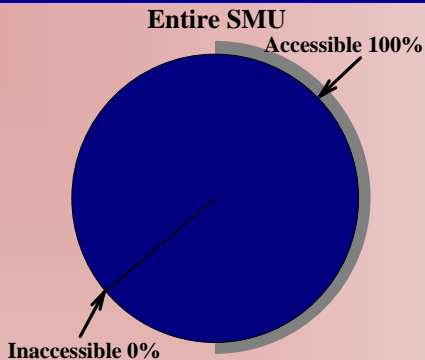
Hood



Oregon

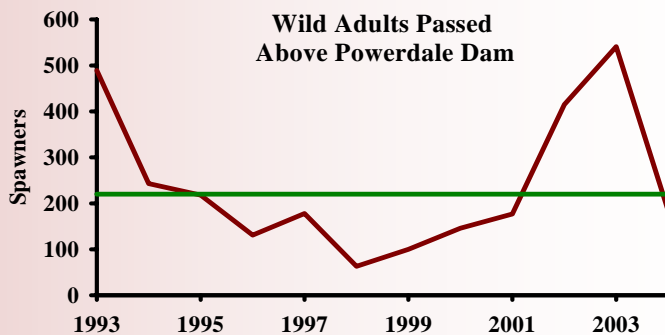
- All criteria met
- 4-5 criteria met
- < 4 criteria met
- Extinct

## Distribution – Pass



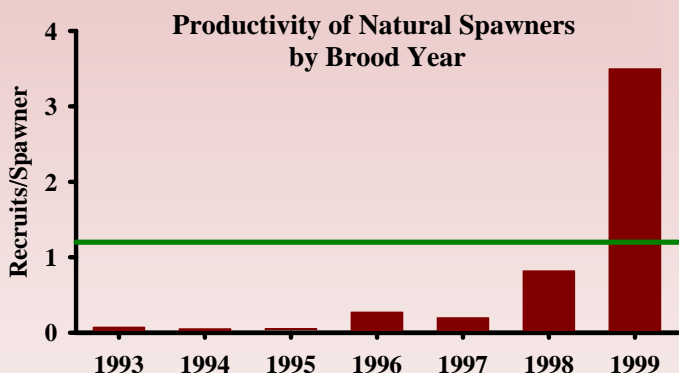
- All of the historical habitat in the Hood basin remains accessible today.
- Passage at Powerdale Dam in the lower mainstem Hood allows for continued access to the spawning grounds including the West Fork Hood River.

## Abundance - Fail



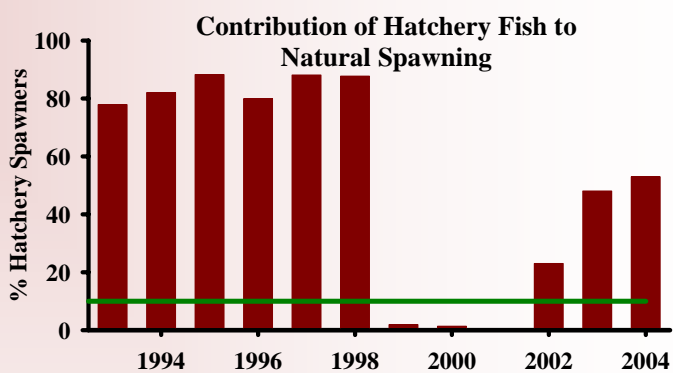
- The fish ladder at Powerdale Dam just upstream from the mouth of Hood River allows all returning adults to be identified and counted.
- Wild returns rose above the criterion threshold in 2002 and 2003, but fell below the criterion again in 2004.

## Productivity - Fail



- Productivity has been extremely low over the last seven broods, but has been greater the last four years.
- Productivity only once reached the productivity criterion of 1.2 recruits per spawner.

## Independence - Pass



- The Hood River summer steelhead hatchery program is integrated, meaning that wild fish are used to supplement broodstock, and hatchery fish are used to supplement natural spawning.
- Beginning in 1999 the number and origin of hatchery summer steelhead has been controlled by selectively passing fish at Powerdale Dam. Up to 50% of the summer steelhead passed above the dam may be hatchery fish.

## Additional Information

- The hatchery supplementation program underway in the Hood River includes significant monitoring to assess its effectiveness and to support adaptive management. The goal of the program is to rebuild the naturally-reproducing population while providing for a consumptive fishery.
- The Powerdale Dam has been scheduled for removal in 2010. Efforts will be made to establish a new monitoring site.
- Habitat conditions for steelhead are affected by irrigation withdrawals, logging in the upper watershed, and grazing and other agricultural practices in the lower watershed.



# Mid Columbia Summer Steelhead SMU

ESA Designation:  
**Threatened 1999**

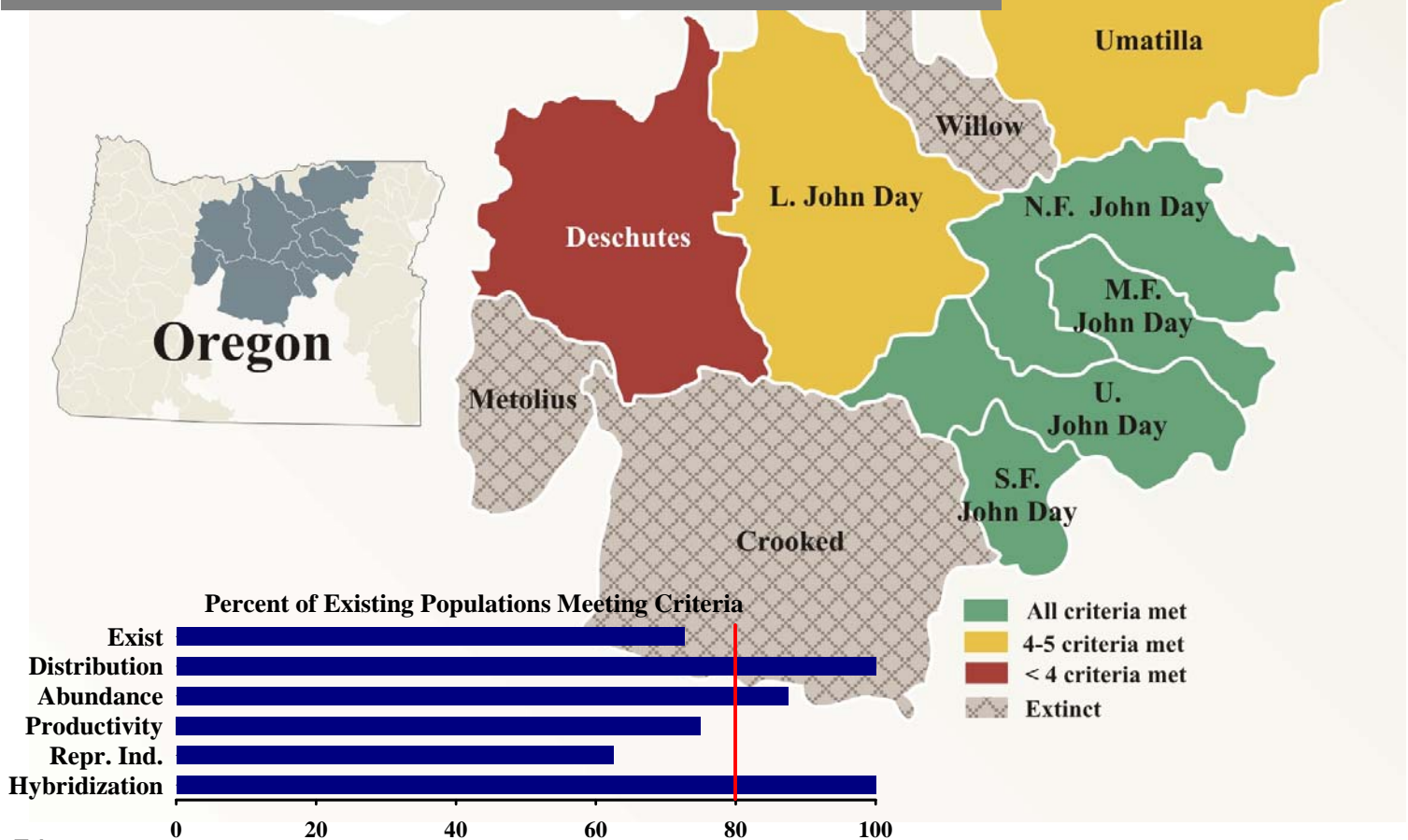
State Status:  
**Vulnerable**

Interim Assessment:  
**At Risk**

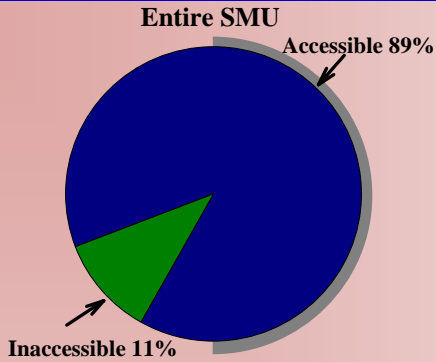
This SMU includes 11 historic populations in Columbia River tributaries between The Dalles Dam and the Snake River. The SMU only met three of the six interim criteria indicating the near-term sustainability is at risk. Four of the five John Day populations and the Walla Walla meet all of the five population-specific interim criteria. The Deschutes and Umatilla populations are constrained by variable productivity. The Deschutes, Lower John Day, and Umatilla are affected by naturally-spawning hatchery fish. Historical populations in the upper Deschutes and Willow Creek are extinct. 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
Deschutes	Pass	Pass*	Fail	Fail	Fail	Pass
Metolius	Fail		Extinct Population			
Crooked	Fail		Extinct Population			
Lower John Day	Pass	Pass*	Pass	Pass	Fail	Pass
North Fork John Day	Pass	Pass*	Pass	Pass	Pass	Pass
Middle Fork John Day	Pass	Pass*	Pass	Pass	Pass	Pass
South Fork John Day	Pass	Pass*	Pass	Pass	Pass	Pass
Upper John Day	Pass	Pass*	Pass	Pass	Pass	Pass
Willow	Fail		Extinct Population			
Umatilla	Pass	Pass*	Pass	Fail	Fail	Pass
Walla Walla	Pass	Pass*	Pass	Pass	Pass	Pass

\*Inferred from representative data

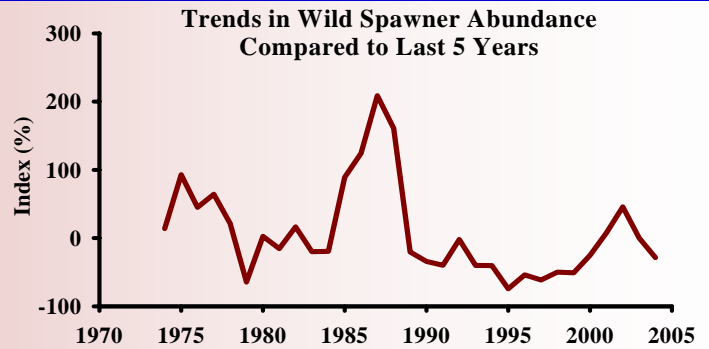


## Distribution – Pass



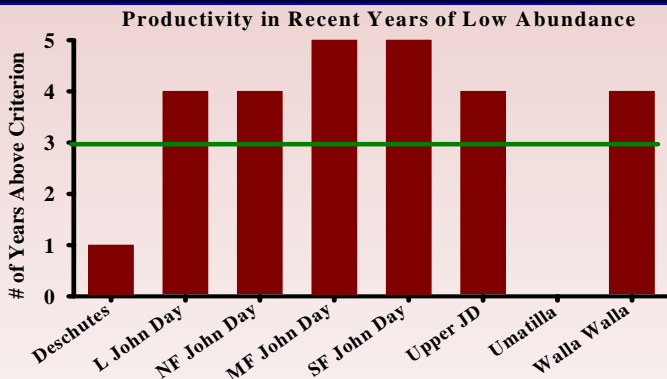
- Roughly 265 miles of habitat in the Metolius and Crooked rivers was blocked in 1958 by construction of the Pelton and Round Butte dams in the Deschutes.
- 99% of habitat within existing populations remains accessible.
- Each of the existing populations passed the criterion.

## Abundance– Pass



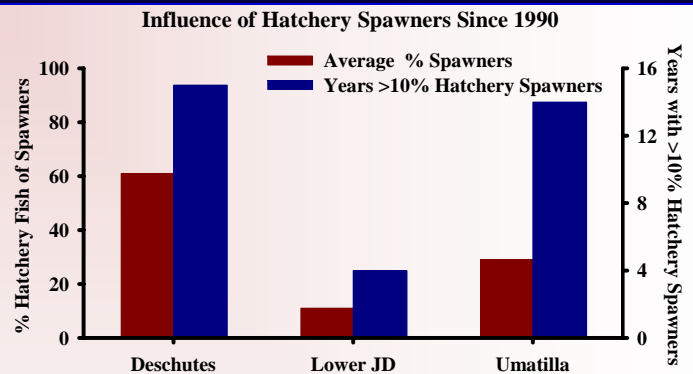
- Seven of the eight existing populations passed the criterion.
- Abundance has fluctuated since monitoring began but the long term trend has been slightly down. The graph above reflects relative changes in abundance relative to the last five years for all populations combined.
- Record low numbers were observed during the 1990s.
- Increased escapements in the late 1980s and early 2000s followed years of better-than-average ocean conditions.

## Productivity – Fail



- Only six of eight existing populations met the interim criterion.
- Productivity was consistently above the interim criterion from the late 1970s through the early 1980s.
- The mid 1980s to mid 1990s were a period of low productivity, but have been followed by three strong broods in the mid 1990s.

## Independence - Fail



- Only five of eight existing populations passed the criterion.
- The graph above includes only populations that failed the criterion.
- The Deschutes and Umatilla exceeded 10% naturally spawning hatchery fish each of the last five years.
- Very few hatchery fish are observed in the Walla Walla and in the John Day outside of the lower John Day.
- A hatchery supplementation program is currently operated in the Umatilla basin, incorporating wild broodstock into the hatchery and releasing hatchery fish into the wild.

## Additional Information

- Hatchery summer steelhead have comprised 60% of the spawners in the Deschutes population over the last four generations. This suggests that abundance has been driven by hatchery fish rather than wild fish. For this reason, the Deschutes failed the abundance criterion despite numbers of naturally produced fish above the criterion for the last five years.

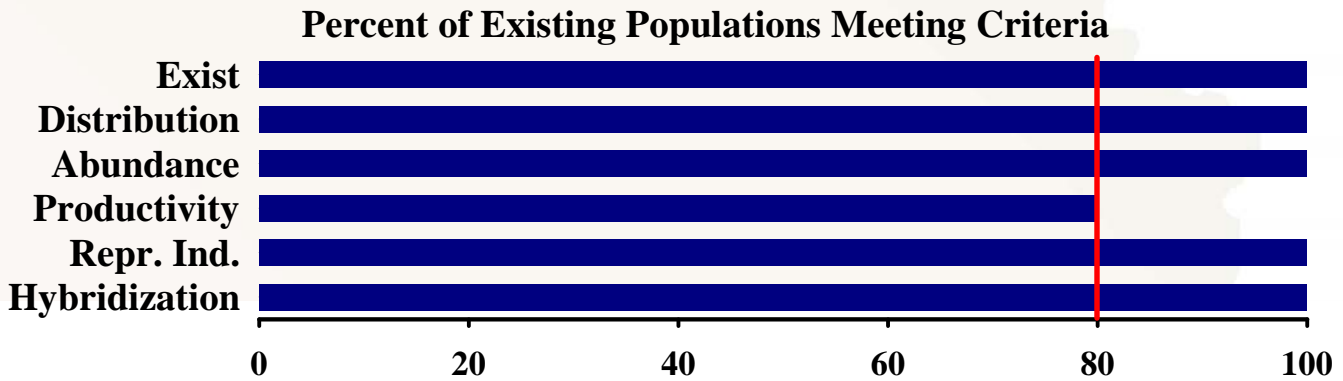
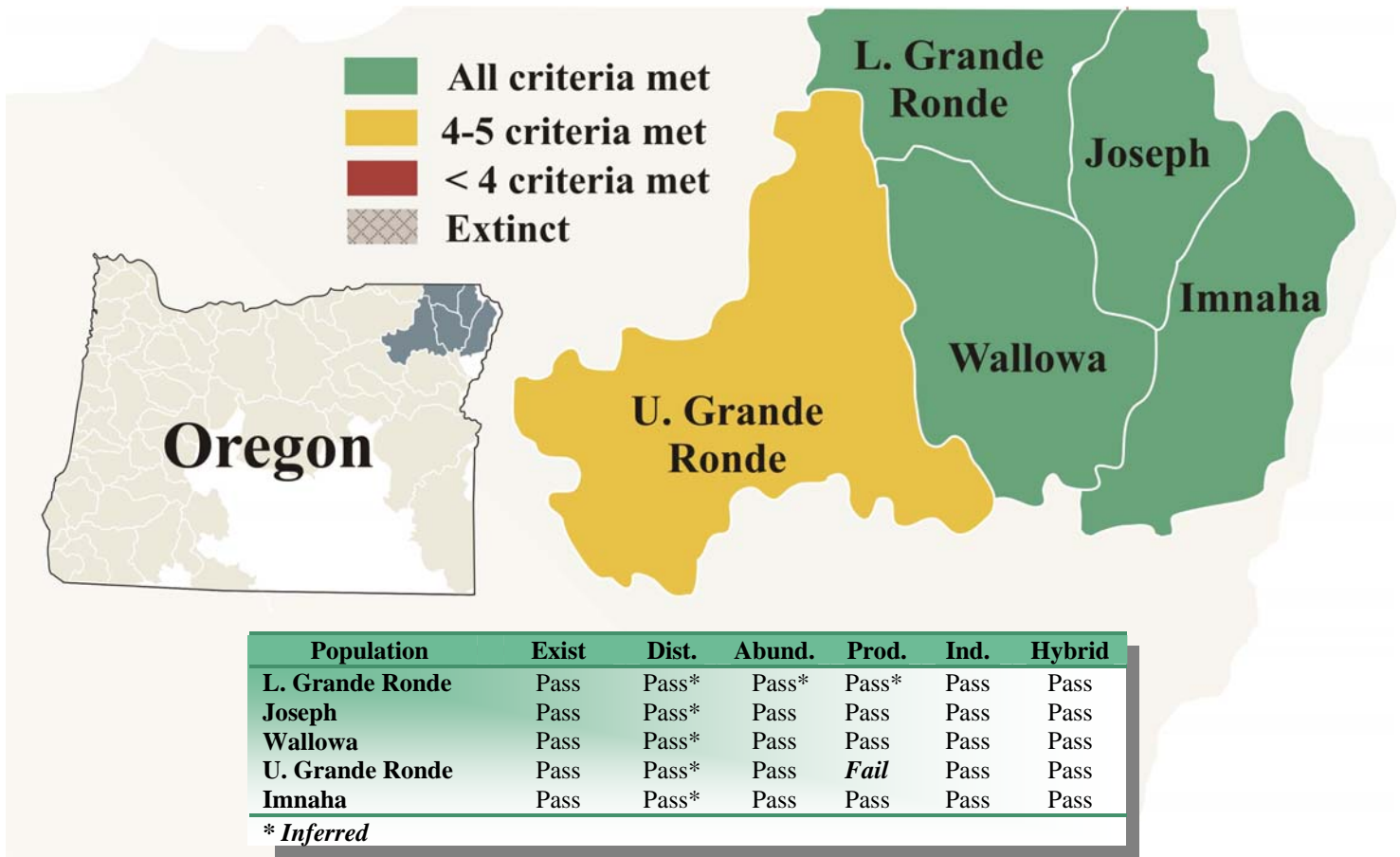
# Lower Snake Summer Steelhead SMU

**ESA Designation:**  
*Threatened 1997*

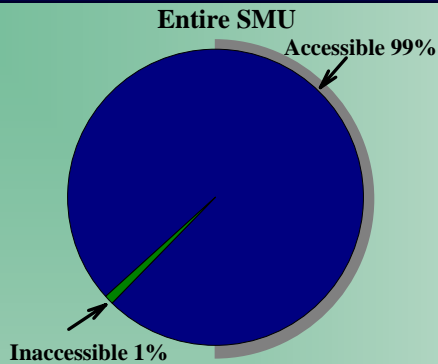
**State Status:**  
*Vulnerable*

**Interim Assessment:**  
*Not at Risk*

This SMU consists of five populations from tributaries flowing into the Snake River below Hells Canyon Dam. The SMU near-term sustainability of the SMU is not at risk because each of the six interim criteria were met by at least 80% of the populations. All of the populations with the exception of the Upper Grande Ronde passed all of the criteria. The Upper Grande Ronde population did not meet the productivity criterion. Suitable data and other information on populations in this SMU provide a moderate level of confidence in the assessment of the interim criteria.

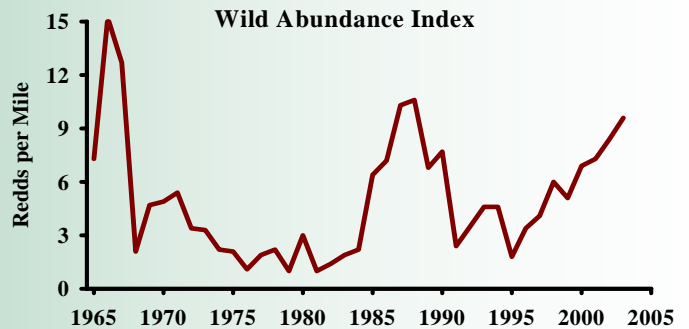


## Distribution - Pass



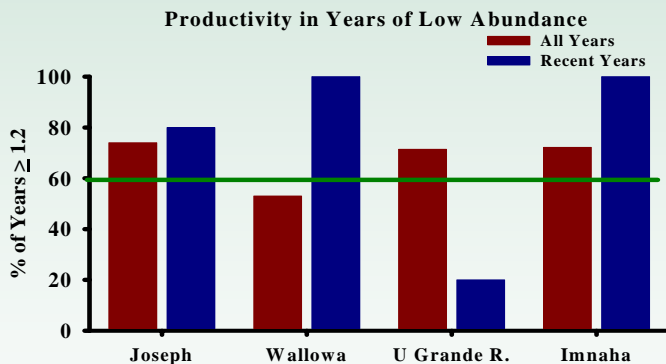
- Each of the five populations passed the distribution criterion.
- Nearly all (99%) of the historically-available habitat of this SMU is still available today. Much of the habitat however is degraded from pre-settlement conditions.

## Abundance – Pass



- Each of the populations passed the criterion.
- Beginning in the late 1960s, spawner abundance dropped sharply and remained depressed until the early 1980s. This decline is attributed to effects of lower Snake River dams and an extended period of poor ocean conditions.
- Populations rebounded in the mid-1980s only to fall again in the late 1980s and early 1990s, again reflecting changes in ocean conditions.
- Each of the populations exceeded the minimum criterion in all of the last five years, and in at least 80% of all years with abundance estimates. No data are available for the Lower Grande Ronde, but it was assumed to have performed similar to the Joseph population.

## Productivity - Pass



- Four of the five populations passed this criterion.
- In the upper Grande Ronde, low abundance years in the 70s and 80s are associated with high productivity. Resiliency was not as strong during low abundance years in the late 90s.
- All populations have shown similar resiliency in years of low abundance over time the long term.
- Resiliency in the Wallowa and Imnaha has been stronger in recent years than in the past. The opposite is true for the upper Grande Ronde.

## Independence - Pass

- Hatchery fish made up about 23% of natural spawners in the Upper Grande Ronde between 1988 and 2001, but have been less than 1% since 2002.
- Elimination of acclimated hatchery releases by ODFW in the Upper and Lower Grande Ronde populations has reduced the presence of hatchery fish on the spawning grounds in these populations the last few years.
- Less than 10% of spawning steelhead are hatchery origin in the Joseph and Wallowa populations.
- Hatchery fractions at monitoring weirs on the Imnaha have fluctuated between three and 14% hatchery fish over the past five years. Three of those years have been less than 10% hatchery fish.

# Upper Snake Summer Steelhead SMU

ESA Designation:  
*No Designation*

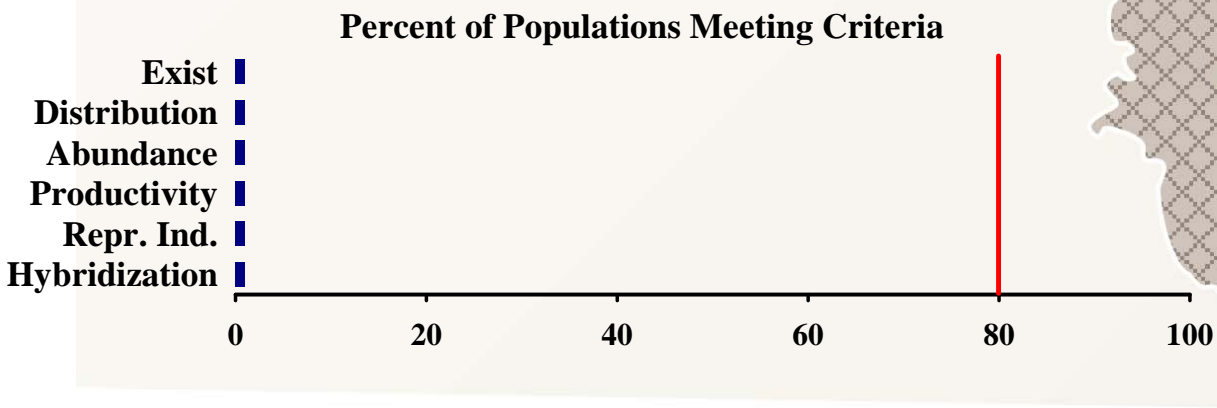
State Status:  
*No Status*

Interim Assessment:  
*Extinct*

Small irrigation dams and diversions had already reduced habitat quality in the first half of the 20<sup>th</sup> century. Passage to the Malheur basin was eliminated with the construction of Warm Springs Dam (1919) and Agency Dam (1935). All of the populations within this SMU became extinct after completion of the Hells Canyon Dam complex in 1967 eliminated anadromous passage. Resident and fluvial forms of redband trout persist in these basins.



Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Pine	Fail					Extinct Population
Eagle	Fail					Extinct Population
Powder	Fail					Extinct Population
Burnt	Fail					Extinct Population
Malheur	Fail					Extinct Population
Owyhee	Fail					Extinct Population



# Klamath Steelhead SMU

**ESA Designation:**  
*Not Warranted 2001*

**State Status:**  
*Not Listed*

**Interim Assessment:**  
*At Risk*

This SMU consists of two populations in the Klamath basin upstream of the Oregon/California border. The Klamath Mountains Province ESU, of which the Klamath Steelhead SMU is a part, was determined to be “not warranted” for listing under the Endangered Species Act in 2001. Construction of a series of three dams without passage between 1918 and 1962 effectively extirpated the Klamath Lake tributary population. Steelhead persist below Iron Gate Dam but only a very small portion of anadromous accessible waters within the basin extend into Oregon. A steelhead population may exist in Oregon in Upper Cottonwood Creek, a tributary to the Klamath below Iron Gate Dam. No data are available to assess the current status of this population. Electrofishing surveys in Cottonwood Creek, Cow Creek, and Long John Creek yielded *O. mykiss*, but no adult size trout suggesting these may have been juvenile steelhead. Additionally, a potential steelhead redd was observed in Cottonwood Creek by ODFW in 2003. The SMU fails the distribution criterion because access to a substantial portion of the historical habitat was eliminated by the Copco Dams and Iron Gate Dam. The near-term sustainability of the SMU is at risk because of the loss of one of the two populations, loss of substantial habitat for the other population, and indications from anecdotal information that the population is depressed. 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
Upper Klamath	Pass	<i>Fail</i>	--	--	--	Pass
Klamath Lake	<i>Fail</i>		<i>Extinct Population</i>			

Percent of Existing Populations Meeting Criteria

