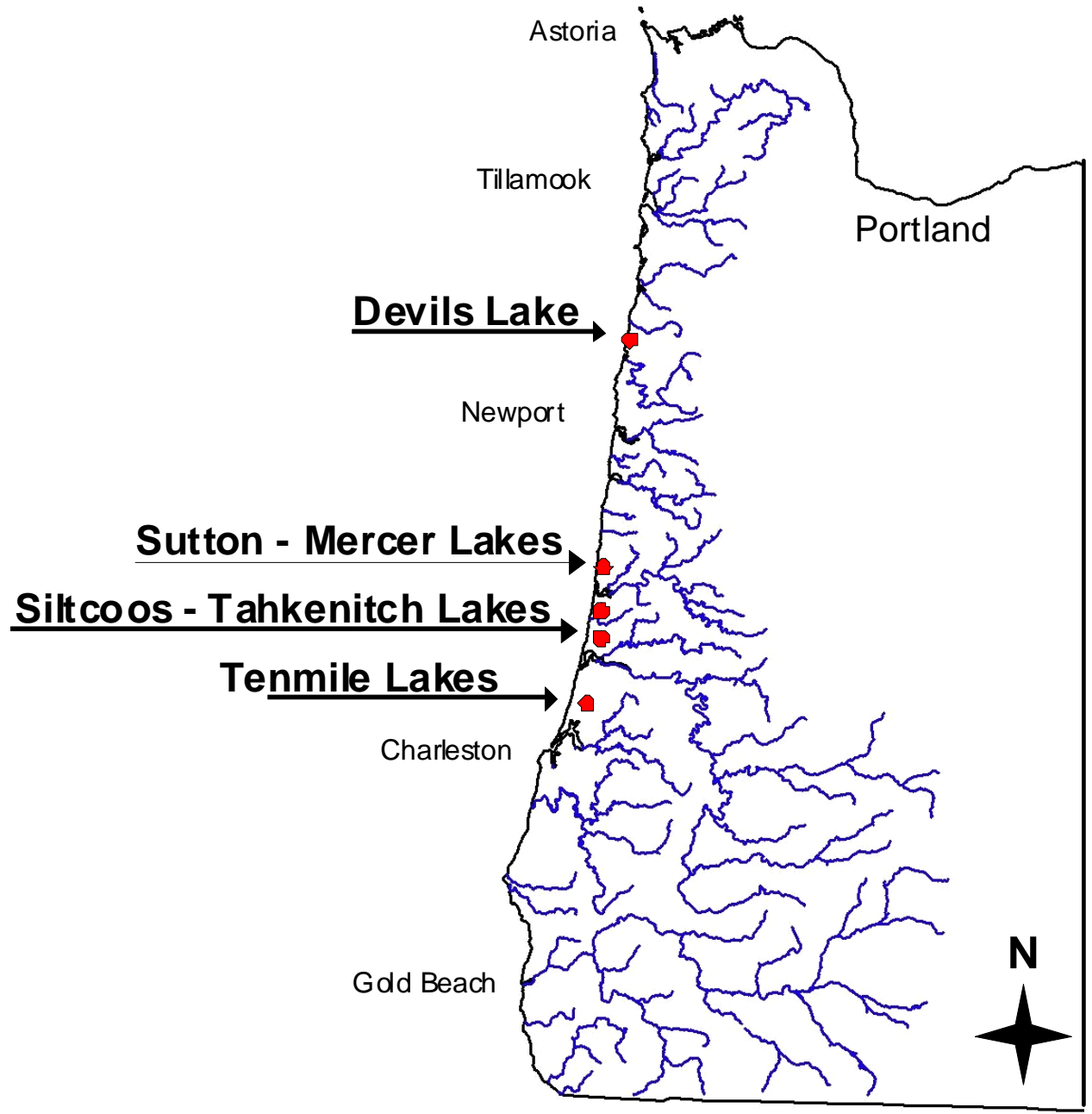


# **Oregon Coast Lakes Coho Populations Management Considerations**

**Jan. 20, 2006**

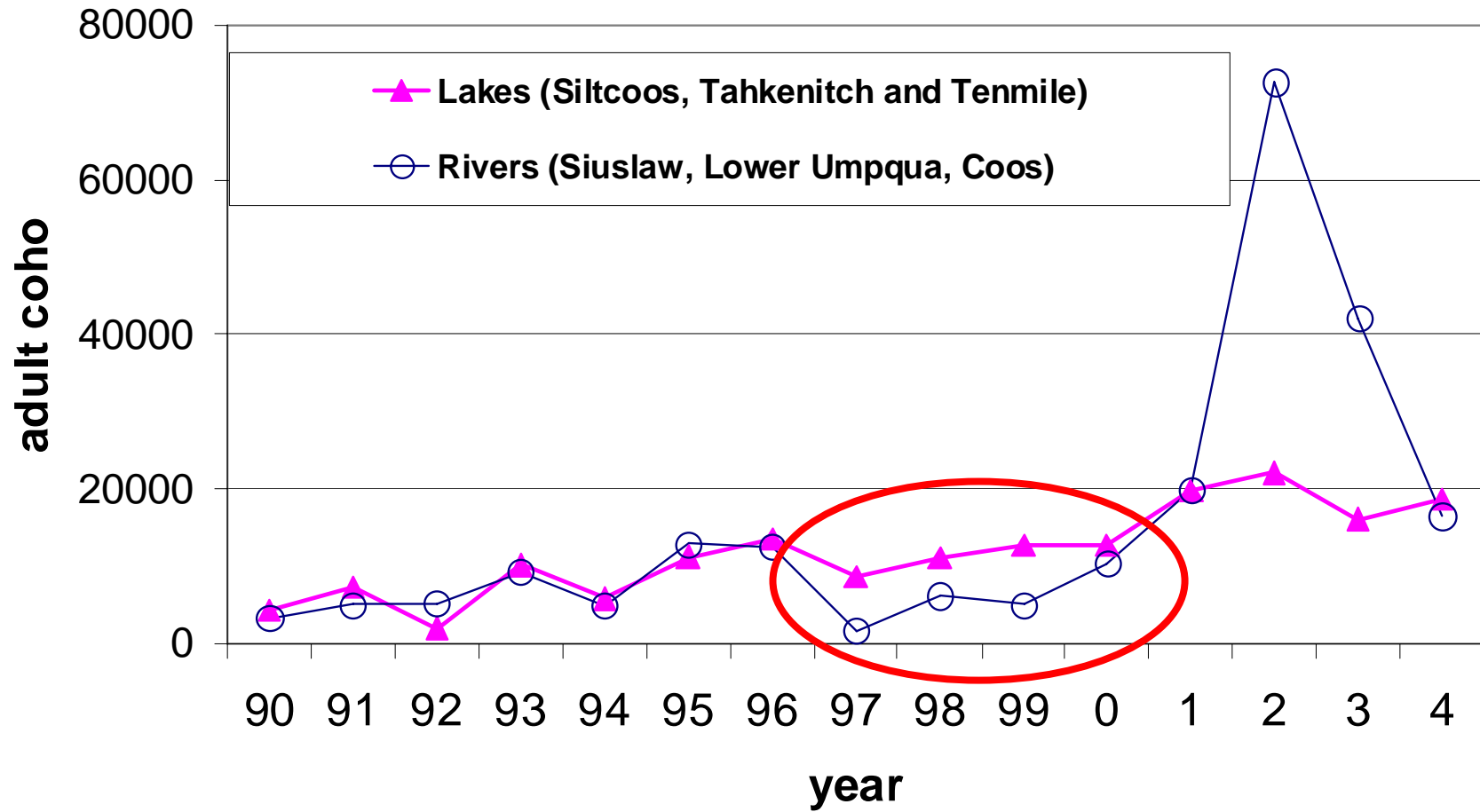
- **Prioritization of basins for coho**
- **Habitat**
- **Fish harvest**
- **Hatcheries**
- **Research ideas**



# Priority areas for coho salmon

- Siltcoos, Tahkenitch and Tenmile populations already at Pass+.
- Lake populations stronger during 1990's downturn.
  - Mechanisms for advantage.
    - Lakes provide winter habitat for juveniles during flood events.
    - Larger smolts from lakes survive better during low ocean productivity.
- Lakes coho populations are a management priority.
  - Devils Lake
  - Mercer/Sutton Lakes
  - Siltcoos
  - Tahkenitch
  - Tenmile Lakes (minor: Eel Lk. and Saunders Lk.)

# Coho abundance; Coastal lakes vs adjacent rivers



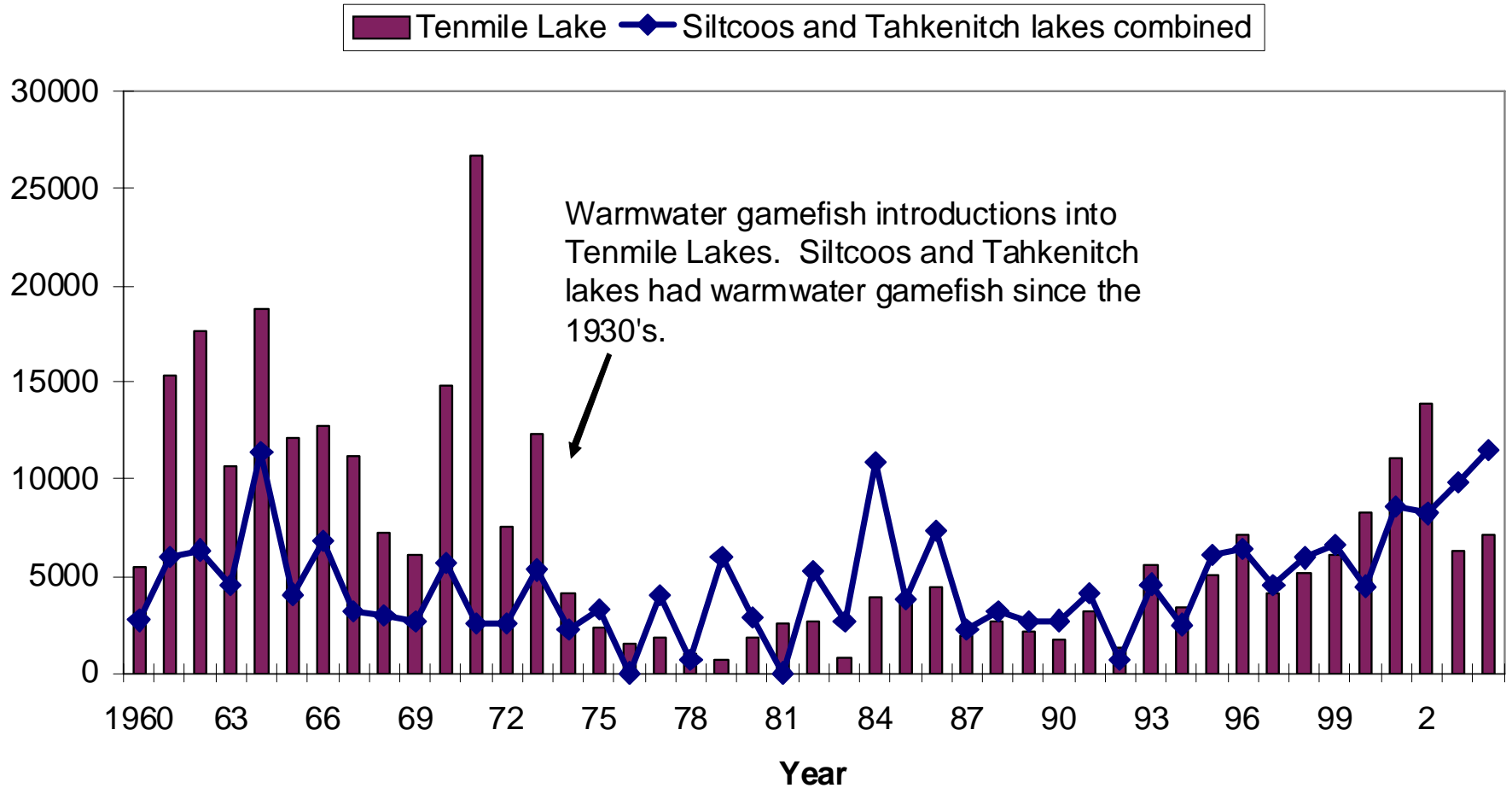
# Other co-occurring fish to consider while managing coho salmon

- Winter steelhead
- Cutthroat trout
- Lamprey
- Other non game fish
- Introduced warmwater gamefish
  - Largemouth bass, smallmouth bass (Eel Lk.)
  - Bluegill, crappie, bullhead, yellow perch

# Limiting factors specific to lakes

- Primary limiting factor
  - Competition and predation on juvenile coho by introduced warmwater gamefish within lakes
- Secondary limiting factors
  - Complexity and large woody material (LWM) in tributary streams to lakes
    - Provide juvenile summer and winter habitat and spawning gravel
  - Water quality
    - Water temperature in tributary streams
  - Sediment and nutrient input to lakes
    - Shallow water with increased algae and weeds

# Adult coho spawner abundance in three coastal lakes



# Coho salmon and warmwater gamefish

- Predation on fry, fingerlings and smolt
  - “Nomad fry” hypothesis (Reimers, 1989)
  - Overwinter pattern still successful
- Competition for food and space
- Limited ability to reduce warmwater gamefish impacts on coho salmon in most cases
  - Angling regulations have minimal effect
  - Rotenone treatments very unlikely
  - Grass carp confined to Devils Lake
- Warmwater angler constituency



# Habitat issues for lake basins

- Agricultural conversion of wetland arms
- Shoreline development around lakes
- Sediment and nutrient inputs
- Water withdrawals and management
  - Passage for smolts and adults
- Exotic species of fish, plants and invertebrates
- Complexity and LWM in tributary streams

# Habitat Strategies

- Wetland restoration
- Lake shoreline protection
  - Work through land use planning and incentives
- Protect and improve water quality
  - Septic systems
  - Attempt to limit sediment and nutrients in runoff
- Protect and manage water quantity
  - Passage
    - Water management to allow smolts to find outlet
- Educate on the danger of exotic species

# Restoration Focus

- Past/Present/Future Focus:
  - Restore stream complexity to improve juvenile summer and winter habitat and spawning gravel
    - Add LWM in forest and ag. land
  - Wetland restoration in lake arms
    - Undike areas, add LWM, restore stream meander
  - Riparian restoration in Ag. Lands to decrease temperatures and provide future LWM
  - Septic/nutrient remediation

# Devils Lake grass carp

- First stocked in 1986 to control weeds
- Vegetation almost eliminated in 1995
- Warmwater gamefish crashed
  - Panfish and largemouth bass
- Coho salmon stable until 2004 when abundance increased dramatically
- Future management in Devils Lake uncertain

# Siltcoos and Tahkenitch water management

- Water rights to both store and utilize water given to International Paper (IP) about 1960.
- Raised lake levels about 5 feet during summer and stabilized summer levels.
- Unknown effect on coho salmon.
- IP has moved out of area and wants to divest itself of water rights.
- Water Watch secured \$50,000 to study options with emphasis on coho implications

# Tenmile Lakes Habitat

- Upper watershed heavily logged post-WWII
- Eilers' Study: rapid acceleration of sediment deposition
- Upper ends of some tributaries on Elliott State Forest; → FMP and HCP's for listed species
- Tenmile Lakes Basin Partnership approaches: stream riparian improvement, sediment reduction, fish passage improvement, lake nutrient reduction.

# Terminal sport harvest

- Siltcoos and Tahkenitch lakes open to limited wild coho harvest last two years.
  - Provide average annual harvest of 811 fish
  - Provide average annual angler effort of 16,300 hours
- Potential to open Tenmile in the near future
  - Initially (2003) little expressed angler interest in this.
  - After Siltcoos/Tahken. opened, interest has increased
  - Some expressed opposition to harvest of ESA-listed fish
  - 1985-94 harvest (h/w): range—8 to 373; avg. 105
  - Harvest was 0.1% to 14.8% of escapement (avg. 4%)

# Hatcheries

- No hatchery coho salmon stocked in coastal lakes
  - Discontinued mid-1990's in Tenmile
- Few hatchery coho stray into lake basins
- Hatchery winter steelhead releases in Tenmile/Eel
  - Program currently at 21,000 smolts in Tenmile Cr./Eel Cr.
- Catchable size rainbow trout stocked
  - Devils Lake 20,000 at 3/lb with ad clip
  - Mercer/Sutton lakes 7,000 at 1.5/lb
  - Siltcoos/Woahink lakes 5,500 at 1.5/lb
  - North/South Tenmile 14,600 at 3/lb
  - Eel Lake 5,200 at 3/lb
  - Saunders Lake 7,700 at 3/lb; 1,600 at 0.8/lb
- ODFW direction toward triploid trout



# Hatcheries (cont.)

- Potential effects on coho salmon include
  - Fishing mortality
    - Devils Lake: ad-clipped trout only regulation to prevent incorrect identification and retention of juvenile coho by trout anglers
  - Competition
    - Thought to be low due to low stocking densities and poor carryover of stocked trout

# Future threats

- Additional exotic introductions
  - Fish, plants, invertebrates
- Continued shoreline development, riparian and wetland degradation
- Nutrient/sediment/pollutant inputs
- Increasing recreational uses of lake (e.g. gasoline motors, disturbance)
- Water demand and management
  - Increasing demand
  - Advocacy to manage lake levels for lakeside residence

# Research Ideas

- Water management in Siltcoos and Tahkenitch
  - \$50,000 seed money from International Paper that is held by Water Watch
- Understand juvenile habitat use of lakes—ways to maintain “advantage” of lakes in life cycle
- Devils Lake grass carp effects
- Importance of riparian habitat surrounding lakes
- Septic/water quality innovations