

Stronghold Investment Partnerships

Science and Policy Considerations Guiding NASSP Steering Committee Action During 2008 To Advance Stronghold Partnership Concept

Purpose of this Document

The intent of this document is twofold: 1) to introduce the concept of the term “Stronghold Investment Partnership” as a replacement for the term “Endorsed Stronghold”, and 2) to document the scientific and policy considerations associated with the first nine Stronghold Investment Partnerships established during 2008.

Introduction

The Steering Committee formally “endorsed” nine river basins as Salmon Strongholds in 2008. The intent of that action was to acknowledge biological conditions reflected in salmon and steelhead populations coupled with stakeholder support for the Stronghold Partnership concept across Oregon, Washington, Idaho, and California. The Steering Committee considered scientific information, including but not limited to the status of anadromous fish in each basin, and also considered relevant policy issues specific to each basin (e.g. land ownership; conservation and partnering opportunities).

Stronghold Investment Partnerships (SIPs)

The term “*Endorsed Salmon Stronghold*” was used during 2008 to recognize nine basins where the Steering Committee acknowledged that a combination of science, local stakeholder support, and policy choices offered an opportunity to advance understanding and participation in the Stronghold Partnership. Each of the SIPs established in 2008 received relatively strong salmon-steelhead population ratings within ecoregions or Evolutionary Significant Units. From this point forward, the Steering Committee is likely to refer to these nine basins as *Stronghold Investment Partnerships*.

Has a Quota on the Number of Stronghold Investment Partnerships been established?

No. The steering Committee did not have a specific number of SIPs targeted in 2008 and has not indicated the number of basins that may also be eligible as SIPs in 2009 or successive years.

How Should the SIPs Established During 2008 be Characterized Now?

Collectively, the nine basins represent a biologically diverse, geographically dispersed portfolio that offers science and policy opportunities to the Stronghold Partnership’s Steering Committee, and opportunities to advance regional understanding and strategic investments to protect the strongest remaining salmon and steelhead populations in North America. A different set of basins could also have been engaged as Strategic Investment Partnerships.

What are the Conservation Needs in SIP Basins?

On-the-ground conservation work in each SIP basin will be guided by scientific analysis, project design, and stakeholder review. Comprehensive descriptions of limiting factors, threats, and conservation needs for each Stronghold have been or will be generated at the basin-level, with science and stakeholder participation.

Stronghold Investment Partnership Basins
Fast Facts

State	Basin	Salmon Species
Washington	Queets/Quinault	Sockeye, spring Chinook, fall Chinook, summer steelhead, winter steelhead, chum, coho
	Wenatchee	Sockeye, spring Chinook, summer Chinook, summer steelhead
Idaho	Lemhi	Spring Chinook, summer steelhead
Oregon	John Day	Spring Chinook, summer steelhead
	Sandy	Spring Chinook, Tule Chinook, winter Chinook, winter steelhead, chum, coho
	Siletz	Spring Chinook, fall Chinook, summer steelhead winter steelhead, chum, coho
	Elk	Fall Chinook, winter steelhead, coho
	Illinois	Fall Chinook, winter steelhead, coho
California	Smith	Fall Chinook, winter steelhead, coho

Queets River, Washington Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Spring Chinook	Yes	No	No	Queets run is viable. Clearwater run is critically depressed.
Fall Chinook	Yes	No	No	Some Cook Creek Quinault stock may stray, through
Summer Steelhead	No	No	No	
Winter Steelhead	Yes	No	No	
Chum	No	No	Yes	Composite. Suspect mixing with Quinault stock.
Coho	Yes	No	Yes	Composite. Supplemental. Includes Queets mainstem and tributaries of the Clearwater and Salmon Rivers.

Science Considerations

Salmon populations present	Spring Chinook, Fall Chinook, Summer Steelhead, Winter Steelhead, Chum, Coho
Strong salmon populations present	Spring Chinook, Fall Chinook, Winter Steelhead
Rare salmon species	N/A
Rare life history	N/A
Salmon species edge of range	N/A
Potential to expand strong salmon species range	N/A
Provides genetic connectivity, "species bridge"	Yes
Percentage of public/private ownership	85 percent public, Olympic National Park and Olympic National Forest; 3 percent private, mostly in lower basin; 11 percent tribal land.
High resilience to climate change	Likely

Policy Considerations

Location	Jefferson and Grays Harbor County, Washington
Ecoregion	Olympic Peninsula; coastal river basin
Request for endorsement	Quinault Indian Nation
Basin Liaison	Jim Sellers, Quinault Indian Nation
Tribal Entity	Quinault Indian Nation
Programmatic policy opportunities	Conservation incentives, easements, acquisitions on private lands are needed to restore and conserve crucial watershed function.

Limiting Factors in Basin:

- Loss of channel complexity in lower basin
- Sedimentation from roads and other human activities
- Erosion or isolation of historical oxbow and connected wetland habitats crucial to rearing juveniles

Quinault River, Washington Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Sockeye	No	No	No	The species historically numbered in the 300k range; recent runs may be in the 10k. This species is relatively rare south of Canada and Alaska. Therefore, restoration is extremely important to sustaining the species NOTE: Historically yes and apparently some are still supplemented.
Spring Chinook	No	No	No	Natural. Chronically depressed. An early component exists but is not differentiated by origin. (And, clipping is not universal).
Fall Chinook	No	No	Yes	Natural + integrated hatchery. Both the NFH and lake pen are used for rearing.
Summer Steelhead	No	No	No	Unknown status and distribution. Not monitored effectively.
Winter Steelhead	No	No	Yes	Segregated. There is an additional segregated lake pen rearing component. Natural origin.
Chum	No	No	Yes	Segregated. There is a natural component.
Coho	No	No	Yes	Segregated. There is a natural component.

Science Considerations

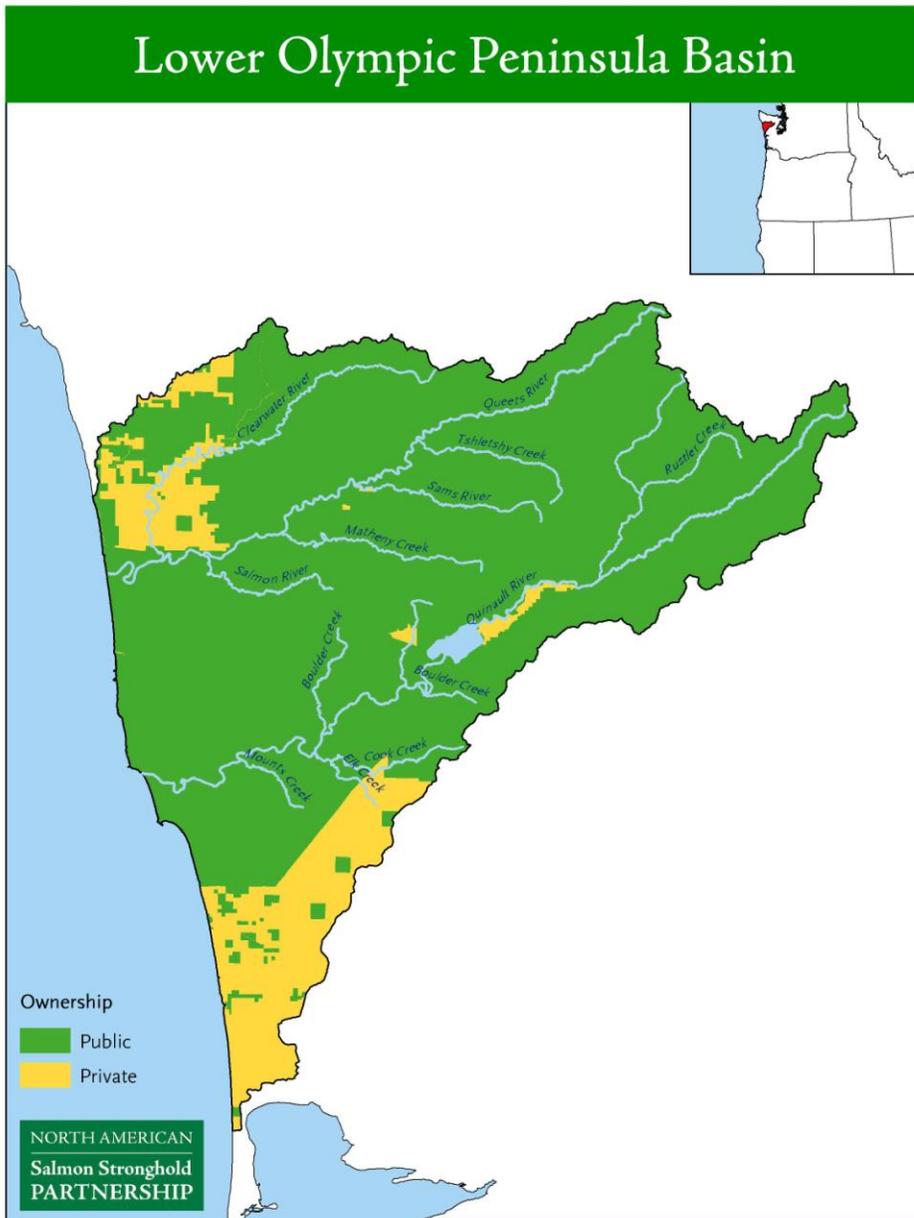
Salmon populations present	Sockeye, Spring/Fall Chinook, Summer/Winter steelhead, Chum, Coho
Strong salmon populations present	N/A
Rare salmon species	Sockeye
Rare life history	Sockeye
Salmon species edge of range	N/A
Potential to expand strong salmon species range	N/A
Provides genetic connectivity, “species bridge”	Quinault sockeye could be a seed source to support re-establishment to historical range and to expand to remnant populations
Percentage of public/private ownership	Principally private lands in lower Queets and Quinault basins and public in ownership in upper basins. Public ownership: Olympic National Park and Washington Dept. of Forestry
High resilience to climate change	Likely

Policy Considerations

Location	Jefferson and Grays Harbor, Washington
Ecoregion	Olympic Peninsula; coastal river basin
Request for endorsement	Quinault Indian Nation
Basin Liaison	Jim Sellers, Quinault Indian Nation
Tribal Entity	Quinault Indian Nation
Programmatic policy opportunities	Restoration of degraded sockeye spawning habitat and rearing capacity above lake Quinault represent significant scientific challenges and benefits

Limiting Factors in Basin

- Erosion, loss and degradation of channel complexity, islands, and floodplain springs and attached wetlands that formerly provided spawning and rearing habitat for Quinault sockeye
- Sedimentation from roads & other human activities
- Inadequate recruitment of large wood to tributary stream channels
- Degraded rearing habitat for juvenile sockeye in Lake Quinault: reduced shoreline shelter habitat for fry, increased turbidity, and reduced food productivity



Wenatchee River, Washington Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Sockeye	Yes	No	Yes	Among the strongest runs in Upper Columbia River Basin
Spring Chinook	No	Yes, Endangered	Yes	
Summer Chinook	Yes	No		
Summer Steelhead	No	Yes, Threatened	Yes	

Science Considerations

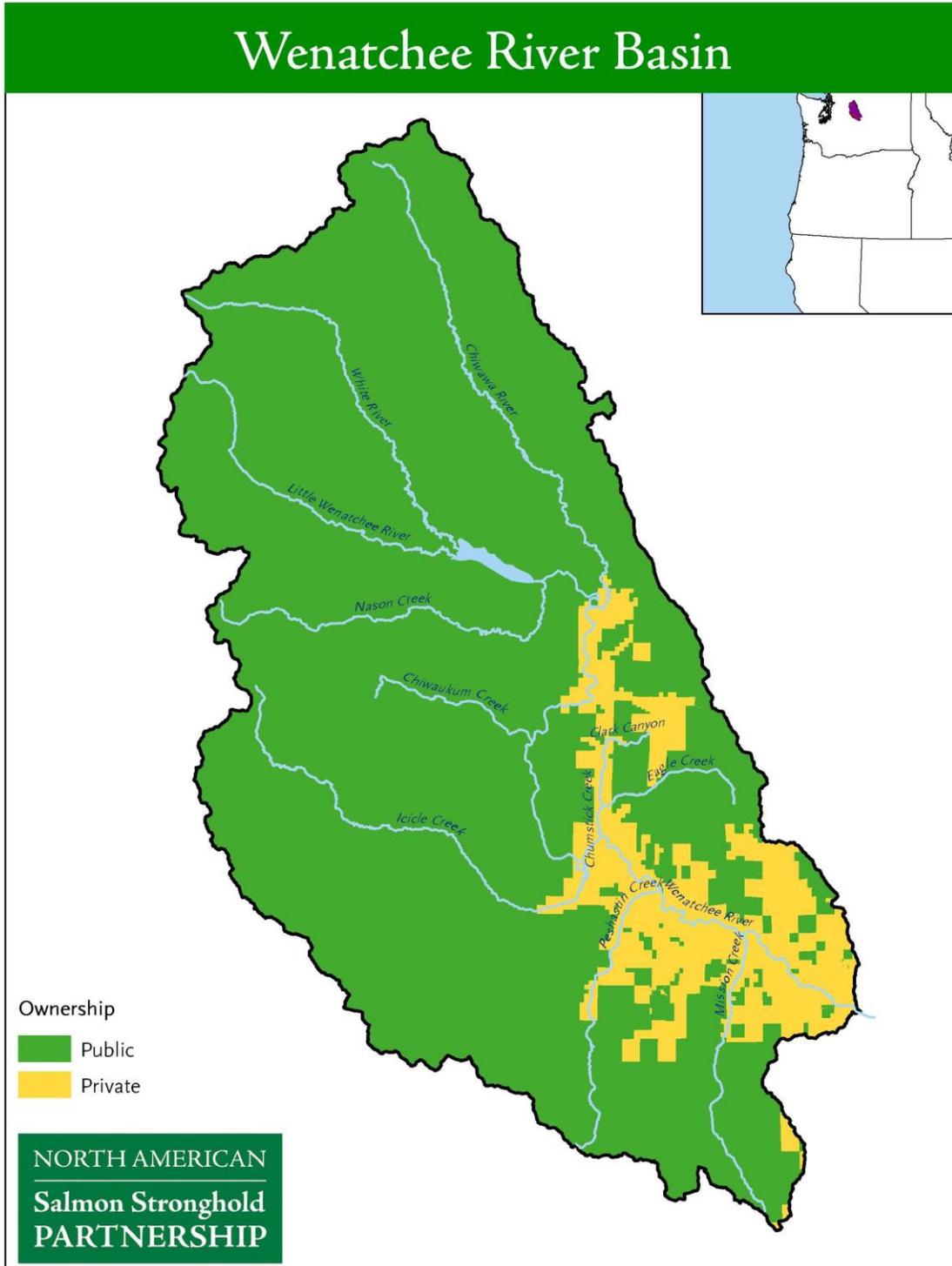
Salmon populations present	Sockeye, Spring/Summer Chinook, Summer Steelhead
Strong salmon populations present	N/A
Rare salmon species	Sockeye
Rare life history	Sockeye
Salmon species edge of range	N/A
Potential to expand strong salmon species range	Yes
Provides genetic connectivity, “species bridge”	Wenatchee sockeye could be a seed source to support reestablishment to historical range and to expand to remnant populations
Percentage of public/private ownership	88 percent public, mostly USFS land; 12 percent private
High resilience to climate change	Likely

Policy Considerations

Location	Chelan County, Washington
Ecoregion	Upper Columbia River Basin
Request for endorsement	The Wenatchee Watershed Planning Unit (29 member organizations comprised of state, federal, local and tribal governments, NGOs, private businesses and other local stakeholders) and Chelan County Lands Dialogue (10 member organization)
Basin Liaison	Mike Kaputa, Chelan County Natural Resource Department
Tribal Entity	Yakama Nation
Programmatic policy opportunities	The checkerboard pattern of private and public land in the Wenatchee River basin presents an opportunity for the Salmon Stronghold Partnership, in cooperation with local stakeholders, to explore geographically dispersed land exchanges. The intent of these land exchanges is to trade ecologically sensitive parcels of private lands for less sensitive parcels of U.S. Forest Service lands. These voluntary, cost-neutral exchanges will protect watershed function essential to salmon and steelhead populations and increase the county’s potential development and revenue opportunities —a win-win for public and private stakeholders

Limiting Factors in Basin:

- High water temperatures and low stream flows in summer months
- Loss of pools, refuges, and channel complexity
- Barriers to fish migration
- Sedimentation from roads and other human activity



**Lemhi River, Idaho
 Stronghold Investment Partnership**

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Spring Chinook	No	Yes, Threatened	Yes	Significant run of hatchery fish in basin; natural production likely augmented by hatchery fish spawning in basin; hatchery fish may be affecting any remaining wild populations.
Summer Steelhead	No	Yes, Threatened	Yes	

Science Considerations

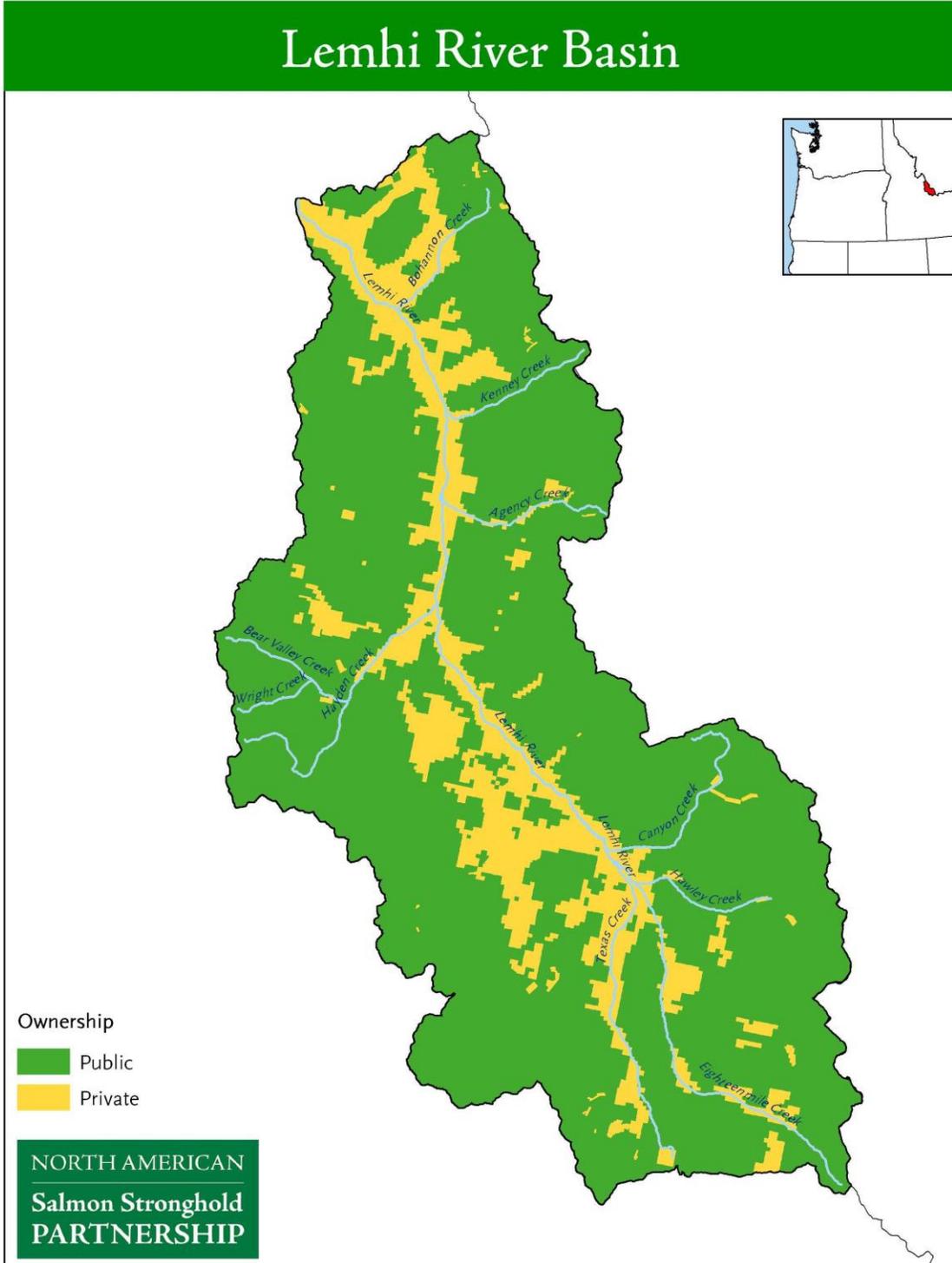
Salmon populations present	Spring Chinook, Summer Steelhead
Strong salmon populations present	N/A
Rare salmon species	Spring Chinook, Summer Steelhead
Rare life history	Spring Chinook, Summer Steelhead
Salmon species edge of range	Yes
Potential to expand strong salmon species range	Yes
Provides genetic connectivity, "species bridge"	Yes
Percentage of public/private ownership	N/A
High resilience to climate change	Likely

Policy Considerations

Location	Lemhi County, ID
Ecoregion	Columbia River Basin
Request for endorsement	N/A
Basin Liaison	Michael Edmondson, Idaho Office of Species Conservation
Tribal Entity	N/A
Programmatic policy opportunities	Develop voluntary, incentive-based solutions on private lands that will increase summer stream flow and reduce water temperatures in mainstem Lemhi and key tributaries. The underlying geology of the Lemhi basin is sedimentary with significant groundwater influence, which is not common in the region. Most of the land adjacent to the Lemhi is privately owned and traditional agricultural water use practices have reduced the productivity of the Lemhi for salmon and steelhead. The intrinsic productivity of this system can be restored through innovative implementation of irrigation efficiencies.

Limiting Factors in Basin

- Loss of channel complexity; road building, development of home sites, agricultural activities, forestry activities, and stream channelization has caused loss of braided channels, loss of pools and similar slow water habitats crucial to rearing juveniles
- Loss of large woody debris has contributed to simplification of main-stem and tributary channels, thereby reducing productive capacity of the system
- Elevated stream temperatures in main-stem and key tributaries during summer
- Extremely low summer stream flows in main-stem
- Dewatered segments of key rearing tributaries
- Barriers to fish migration
- Sedimentation from roads & other human activity



John Day River, Oregon Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Spring Chinook	Yes	No	Yes	
Summer Steelhead	Yes	Yes, Threatened	Yes	No hatchery summer steelheads are stocked in basin. However, stray hatchery fish are present in spawning areas.

Science Considerations

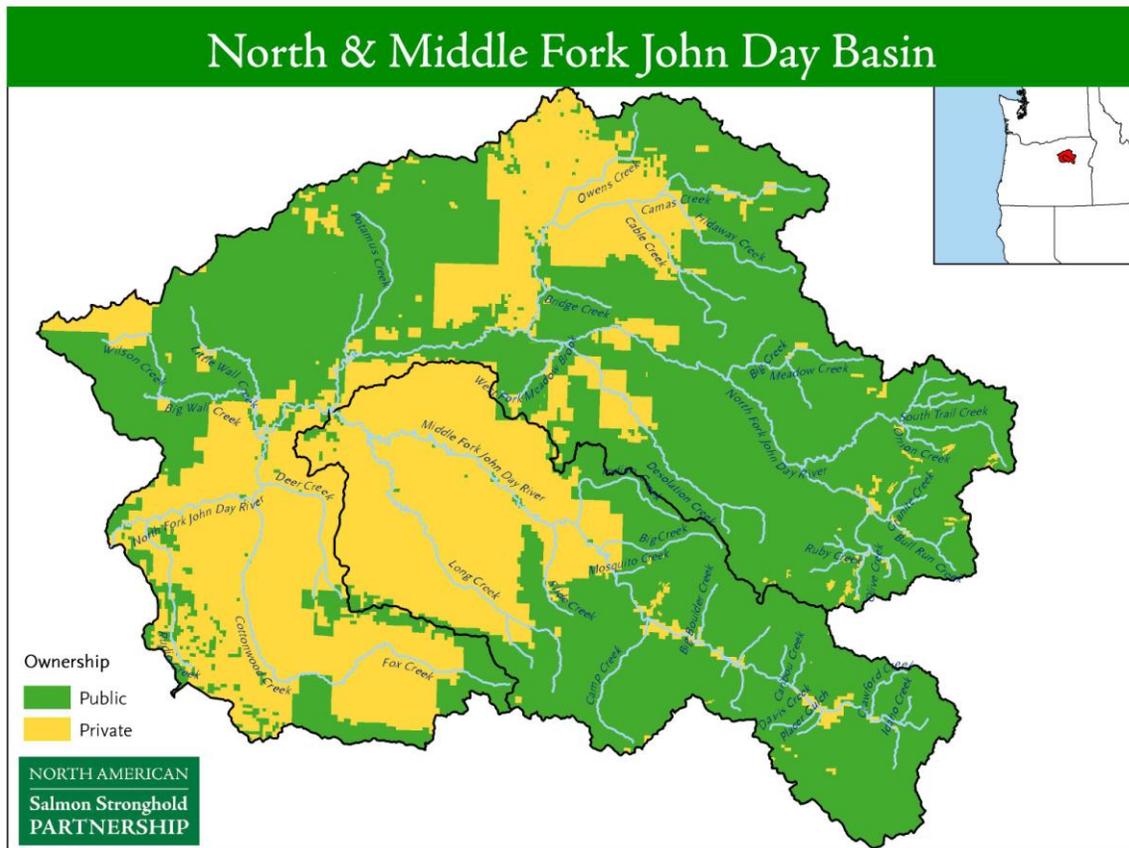
Salmon populations present	Spring Chinook, Summer Steelhead
Strong salmon populations present	Spring Chinook, Summer Steelhead
Rare salmon species	Spring Chinook, Summer Steelhead
Rare life history	N/A
Salmon species edge of range	N/A
Potential to expand strong salmon species range	Yes, Spring Chinook and Summer Steelhead
Provides genetic connectivity, "species bridge"	Populations could provide seed sources to expand to depressed populations in lower basin
Percentage of public/private ownership	63 percent public; 37 percent private
High resilience to climate change	Likely

Policy Considerations

Location	Gilliam, Wheeler, Grant County, Oregon
Ecoregion	Columbia River Basin
Request for endorsement	N/A
Basin Liaison	N/A (Brian Cochran, Gabe Williams and Paula Burgess?)
Tribal Entity	Confederated Tribes of the Warm Springs
Programmatic policy opportunities	A key tributary of the John Day River, Rock Creek historically produced strong populations of summer steelhead. Although current runs still make an important contribution to the only "very large" population of steelhead in the Columbia Basin, Rock Creek's population has declined considerably due to water withdrawals supporting nearby farms and ranches. In addition to impairing water quality, these diversions and withdrawals can block the migration of adult and juvenile steelhead and Chinook salmon. The North America Salmon Stronghold Partnership can provide funding to reduce or eliminate the impacts of these diversions, while offering financial incentives to local farmers who volunteer to improve irrigation efficiency.

Limiting Factors in Basin

- High water temperatures and low stream flows in late summer
- Loss of pools and channel complexity
- Barriers to fish migration
- Invasive weeds competing with native species
- Sedimentation from erosion



Sandy River, Oregon Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Tule Chinook	Yes	Threatened	No	
Spring Chinook	No	Threatened	Yes	
Winter Chinook	Not rated	No	No	Although this species/run timing was not rated, it is likely native, entirely wild , and in relatively good condition
Winter Steelhead	Yes	No	Yes	
Chum	Not rated	Threatened	No	Extremely small native run; possibly extirpated from basin; restricted to lower basin tributaries.
Coho	No	Threatened	Yes	

Science Considerations

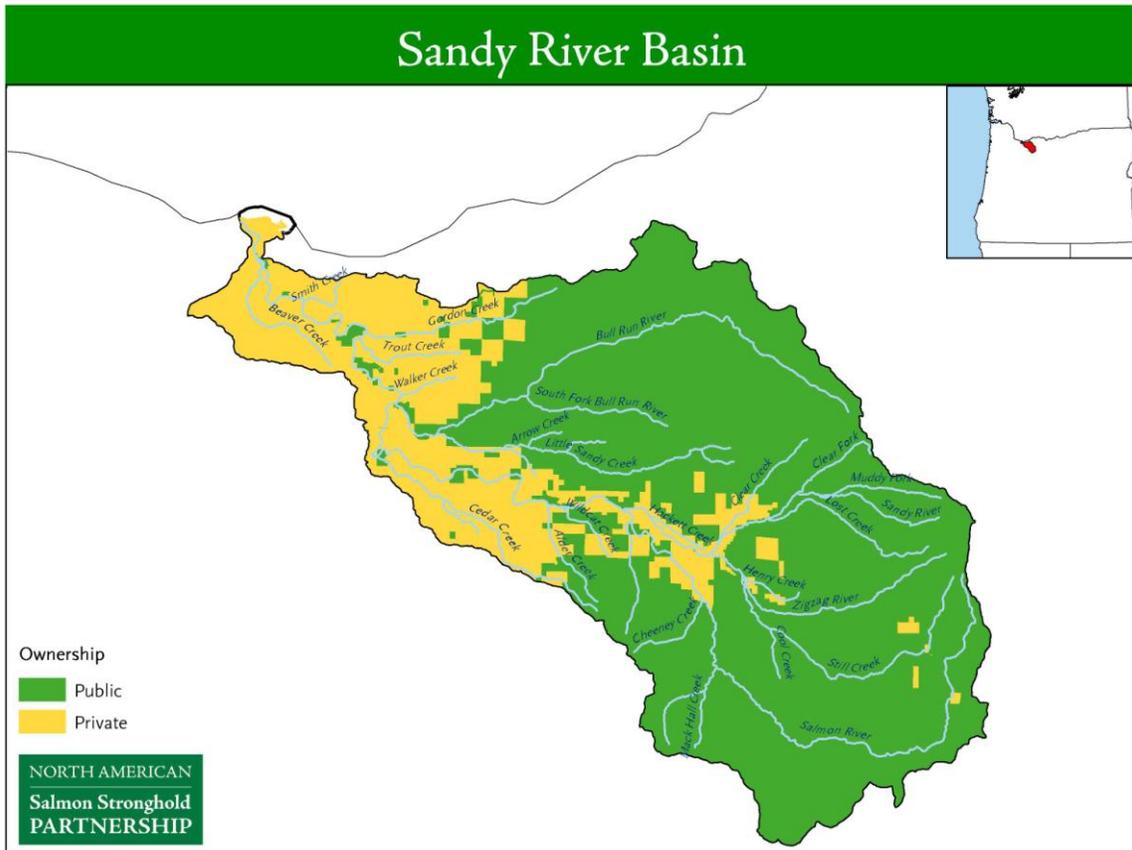
Salmon species present	Tule Chinook, Spring/Winter Chinook, Winter Steelhead, Chum, Coho
Strong salmon populations present	Tule Chinook, Winter Steelhead
Rare salmon species	Winter Chinook
Rare life history	Winter Chinook
Salmon species edge of range	N/A
Potential to expand strong salmon species range	N/A
Provides genetic connectivity, “species bridge”	Both Tule and winter Chinook could support seed stock to repopulate nearby river basins.
Percentage of public/private ownership	Principally private lands in lower 1/3 of basin; public lands in upper 2/3 of watershed. Significant private land ownership in riparian zone extending upriver into higher gradient portion of main stem and key tributaries.
High resilience to climate change	Likely

Policy Considerations

Location	Clackamas and Multnomah County, Oregon
Ecoregion	Columbia River basin, downstream from any main stem dams
Request for endorsement	Sandy River Partners, a cooperative organization composed of 18 federal, state, local government and NGO stakeholders.
Basin Liaison	Daniel Shively, USFS and Mark McCollister, The Freshwater Trust
Tribal Entity	N/A
Programmatic policy opportunities	Yes. The Sandy is a large basin; it is heavily influenced by snowmelt and rainfall from Mt. Hood, it is close to large urban population centers (Portland, Gresham, Sandy); has a Wilderness protected section; extensively developed urban home sites in some areas, and constraining roads. Promising investments include: conservation incentives, easements, & acquisitions on private lands; and estuary and wetlands restoration.

Limiting Factors in Basin

- Loss of pools & channel complexity due to road building, development of home sites, agricultural activities, forestry activities
- Simplification and degradation of the Sandy River delta at its confluence with the Columbia River
- Loss of large woody debris in main stem and tributary channels, thereby reducing productive capacity of the system
- Extirpation of native anadromous species in the Bull Run basin
- Barriers to fish migration
- Sedimentation from roads & other human activities



Siletz River, Oregon Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Spring Chinook	Yes	No	No	Although classified as strong, this race has declined significantly in recent years
Fall Chinook	Yes	No	Yes	Among strongest runs in mid-coast river basins
Summer Steelhead	Yes	No	Yes	Native summer steelhead and spring Chinook are reserved above Siletz falls; hatchery fish and other species are not passed over artificial fish ladder; many are blocked by this barrier
Winter Steelhead	No	No	Yes	
Chum	No	No	No	Very small native run; restricted in lower basin tributaries
Coho	Yes	Yes, Threatened	No	Historically abundant; habitat is currently more favorable to Chinook and steelhead

Science Considerations

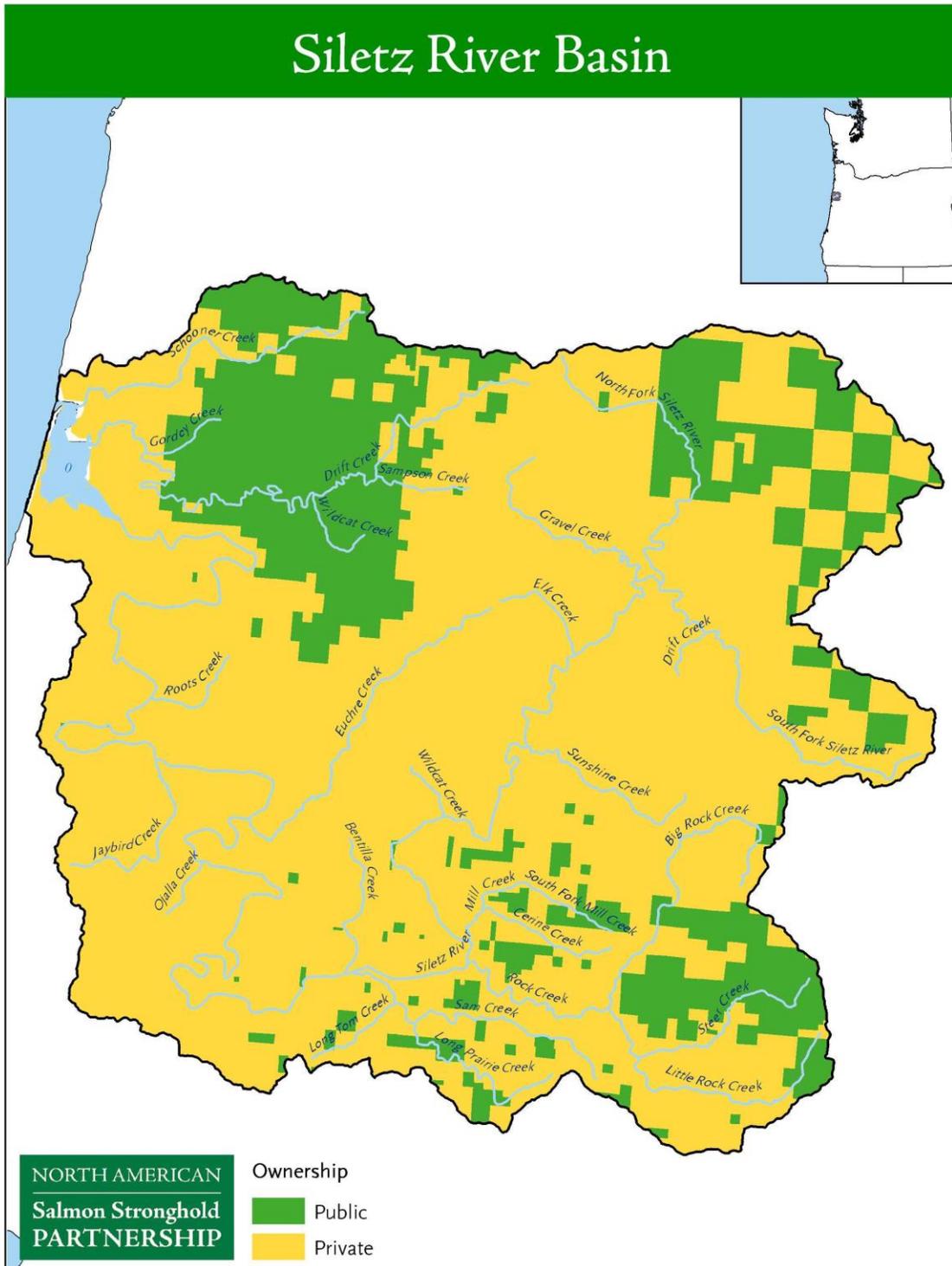
Salmon populations present	Spring/Fall Chinook, Summer/Winter Steelhead, Chum, Coho
Strong salmon populations present	Spring/Fall Chinook, Summer Steelhead, Coho
Rare salmon species	Spring Chinook, Summer Steelhead, Chum
Rare life history	N/A
Salmon species edge of range	Chum
Potential to expand strong salmon species range	Chum
Provides genetic connectivity, "species bridge"	Siletz chum could provide seed source and expand to depressed populations nearby
Percentage of public/private ownership	N/A
High resilience to climate change	Uncertain

Policy Considerations

Location	Lincoln County, Oregon
Ecoregion	Coastal-Mid OR
Request for endorsement	Confederated Tribes of Siletz Indians, Mid-Coast Watershed Council, Oregon Dept. of Fish & Wildlife, Audubon Society
Basin Liaison	Stan Van de Wetering, Confederated Tribes of Siletz Indians
Tribal Entity	Confederated Tribes of the Siletz Indians
Programmatic policy opportunities	Conservation incentives, easements, acquisitions on private lands, estuary and wetland restoration

Limiting Factors in Basin

- Loss of channel complexity due to road building, development, agricultural and forestry activities.
- Stream channelization has caused loss of braided channels, loss of pools and similar slow water habitats crucial to rearing juveniles
- Loss of large woody debris has contributed to simplification of mainstem and tributary channels
- Simplification and degradation of the Siletz River estuary
- Barriers to fish migration
- Sedimentation & erosion from human activities



**Elk River, Oregon
 Stronghold Investment Partnership**

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Fall Chinook	Yes	No	Yes	Among strongest runs in Southern Oregon coastal river basins
Winter Steelhead	Yes	No	No	Among strongest runs in Southern Oregon coastal river basins.
Coho	Yes	Threatened	No	Historically abundant in Elk River, habitat currently more favorable to fall Chinook and winter steelhead

Science Considerations

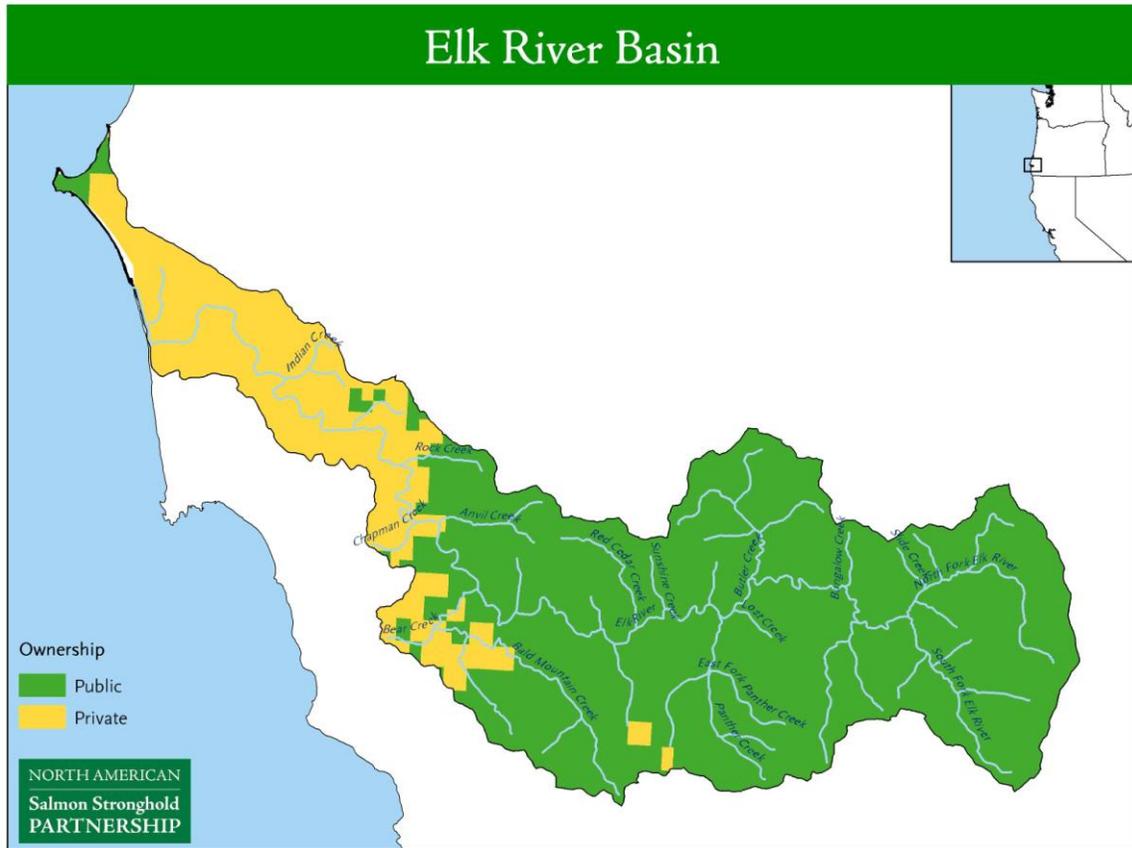
Salmon species present	Fall Chinook, Winter Steelhead, Coho
Strong salmon populations present	Fall Chinook, Winter Steelhead, Coho
Rare salmon species	N/A
Rare life history	N/A
Salmon species edge of range	N/A
Potential to expand strong salmon species range	N/A
Provides genetic connectivity, "species bridge"	Yes. Coho in Elk River could support expansion of depressed nearby populations
Percentage of public/private ownership	Principally private lands in lower basin. Principally federal lands in upper basin. Significant Wilderness designations (Copper Salmon, Grassy Knob)
High resilience to climate change?	Likely

Policy Considerations

Location	Curry County, Oregon
Ecoregion	Coastal river basin, southern-Oregon coast
Request for endorsement	South Coast Watershed Council (comprised of 7 local councils), Curry County Soil and Water Conservation District, City of Port Orford, Cape Blanco Challenge, Elk River Land Trusts, Friends of Elk River, ODFW and USFS
Basin Liaison	Harry Hoogesteger, South Coast Watershed Council
Tribal Entity	N/A
Programmatic policy opportunities	Significant protections exist in upper basin; the future productivity of the entire lower basin is threatened with development on private lands. Several families in lower basin own large land parcels; this situation could increase opportunities for securing conservation easements.

Limiting Factors in Basin

- Loss of pools and channel complexity due to road building, development of home sites, agricultural activities, forestry activities
- Loss of large woody debris in main stem and tributary channels, thereby reducing productive capacity of the system
- Simplification and degradation of the Elk River estuary
- Sedimentation from roads & other human activities
- Barriers to fish migration



Illinois River, Oregon Stronghold Investment Partnership

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Fall Chinook	No	No	No	Among strongest runs in Rogue River basin
Winter Steelhead	Yes	No	No	
Coho	Yes	Yes Threatened	No	Relatively strong runs into the Rogue basin; of here salmon/steelhead species present, coho are most adversely affected by historical habitat alterations in the Illinois

Science Considerations

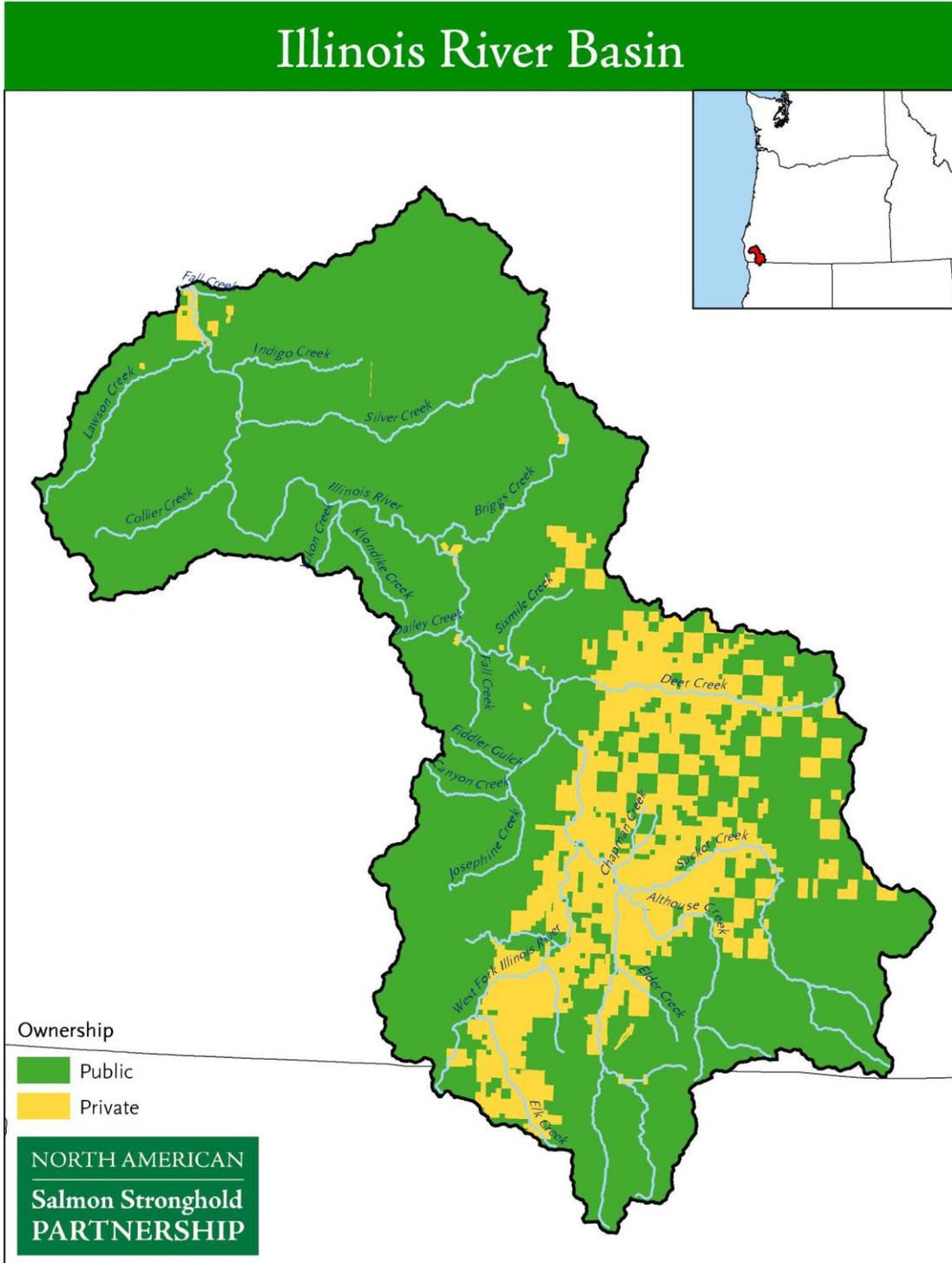
Salmon species present	Fall Chinook, Winter Steelhead, Coho
Strong salmon populations present	Fall Chinook, Winter Steelhead, Coho
Rare salmon species	Coho salmon are not rare in southern Oregon; however, Illinois Valley coho could possess relatively rare genetic traits (e.g., tolerance of warm summer temperatures, long migration distances, etc.
Rare life history	N/A
Salmon species edge of range	N/A
Potential to expand strong salmon species range	N/A
Provides genetic connectivity, "species bridge"	Coho and fall Chinook in Illinois River could support expansion to nearby depressed populations
Percentage of public/private ownership	Extensive areas of private lands in low-gradient, middle elevation of the basin. Principally public lands in lowermost and uppermost portion of basin. Illinois River Wilderness designation provides significant protections.
High resilience to climate change	Likely

Policy Considerations

Location	Josephine County, Oregon
Ecoregion	Tributary to the Rogue River, southern Oregon Coast
Request for endorsement	Illinois Valley Soil & Water Conservation District, Illinois Valley Watershed Council, USFS, TNC, BLM, Trout Unlimited, ODFW, Siskiyou Project, Pacific Rivers Council, Southern Oregon Fly Fishers, American Fisheries Society
Basin Liaison	Kevin O-Brien, Illinois Valley Watershed Council and Soil & Water Conservation District
Tribal Entity	N/A
Programmatic policy opportunities	Checkerboard land ownership patterns complicate conservation efforts. Water use and historical land use activities have degraded productivity of system. Historical and contemporary land use practices on private lands in sensitive, low gradient spawning and rearing areas merit urgent attention to conserve the productive capacity of this stronghold

Limiting Factors in Basin:

- Loss of pools and channel complexity due to road building, development of home sites, agricultural activities, forestry activities
- Loss of large woody debris in main stem and tributary channels, thereby reducing productive capacity of the system
- Elevated stream temperatures in main stem and key tributaries during summer
- Extremely low summer stream flows in main stem
- Dewatered segments of key rearing tributaries
- Barriers to fish migration
- Sedimentation from roads & other human activities



**Smith River, California
 Stronghold Investment Partnership**

Biological Context

Species	Classified strong?	ESA listed?	Hatchery fish released?	Remarks
Fall Chinook	No (Failed to meet criteria by one point)	No	Yes	Among strongest runs in the state
Winter Steelhead	Yes	No	Yes	Among strongest runs in northern California river basins
Coho	Yes	Yes, threatened	No	

Science Considerations

Salmon populations present	Fall Chinook, Winter Steelhead, Coho
Strong salmon populations present	Winter Steelhead, Coho
Rare salmon species	N/A
Rare life history	N/A
Salmon species edge of range	N/A
Potential to expand strong salmon species range	Coho
Provides genetic connectivity, "species bridge"	Coho population could provide seed sources to expand to depressed coastal populations
Percentage of public/private ownership	94% Public lands
High resilience to climate change	Likely

Policy Considerations

Location	Del Norte County, California
Ecoregion	Northern California Coast-Klamath/Siskiyou Region
Request for endorsement	N/A
Basin Liaison	Jim Waldvogel & Zack Larson, Smith River Advisory Council; Tom Weseloh, Cal Trout
Tribal Entity	N/A
Programmatic policy opportunities	Conservation incentives, easements, acquisitions on private lands, estuary and wetland restoration

Limiting Factors in Basin

- Loss of pools, refuges and channel complexity
- Barriers to fish migration
- Sedimentation from roads and other human activity
- Degradation and simplification of the Smith River estuary and salt marsh wetlands
- Toxic waste from legacy mines

