Snake River Basin Hatchery Management Strategies

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National Marine Fisheries Service

Concepts

- Maintain existing programs for mitigation, treaty trust and sustainable fisheries
- Contain the risks of hatchery programs
- Preserve options for recovery
- Gather information on wild/natural fish
- Monitor and evaluate hatchery effects
- Set the stage for adaptive management in recovery actions

Benefit : Risk Analysis for Hatcheries

- Benefits:
  - Increase abundance of target population
  - Provide fish for harvest and conservation
  - Preserve genetic heritage, avoid extinction
  - Restore listed population to native habitat
- Risks:
  - Genetic effects including inbreeding, loss of variability, accumulation of mutations
  - Cultural risks including domestication and catastrophic loss in hatcheries
  - Ecological risks including predation, competition, disease

Intervention = Risk

- The intensity of intervention is based on the level of risk we are willing to take with a population
- We are unwilling to take risk with populations that are resilient, have good habitat, and remain intact.
- We will take more risk with populations that are reduced, have lower quality habitat, or history of artificial propagation.

HATCHERIES

Conventional

- Maximize in-hatchery survival
- Maximize smolt numbers

Harvest

- Max adults
- Max post-release survival
- Min effects on natural production and watersheds

Conservation

- Increase natural production
- Maintain nat. productivity

Refuge

- Interim genetic repository

THEN & NOW

Snake River Basin Anadromous Mitigation Hatcheries – First group

- Rapid River (IPC) – 1964
- Pahsimeroi (IPC) – 1966
- Dworshak (USACE) - 1969

Snake River Basin Anadromous Mitigation Hatcheries – LSRCP

- McCall – 1980
- Lookingglass - 1982
- Sawtooth – 1985
- Tucannon 1985
- Lyons Ferry – 1985
- Wallowa – 1985
- Irrigon – 1985
- Dworshak chinook – 1985
- Hagerman National - 1987
- Magic Valley – 1987
- Clearwater – 1991

Nez Perce Tribal Facilities

- FCAP ponds – 1997
- Johnson Creek Enhancement - 1997
- Sweetwater Springs Hatchery – 1997
- Nez Perce Tribal Hatchery – 2002
- North Lapwai Valley – 2003
- Lolo, Newsome Creek traps - 2002
- Northeast Oregon 2005?

Snake River Basin Hatchery Facilities

IDFG/LSRCP
1. Clearwater Fish Hatchery (FH)
3. Powell Satellite Facility (SF)
4. Crooked River SF
5. Red River SF
6. McCall FH
7. S. Fork Salmon River SF
8. Sawtooth FH
9. E. Fork Salmon River SF
11. Magic Valley FH

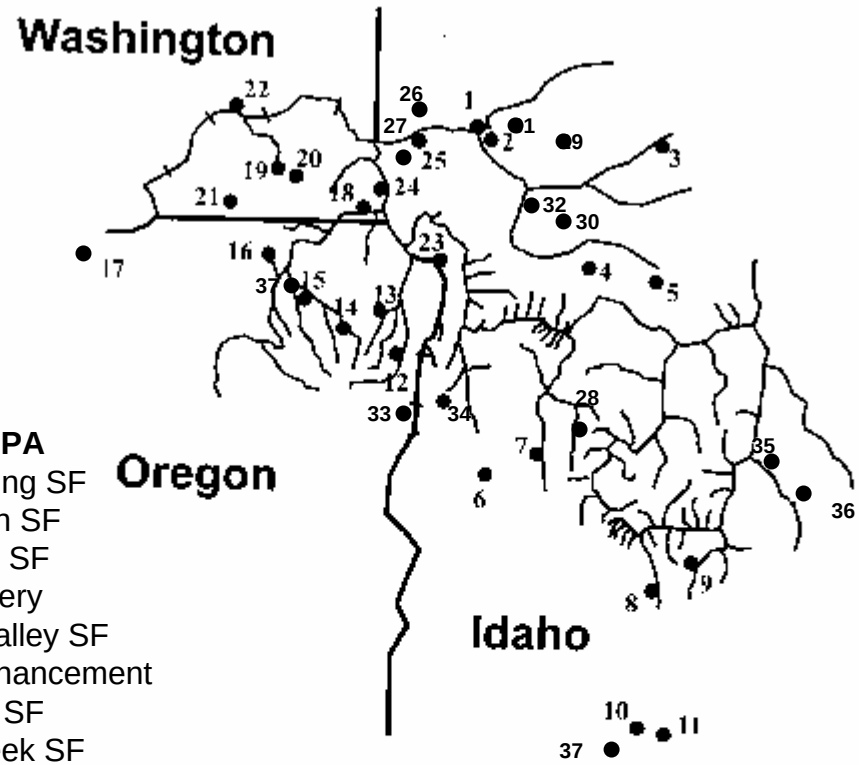
ODFW/LSRCP
12. Imnaha SF
13. Little Sheep Creek SF
14. Wallowa FH/SF
15. Big Canyon SF
16. Lookingglass FH
17. Irrigon FH

WDFW/LSRCP
18. Cottonwood Creek SF
19. Tucannon FH/SF
20. Curl Lake SF
21. Dayton Pond SF
22. Lyons Ferry FH

NPT/LSRCP-BPA
23 Pittsburg Landing SF
24. Captain John SF
25. Big Canyon SF
26. NPT Hatchery
27. North Lapwai Valley SF
28. Johnson Creek Enhancement
29. Lolo Creek SF
30. Newsome Creek SF
37. Northeast Oregon-Lostine FH

USFWS
2. Dworshak FH Chinook (ACE)
10. Hagerman National FH (LSRCP)
31. Dworshak Steelhead (LSRCP)
32. Kooskia NFH (FWS)

IDFG/IPC
33. Oxbow FH
34. Rapid River FH
35. Pahsimeroi Steelhead FH
36. Pahsimeroi Chinook FH
37. Niagara Springs FH



Snake River Basin Hatchery Production

- Spring Chinook – 10 Million
- Summer Chinook - 2 Million
- Fall Chinook - 5 Million
- Summer steelhead - 10 Million
  - Total Annual Production - 27 million

(plus a few hundred thousand coho and sockeye)

Snake River Salmon Runs 5-year Average

• Total Steelhead	196,768
• Total Chinook, counting jacks	94,971
– Adult springs	70,942
– Adult summers	11,847
– Adult falls	8,014

Average total Return 1999-2003 is 292,000 anadromous salmon and steelhead over Lower Granite Dam

Chinook runs are 70-80% hatchery origin, Steelhead runs are 80-90% hatchery origin

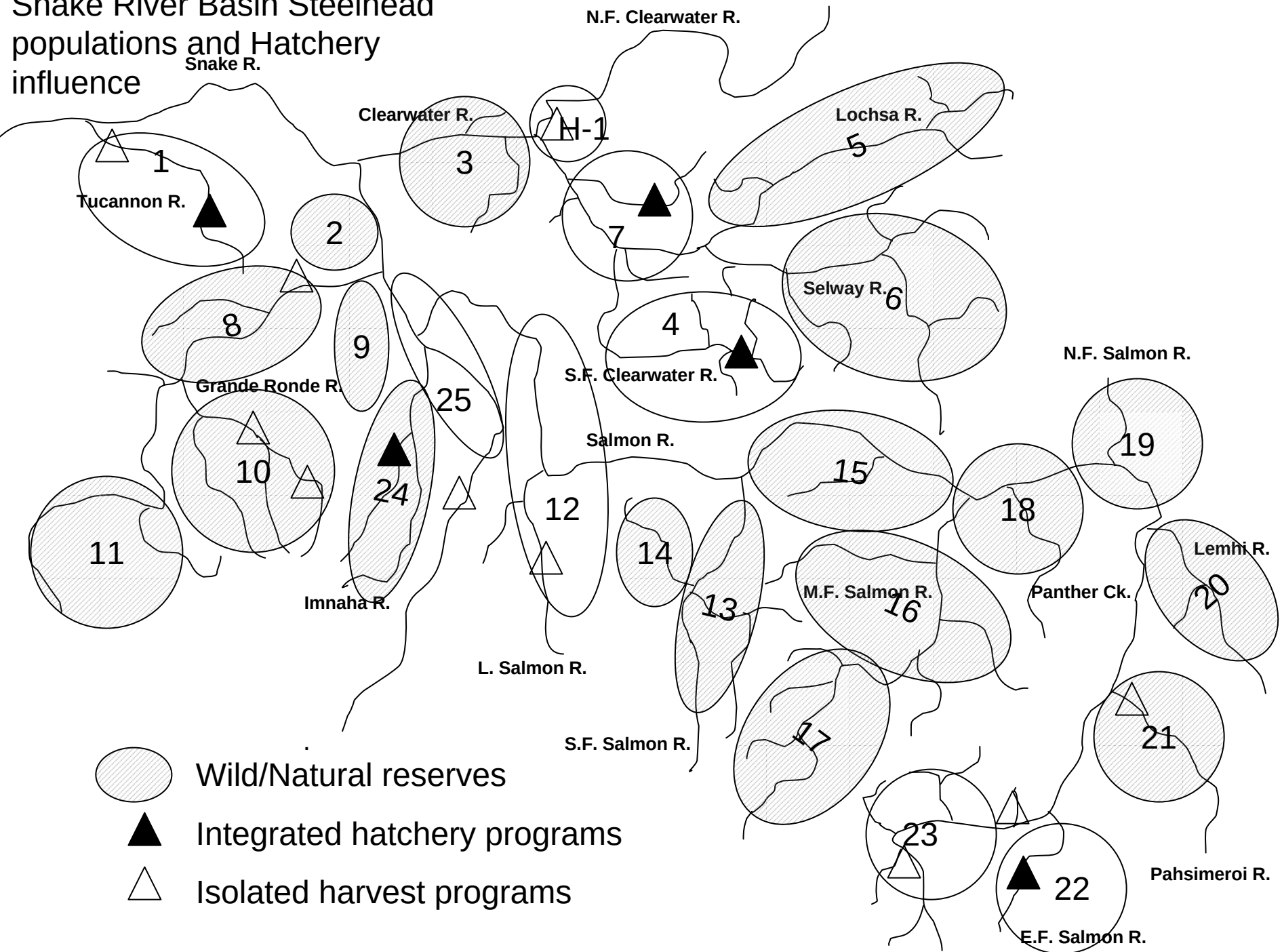
Snake River Fisheries

- Recreational Steelhead fisheries average around 80,000 hatchery fish harvested (2001-2002 harvest estimated by IDFG at 130,000 fish worth around $120 million to local economies)
- Recreational Chinook Fisheries average about 20,000 hatchery fish harvested (IDFG estimates 45,000 harvest in 2001 worth $90 million)
- Treaty tribal fisheries harvest 10s of thousands of fish for subsistence, ceremonial and limited commercial use

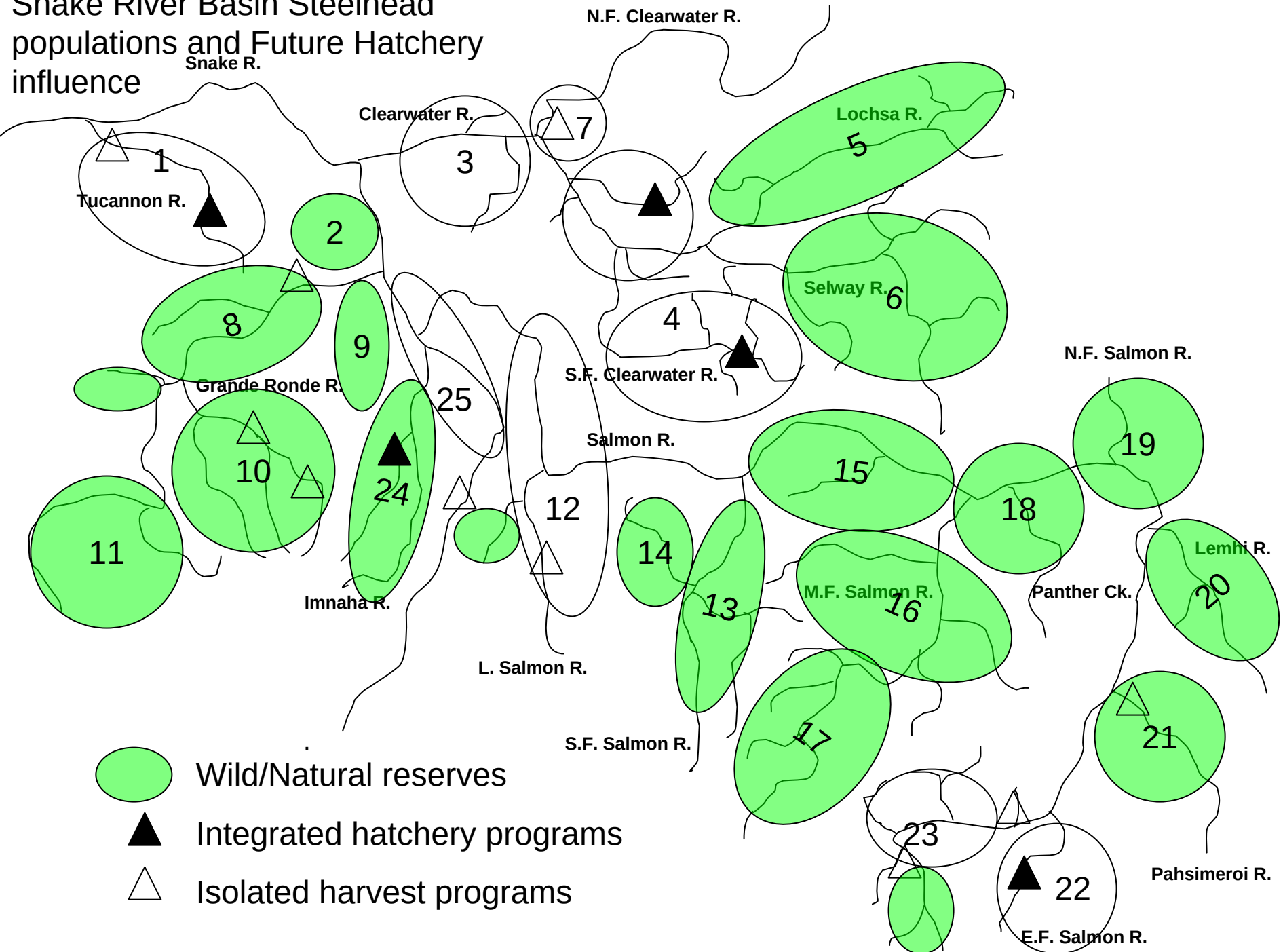
The Big Question:

- How can this level of hatchery production and sustainable fisheries be balanced with preservation and recovery of listed species?
- The remainder of this presentation is about how it might work:

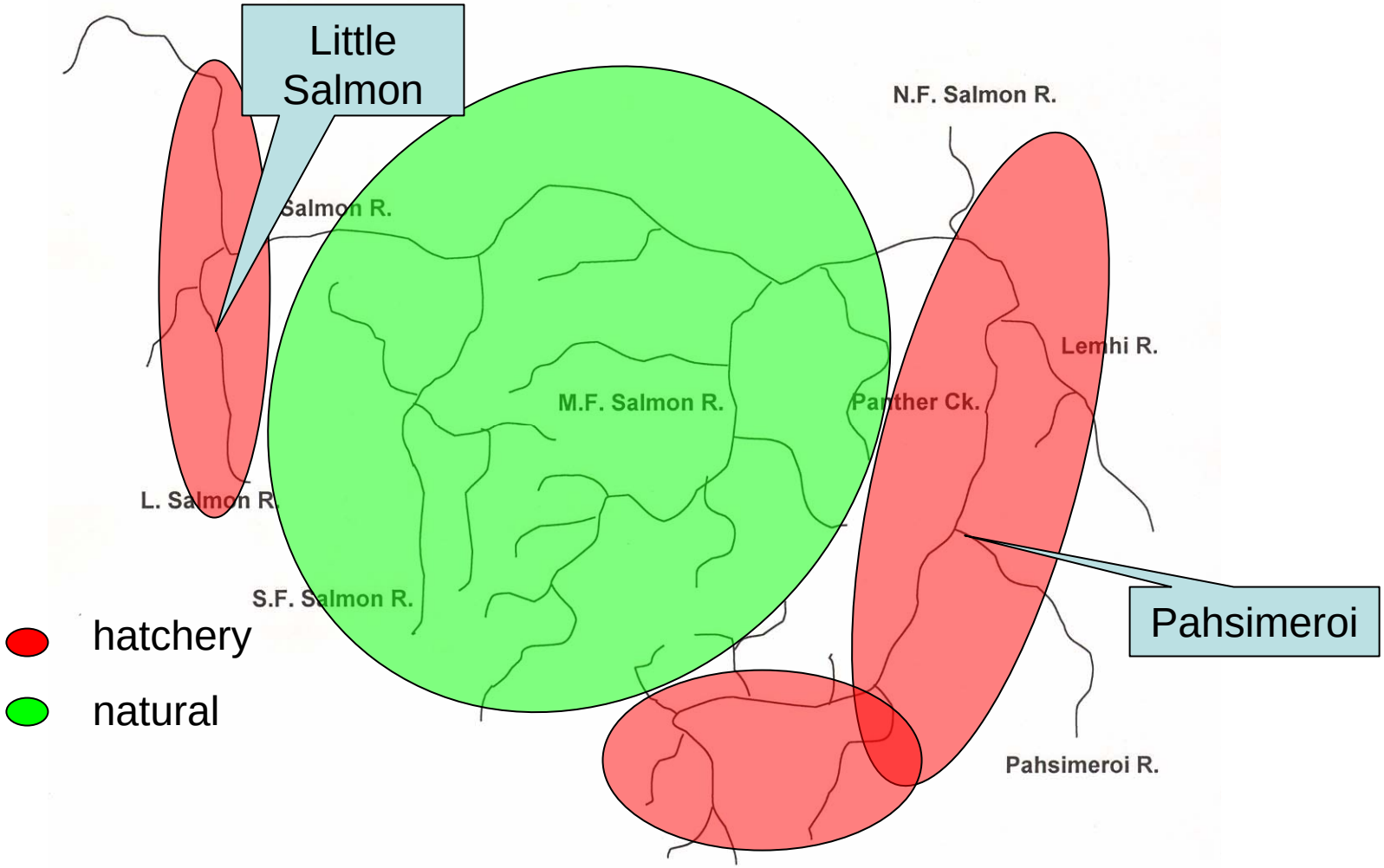
Snake River Basin Steelhead populations and Hatchery influence



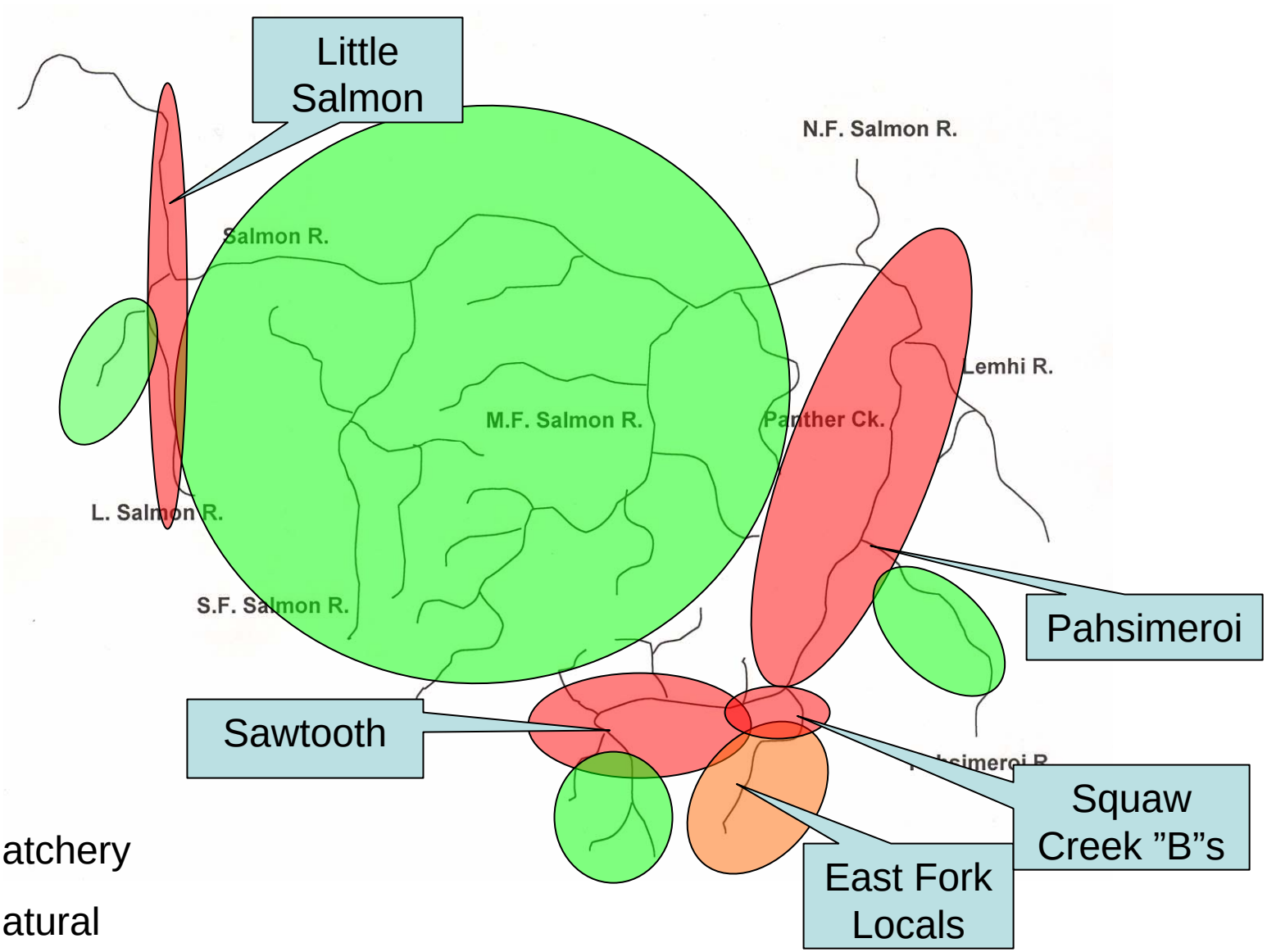
Snake River Basin Steelhead populations and Future Hatchery influence



Salmon River Steelhead Management - Pre-listing



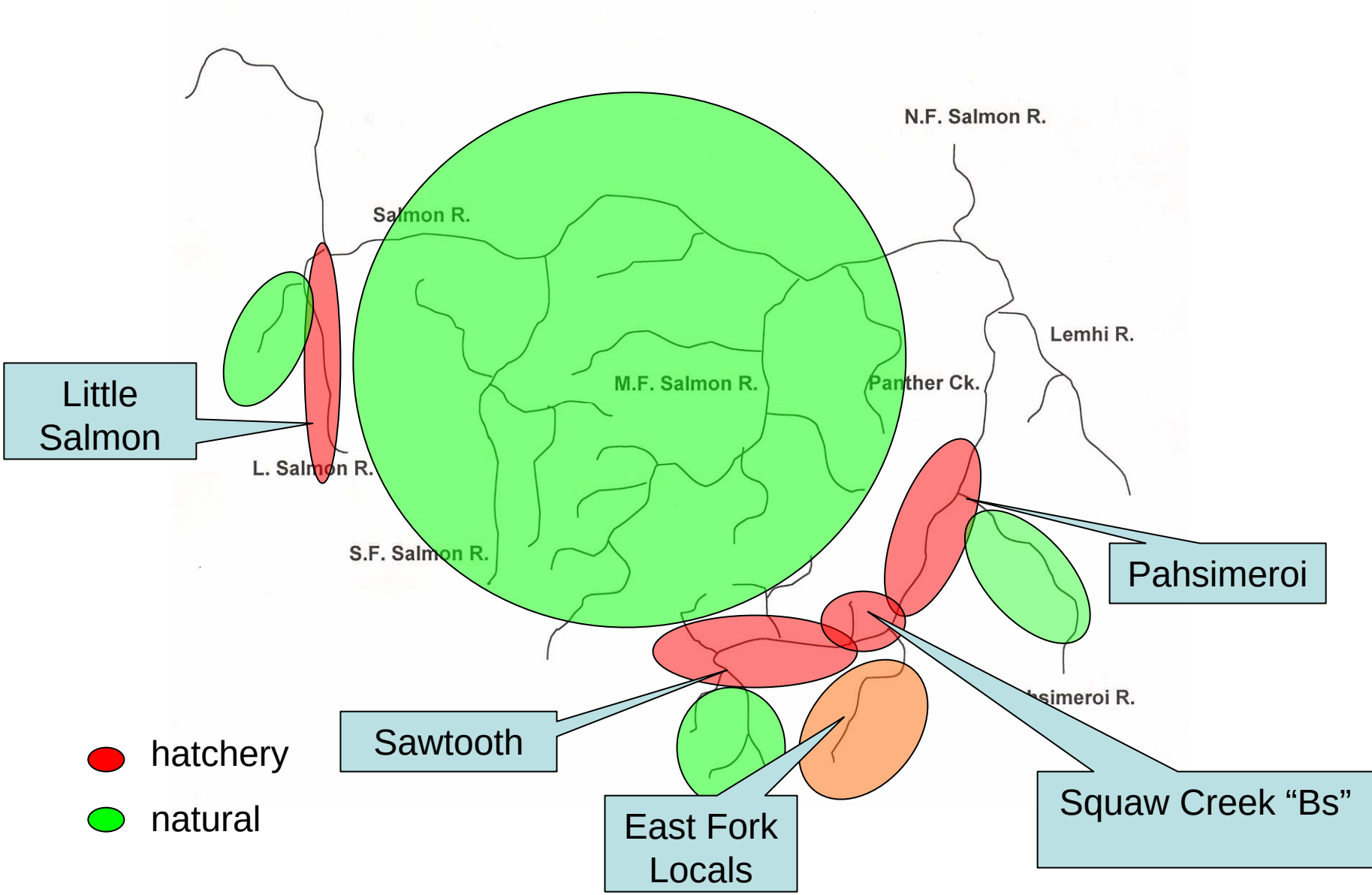
Salmon River Steelhead Management – Post listing (Present)



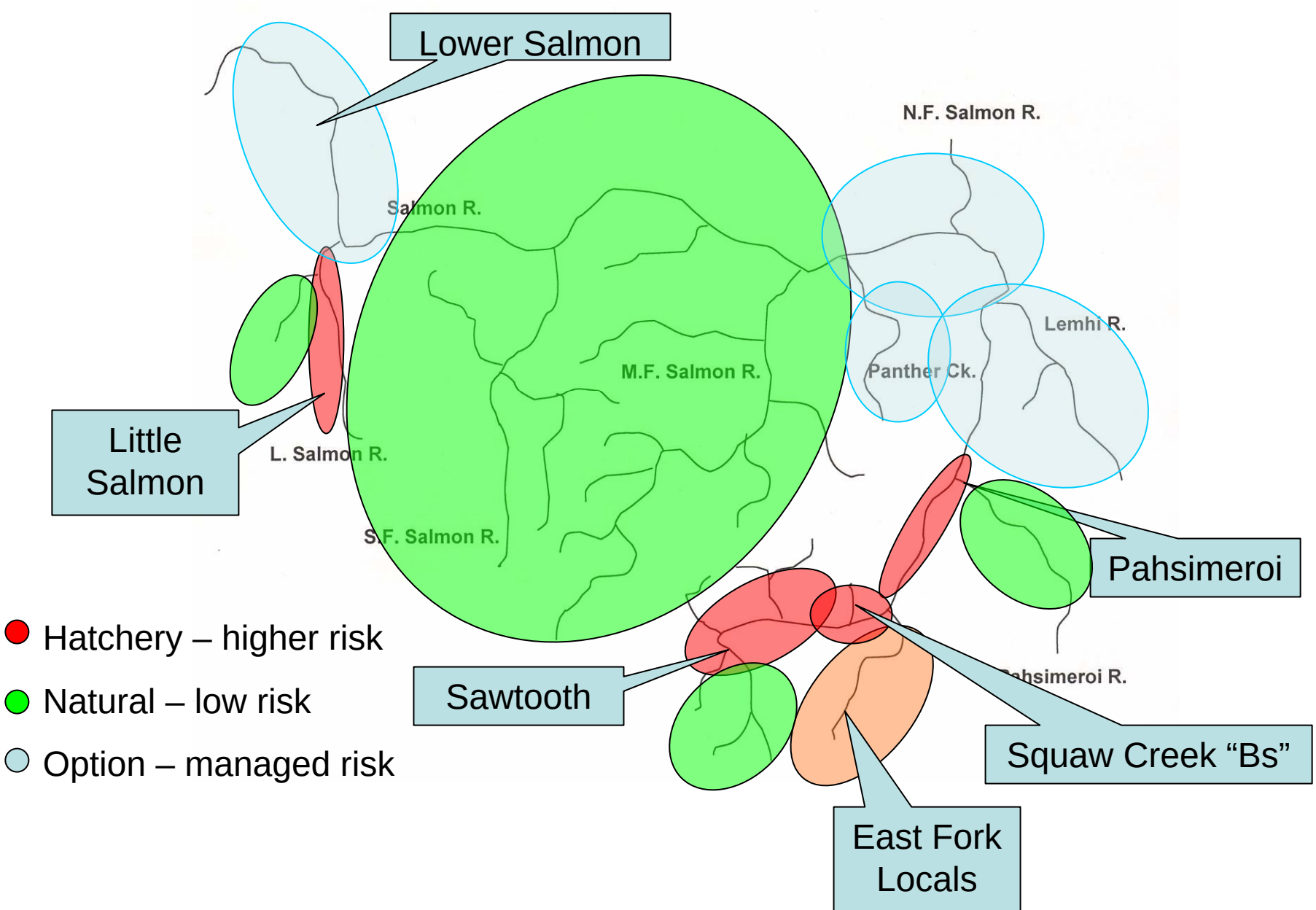
hatchery

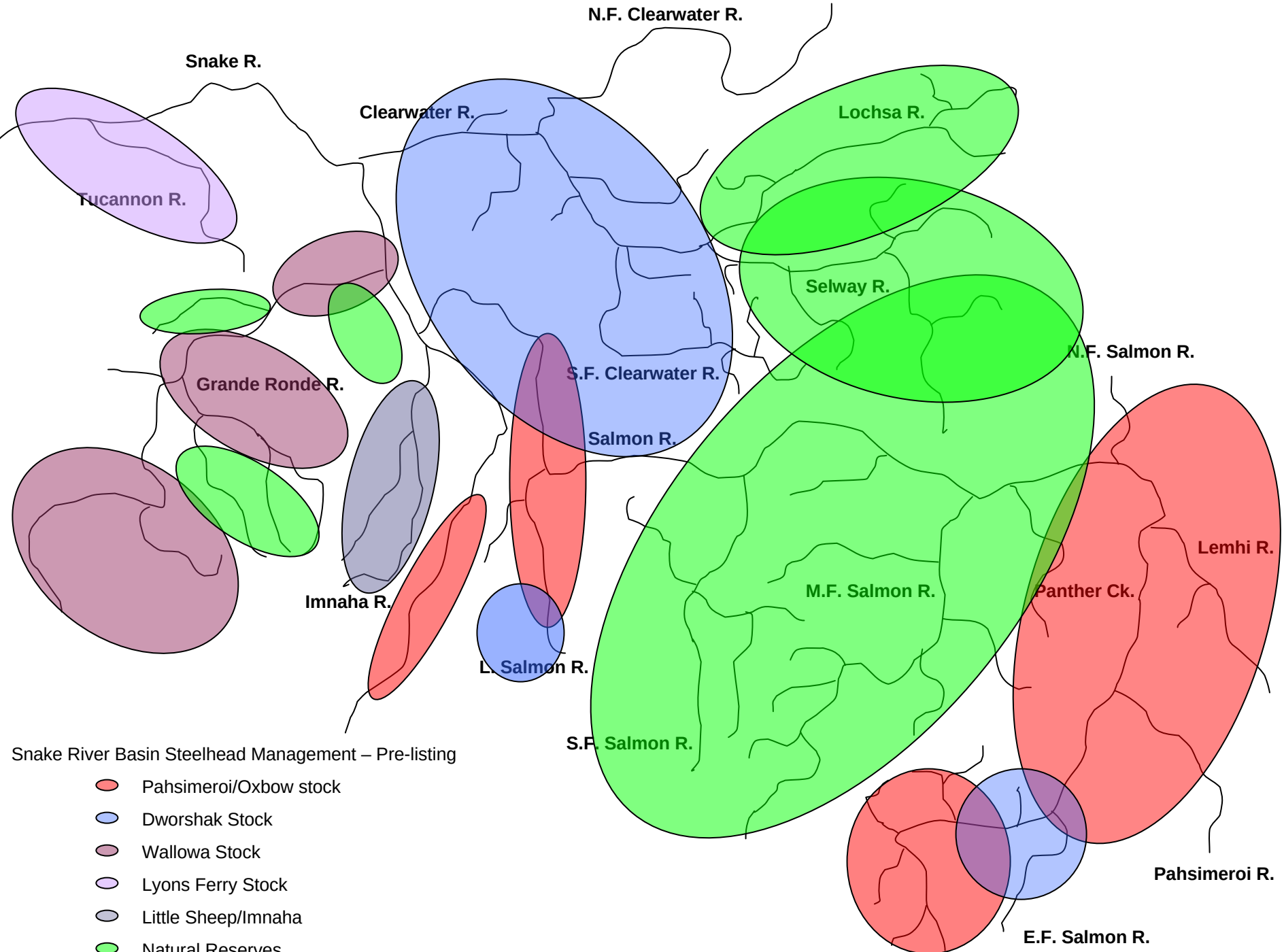
natural

Salmon River Steelhead Management – Basin-wide Hatchery Opinion Draft



Salmon River Steelhead Management – 2004 Recovery Options

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Snake R.
Clearwater R.
Lochsa R.
Tucannon R.
Selway R.
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Grande Ronde R.
S.F. Clearwater R.
Salmon R.
Lemhi R.
M.F. Salmon R.
Panther Ck.
Imnaha R.
L. Salmon R.
S.F. Salmon R.
Pahsimeroi R.
E.F. Salmon R.
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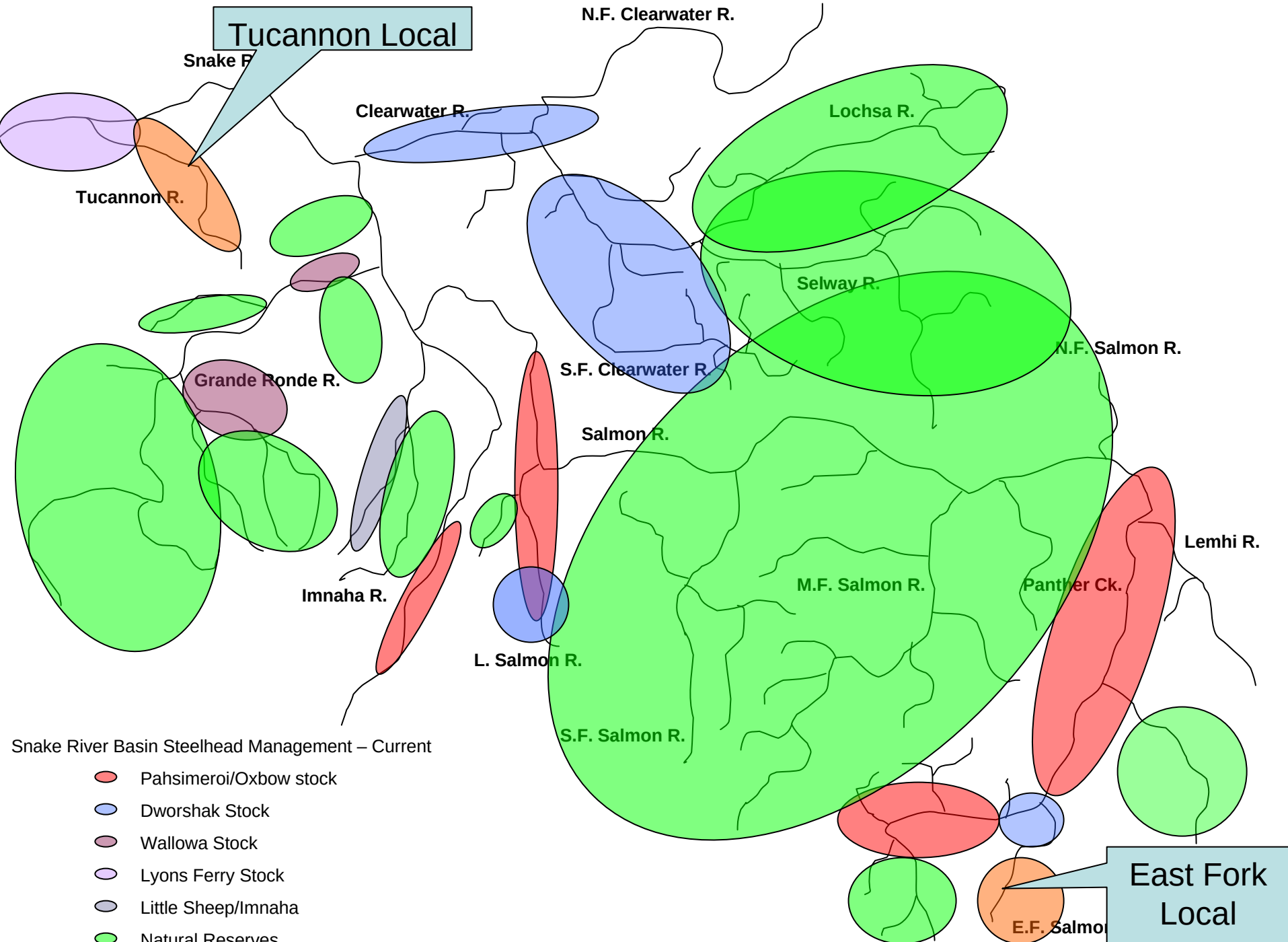
Pahsimeroi/Oxbow stock
Dworshak Stock
Wallowa Stock
Lyons Ferry Stock
Little Sheep/Imnaha
Natural Reserves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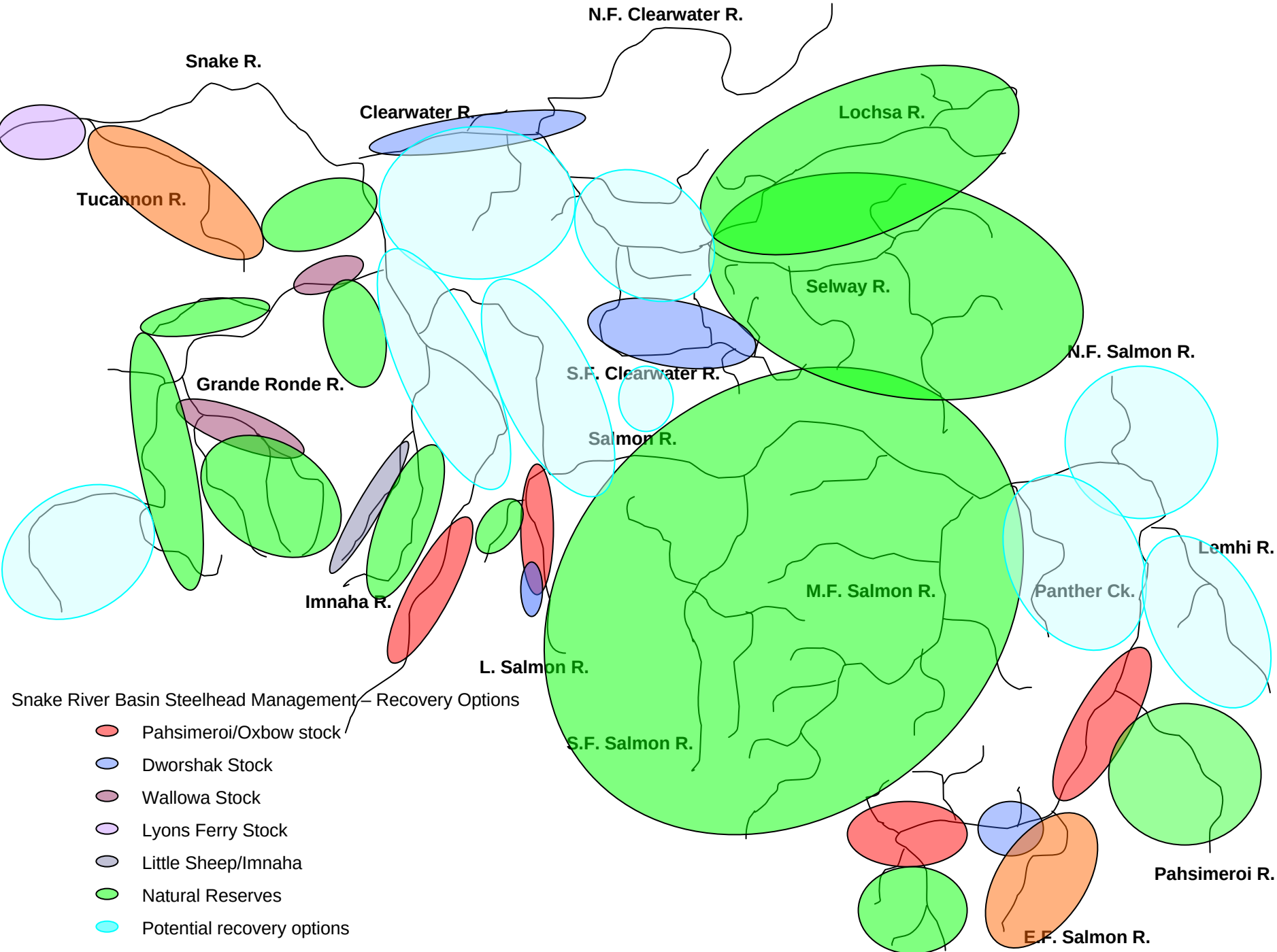
Snake River Basin Steelhead Management – Current
Pahsimeroi/Oxbow stock
Dworshak Stock
Wallowa Stock
Lyons Ferry Stock
Little Sheep/Imnaha
Natural Reserves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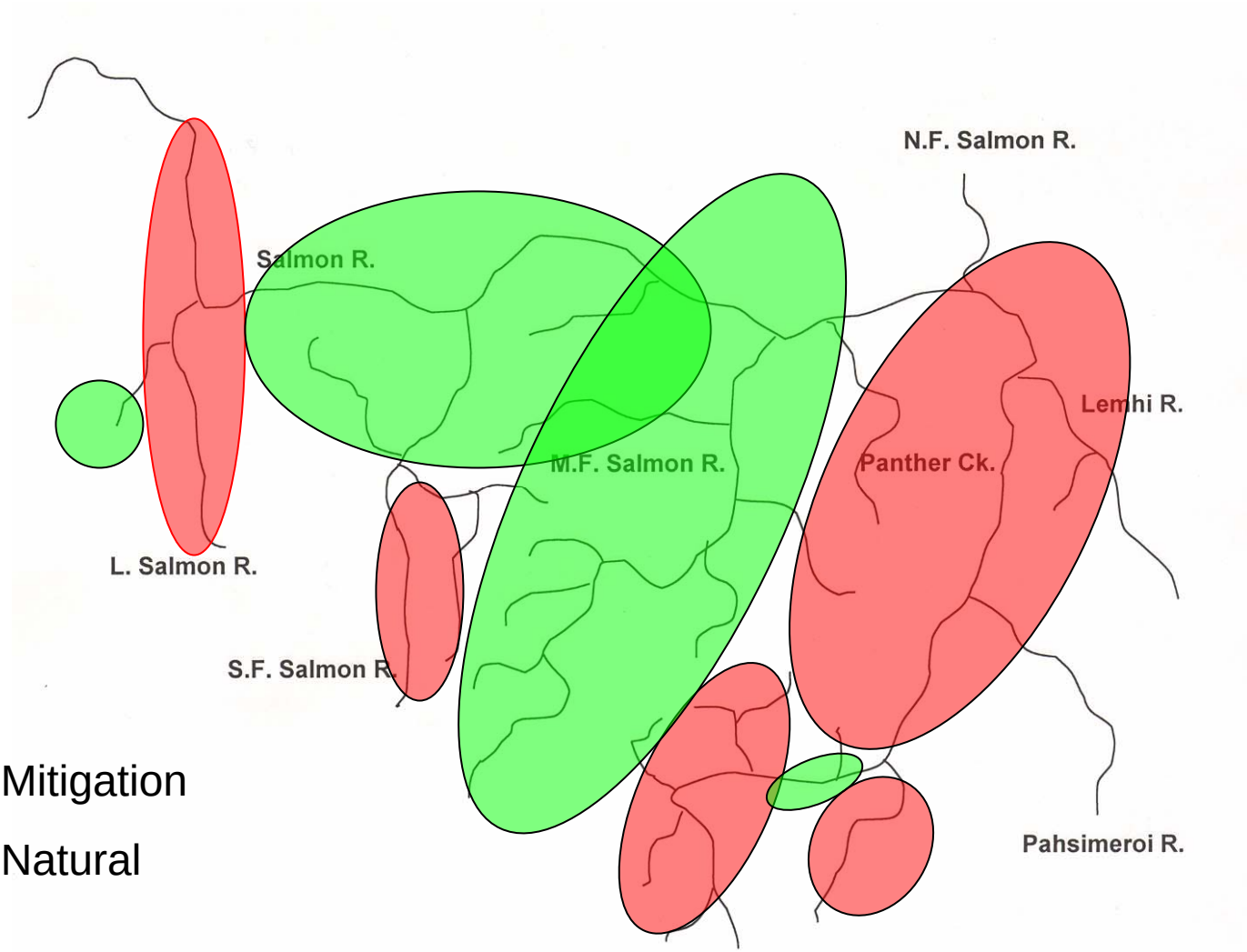
Snake River Basin Steelhead Management – Recovery Options
Pahsimeroi/Oxbow stock
Dworshak Stock
Wallowa Stock
Lyons Ferry Stock
Little Sheep/Imnaha
Natural Reserves
Potential recovery options

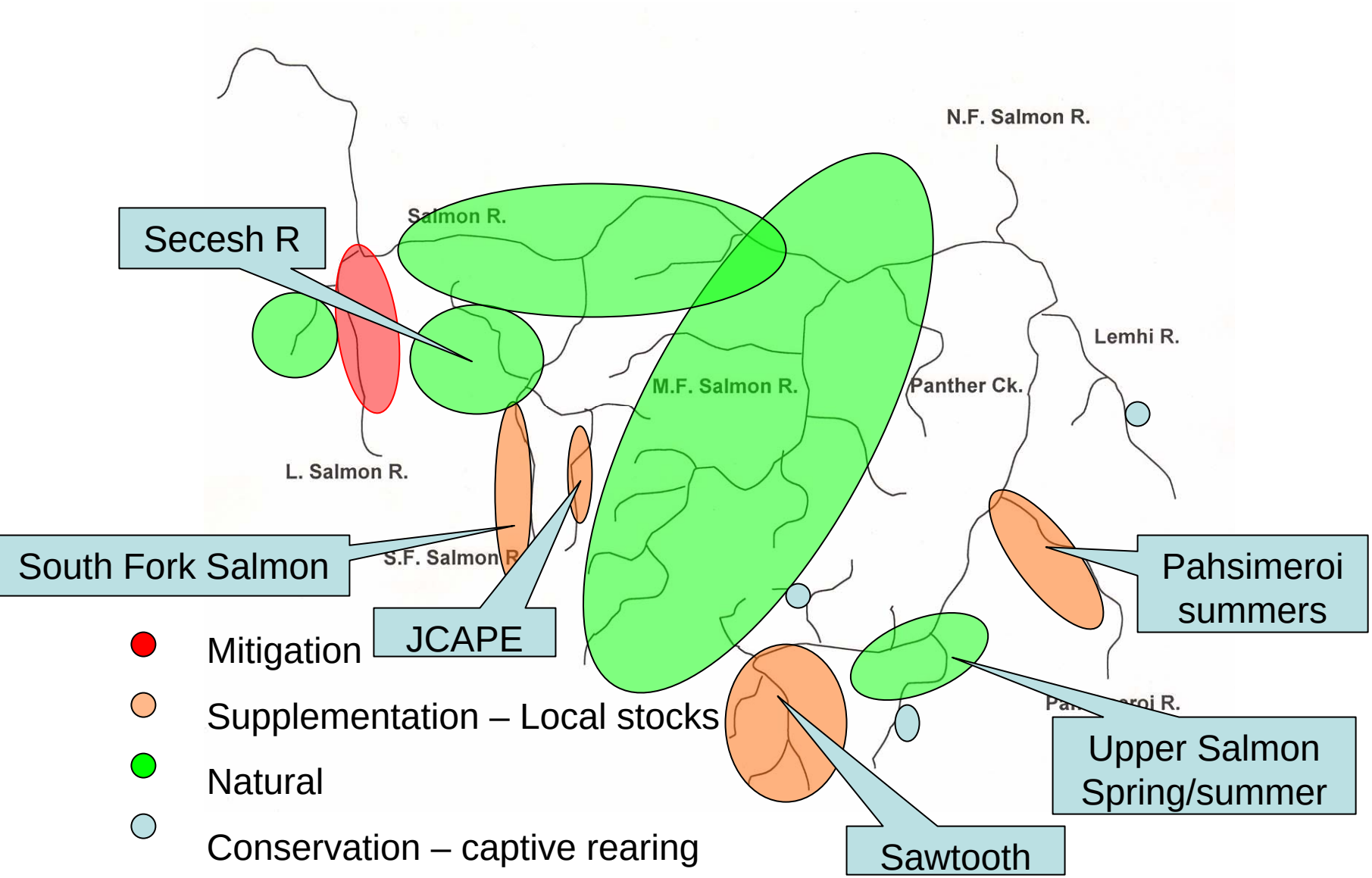
Salmon River Spring/Summer Chinook Management Pre-listing (1991)



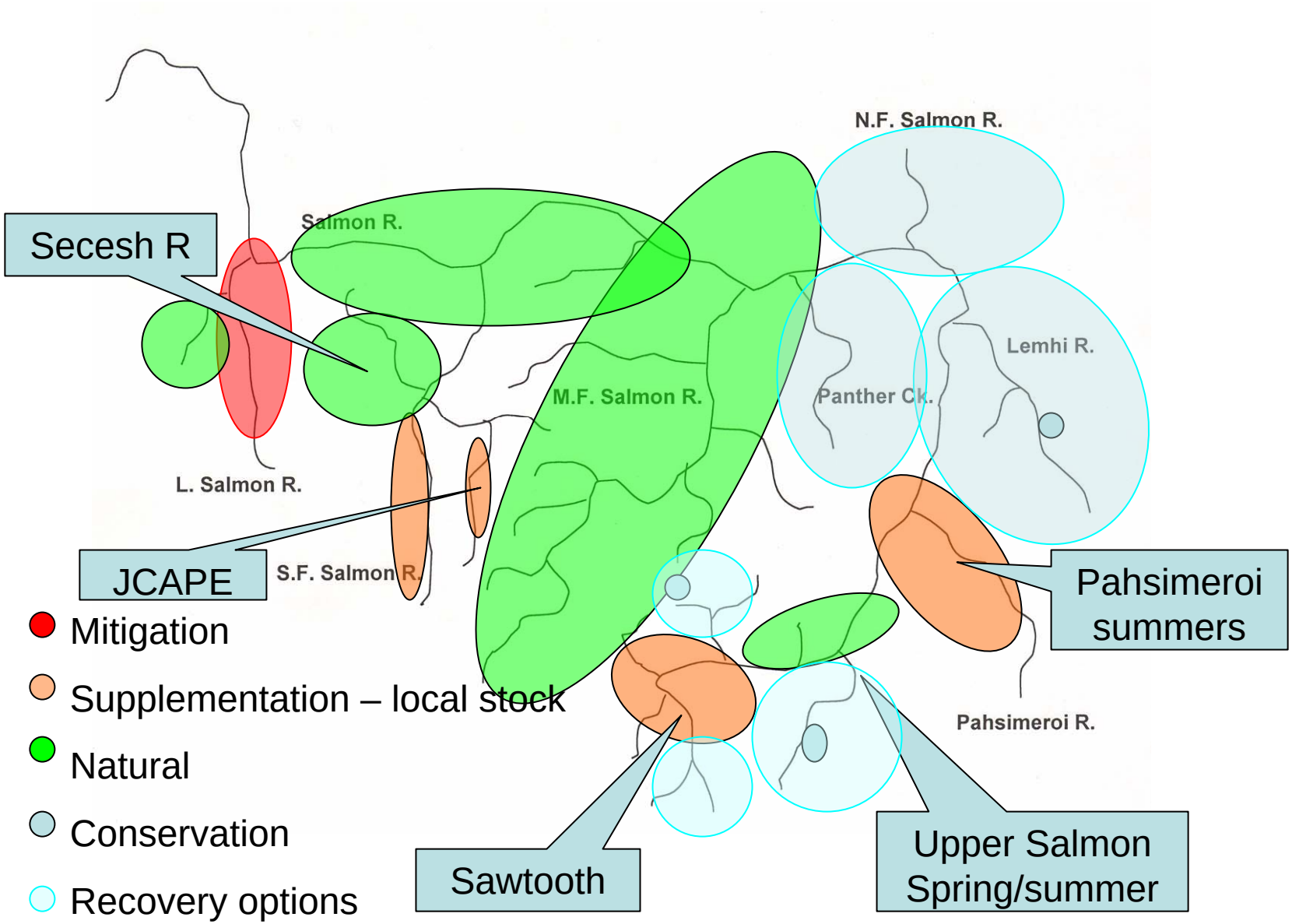
Mitigation

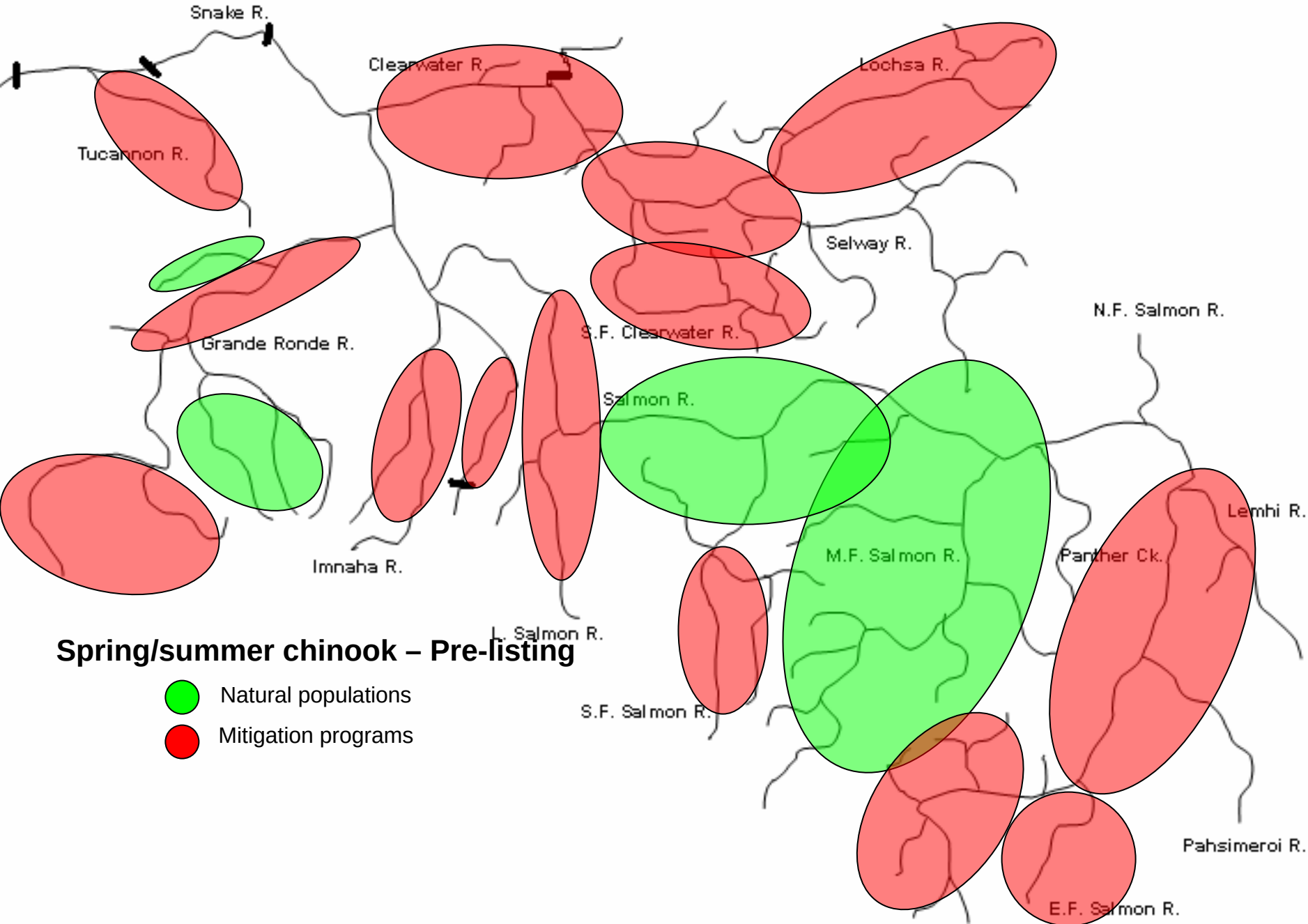
Natural

Salmon River Spring/Summer Chinook Management - Current



Salmon River Spring/Summer Chinook Management – Recovery Options

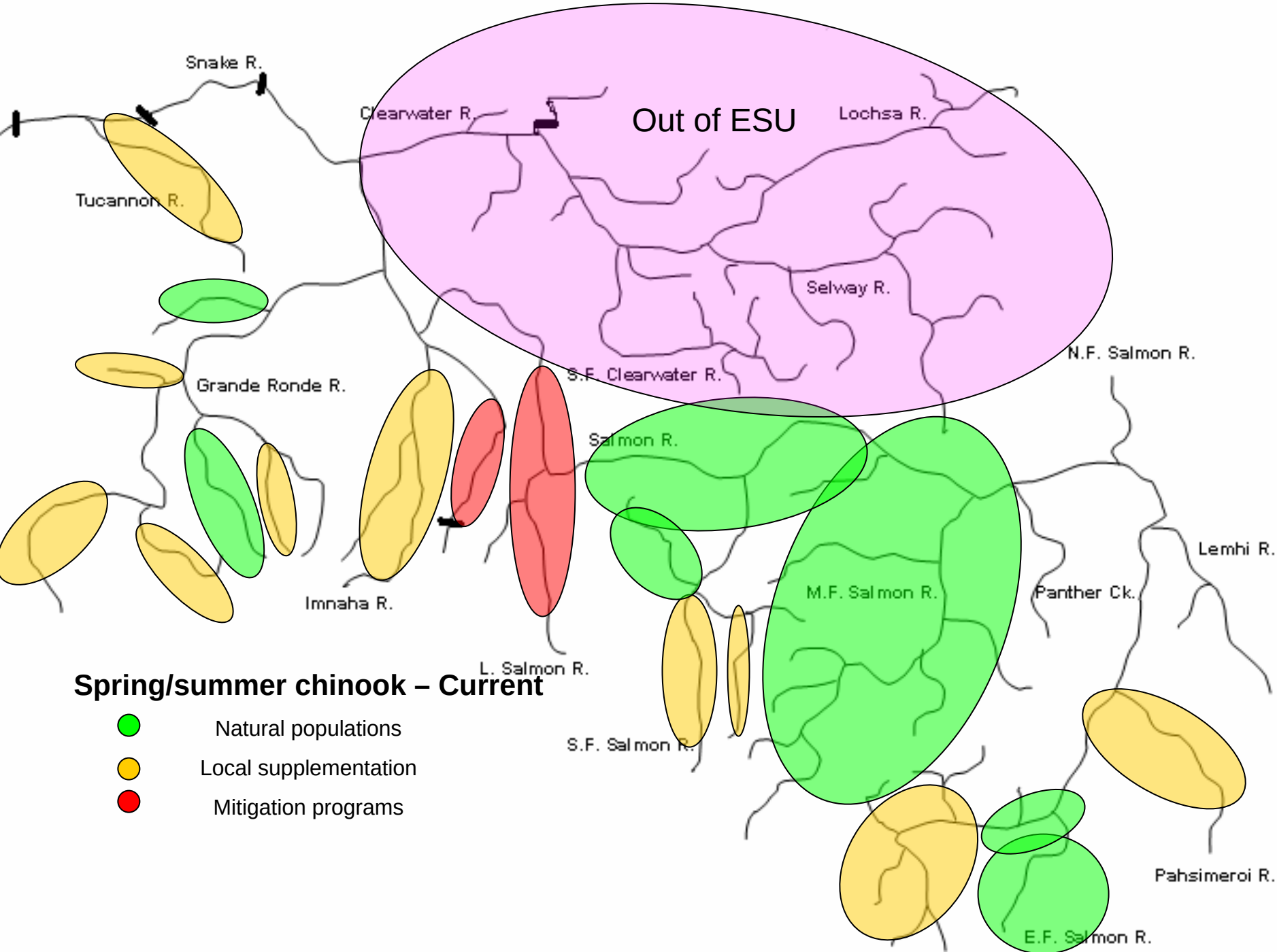




Spring/summer chinook – Pre-listing

Natural populations

Mitigation programs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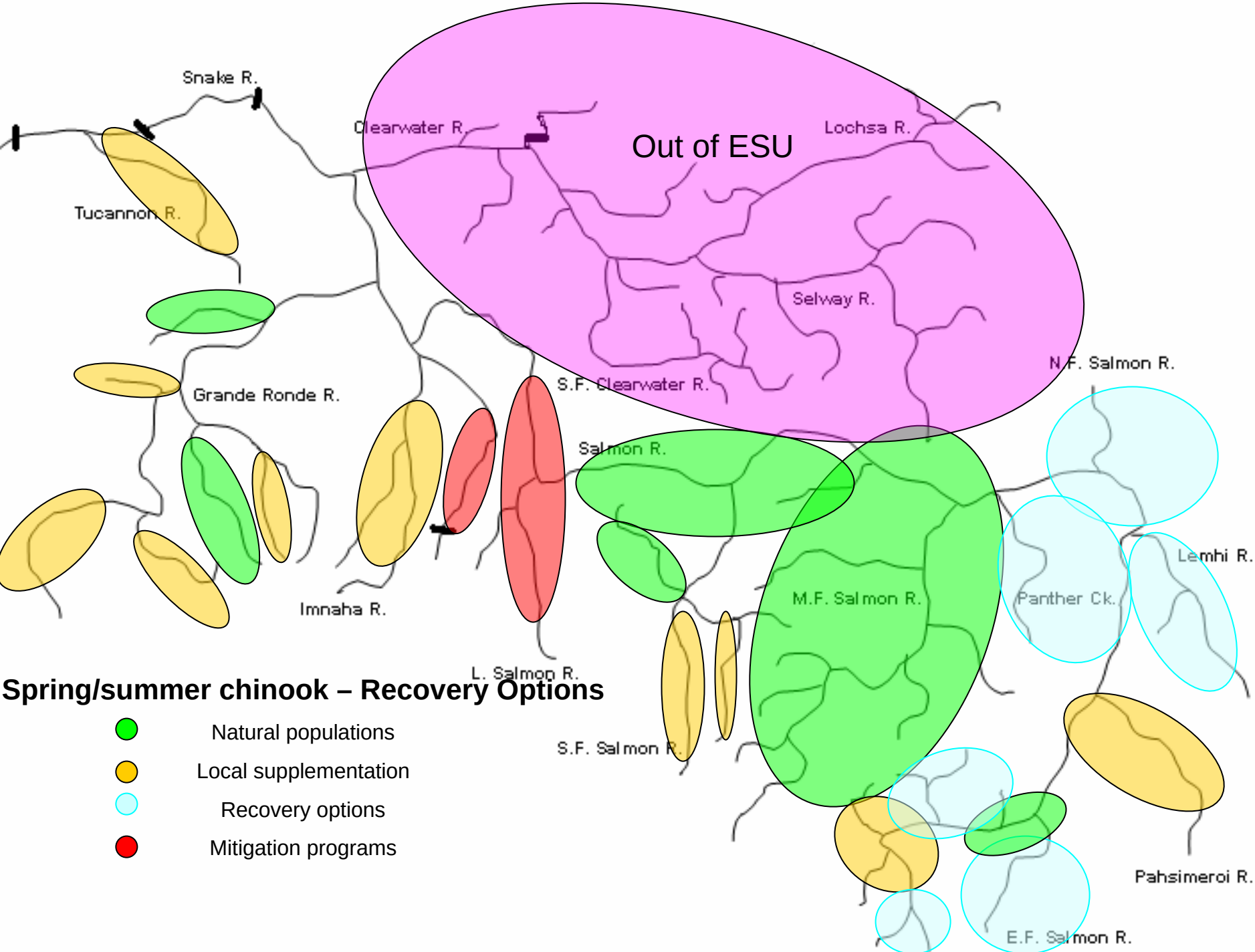
Spring/summer chinook – Current
Natural populations
Local supplementation
Mitigation programs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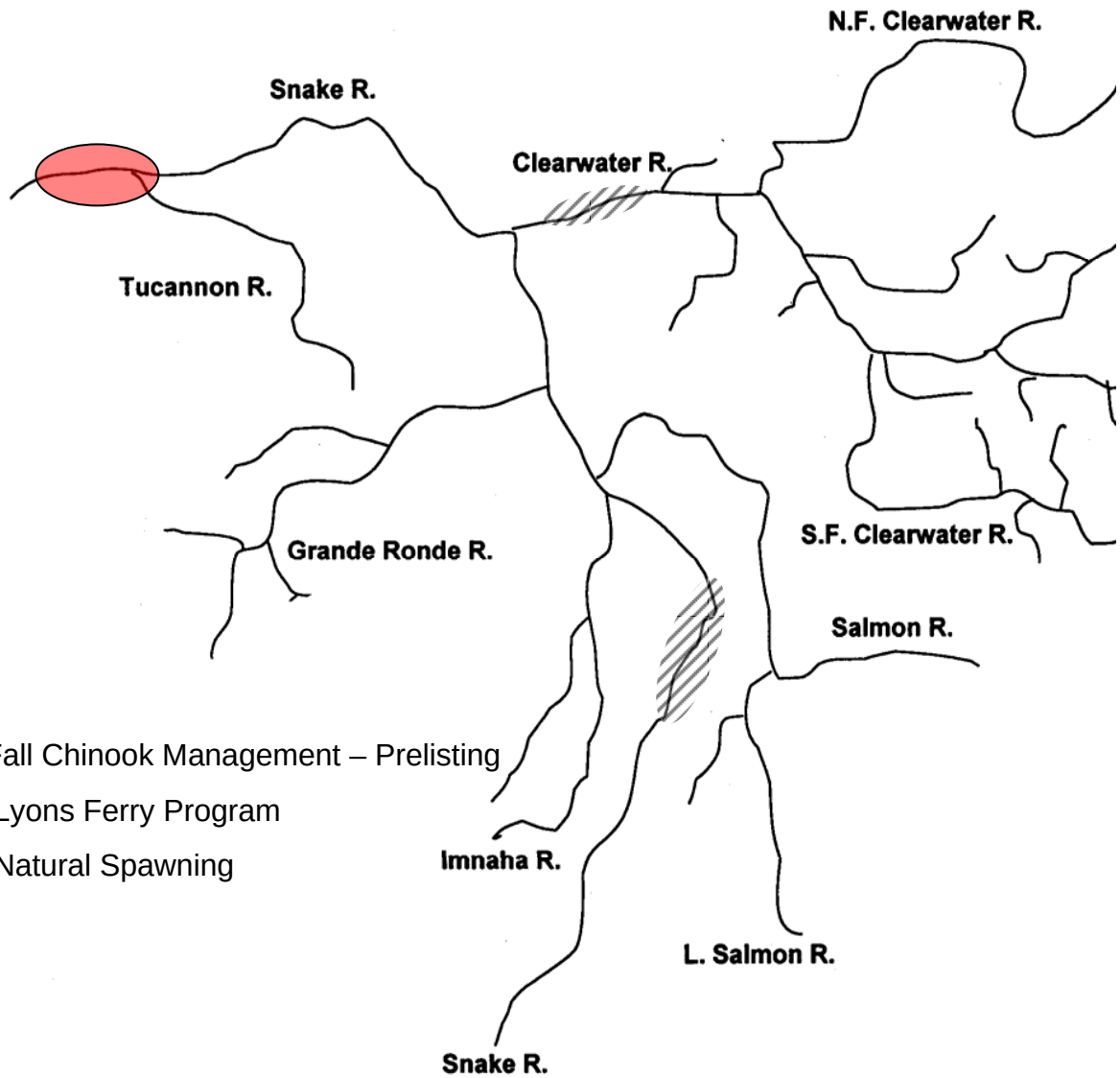
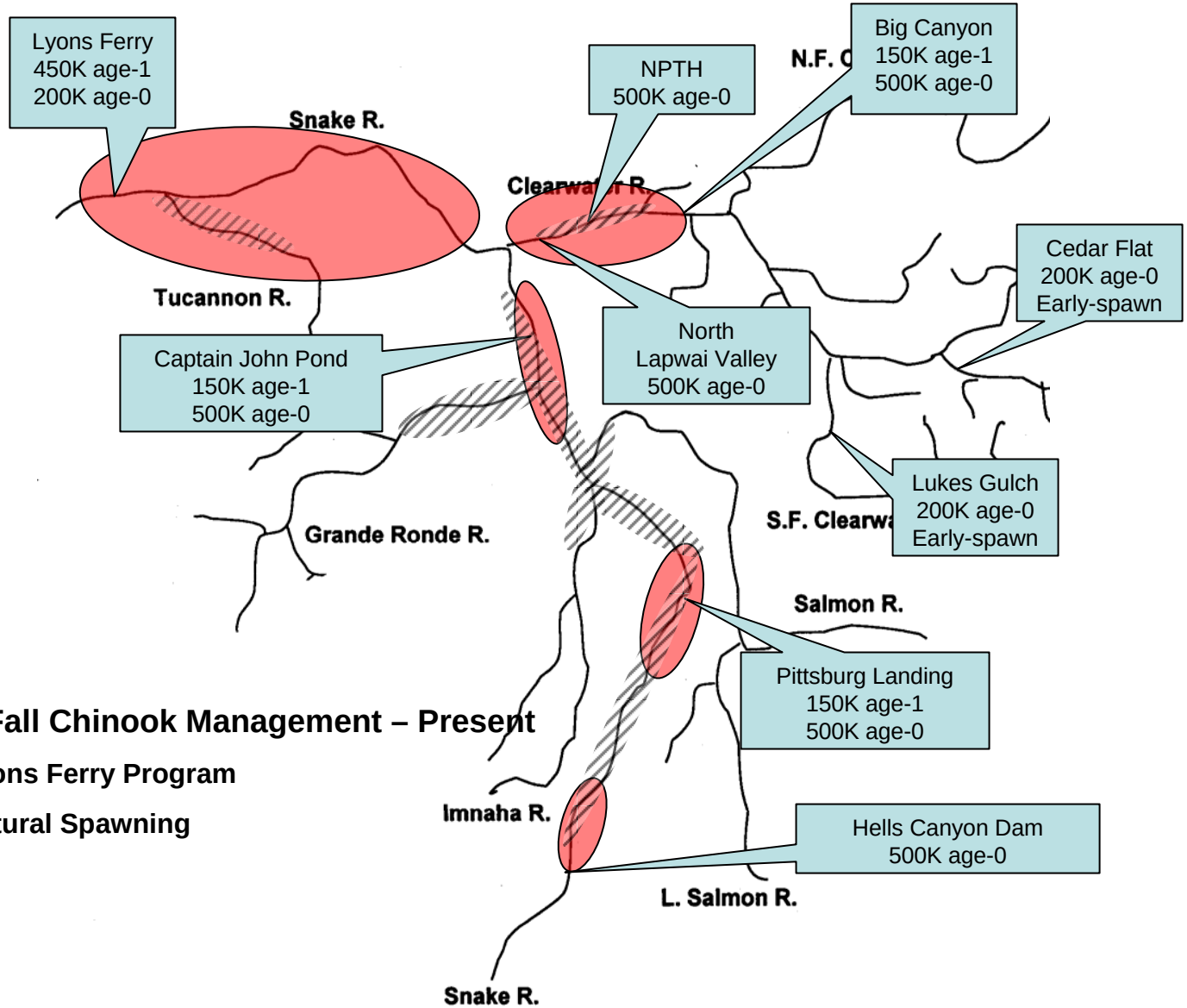


Snake River Fall Chinook Management – Prelisting

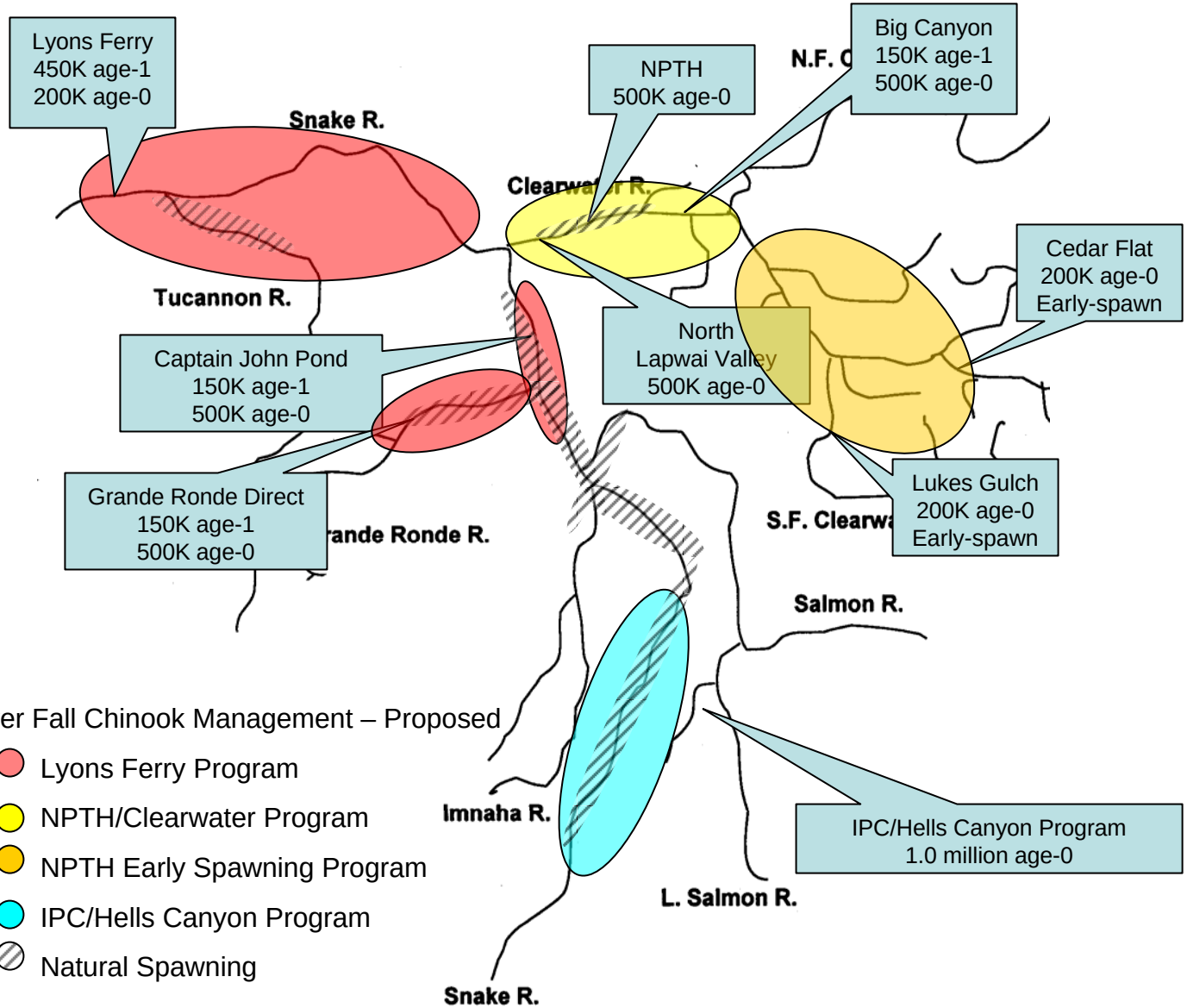
Lyons Ferry Program

Natural Spawning



Snake River Fall Chinook Management – Present

- **Lyons Ferry Program**
- **Natural Spawning**



Snake River Fall Chinook Management – Proposed

- Lyons Ferry Program
- NPTH/Clearwater Program
- NPTH Early Spawning Program
- IPC/Hells Canyon Program
- Natural Spawning