The Columbia Basin Fish and Wildlife Program and Non-Native Fish

Northwest Power and Conservation Council

October 29, 2009

Northwest Power and Conservation Council

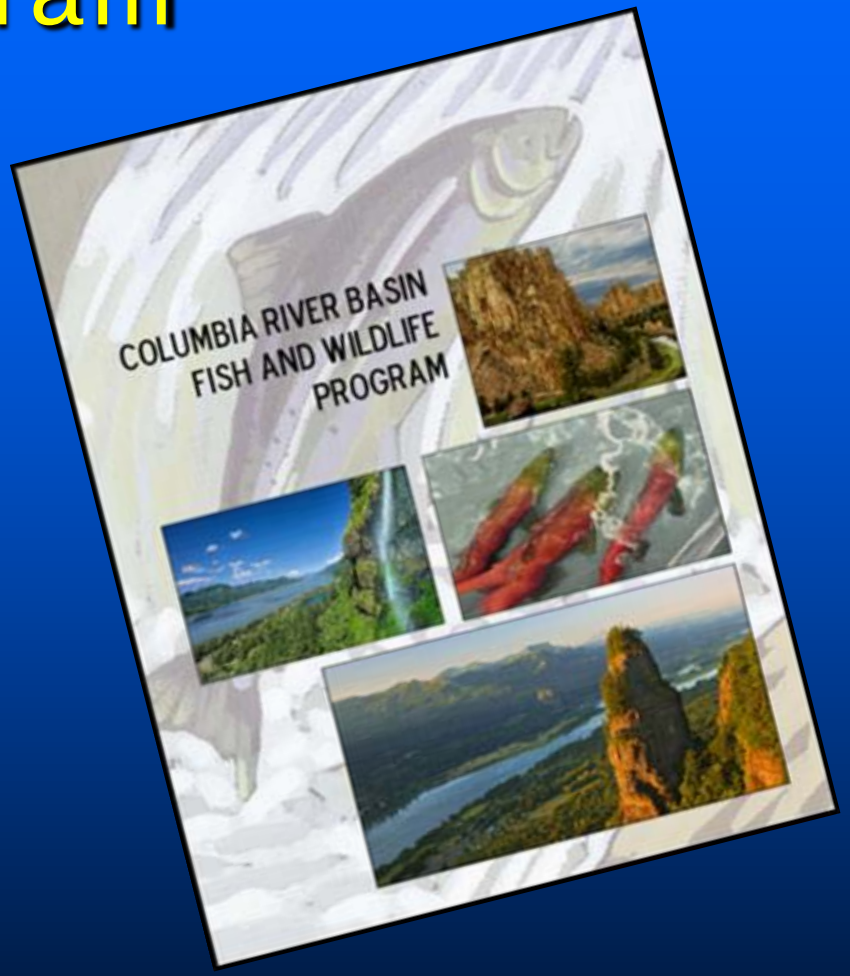
The Council's Key Responsibilities

- Protect, mitigate and enhance fish and wildlife affected by hydroelectric dams in the Columbia River
- Assure an adequate, efficient, economical, and reliable power supply
- Inform and involve the public

Columbia River

Current Fish and Wildlife Program

- 2009 Program framework and basinwide provisions, includes the mainstem
- 2004-05 Subbasin Plans (57 plans)



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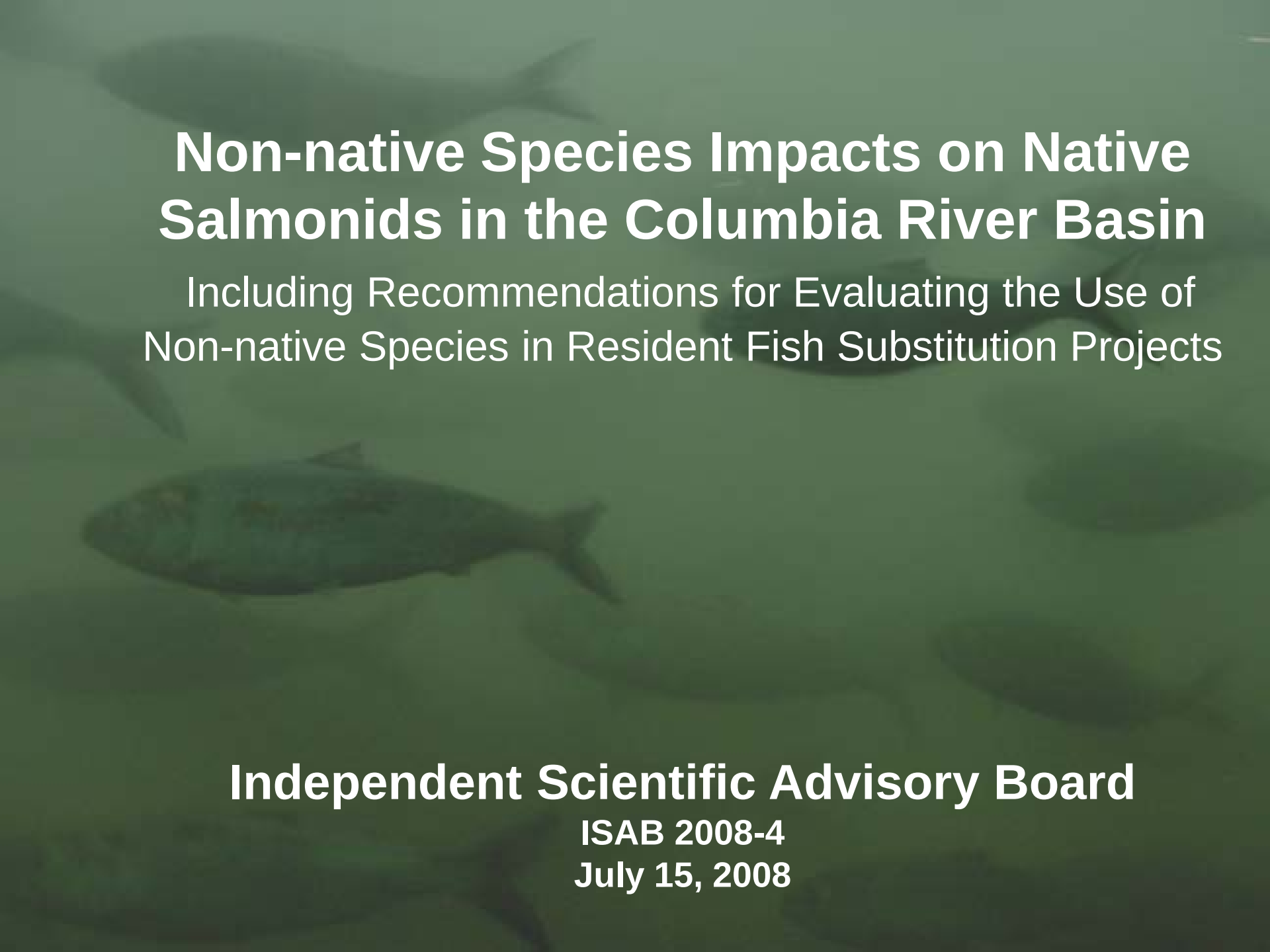
Independent Scientific Advisory Board

1996 - Jointly created by NOAA Fisheries and Council
2002 - Columbia River Basin Indian Tribes added as partners

Programmatic Reviews
State of Science Reviews

Non-native Species Impacts on Native Salmonids in the Columbia River Basin

Including Recommendations for Evaluating the Use of Non-native Species in Resident Fish Substitution Projects



Independent Scientific Advisory Board

ISAB 2008-4

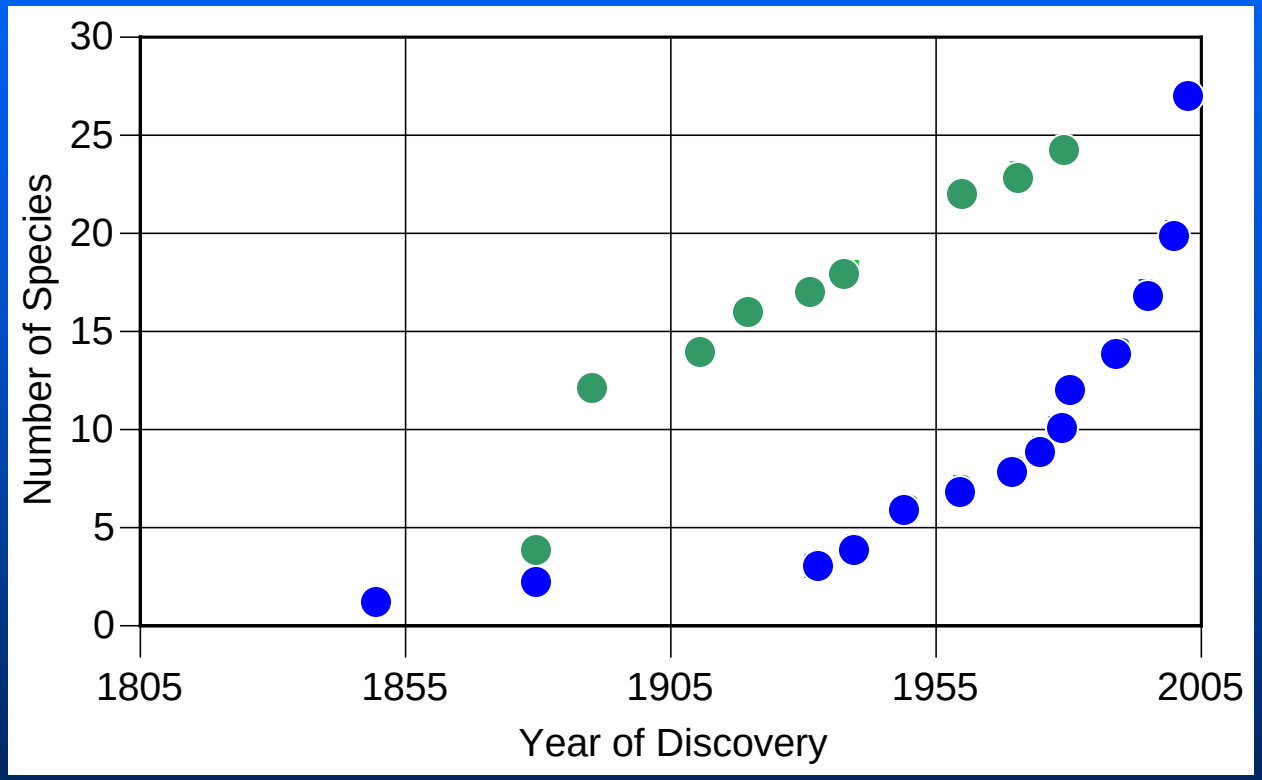
July 15, 2008

Definitions to know

- Non-native species (NNS)/Non indigenous species (NIS): species that are not native to an ecosystem
  - Examples: Bass, walleye, channel catfish, shad
- Aquatic Invasive Species (AIS): non-native species, whose introduction causes or is likely to cause economic or environmental damage, directly or indirectly
  - Examples: Zebra and Quagga mussels,

Lower Columbia River Invasion Rates

- Fish
  - High rate of introduction in 1800s, lower rate in 1900s
- Invertebrates
  - New species every 5 years from 1880-1975
  - New species every 5 months since 1995



green = fishes blue= invertebrates

-M. Systma

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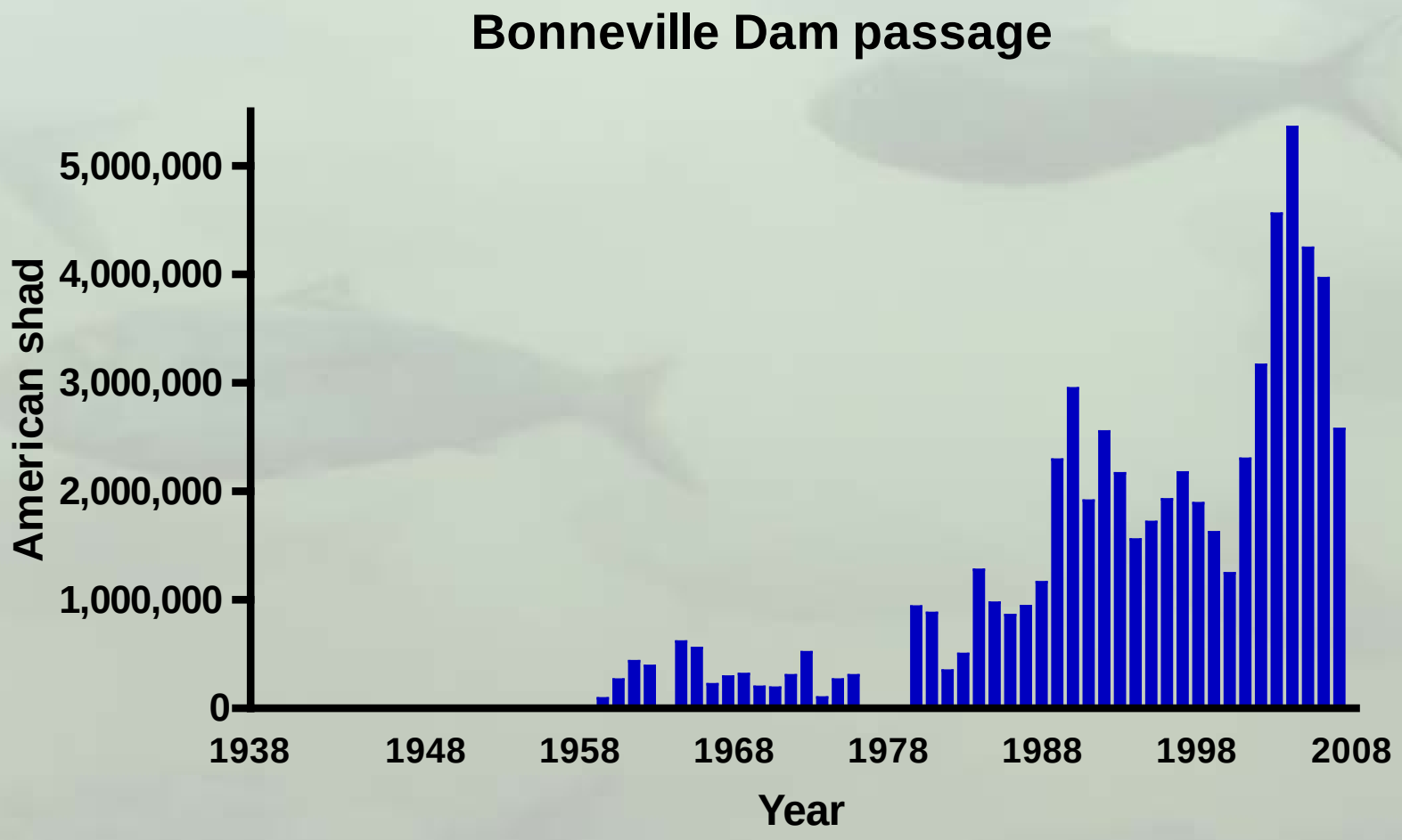
American shad



Current Non-native Fish Species Distribution in the PNW

- NNS make up 54%, 46%, and 60% of the resident fish species in WA, OR, and ID, respectively. (Sanderson et al survey).

- Many of the subbasins in the CRB have from 20 to 38 species of non-native fishes.

Role of Habitat Alteration in Facilitating Non-native Expansion

- Hydrosystem development
- Forestry practices
- Agricultural practices
- Urbanization

American Shad

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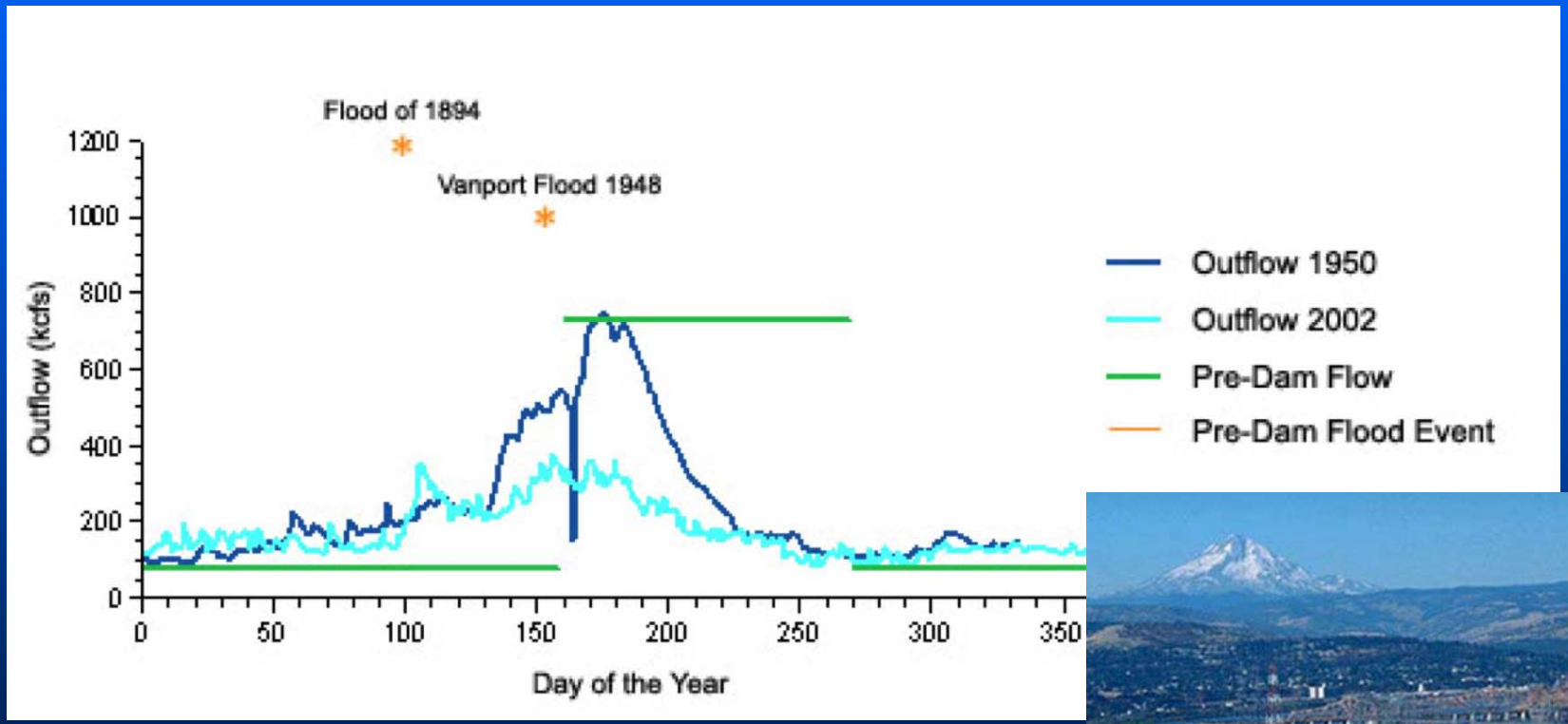
Habitat Alteration in the Columbia River Creates Environmental Match for AIS



The Dalles Dam

Biological Impacts and Risks to Native Salmonids

- Predation
- Competition for food and habitat
- Food web alterations
- Interbreeding
- Disease transmission and parasites

Channel catfish

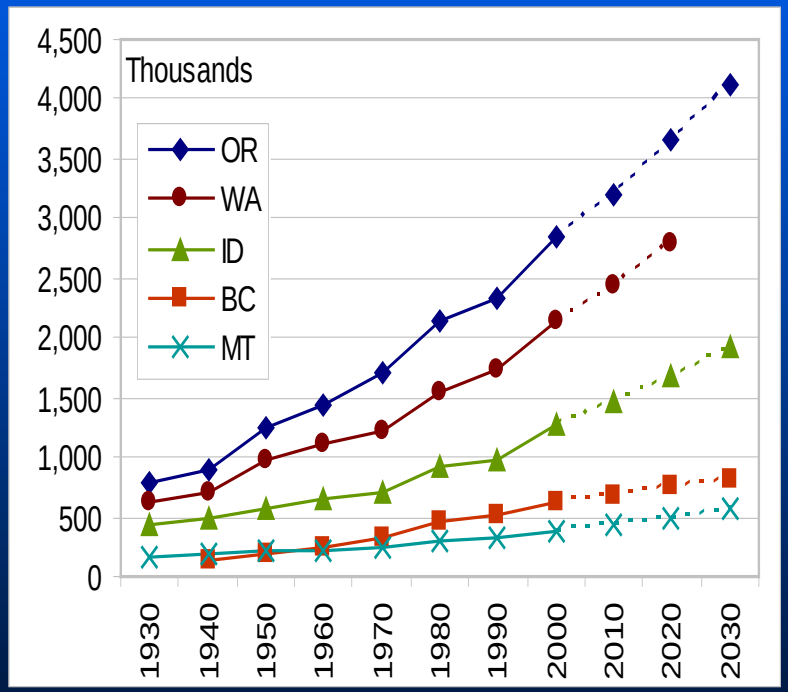
Management actions

- Eradication or reduction
  - Toxicants
  - Netting
  - Electrofishing
- Barriers
- Targeted sport-angling

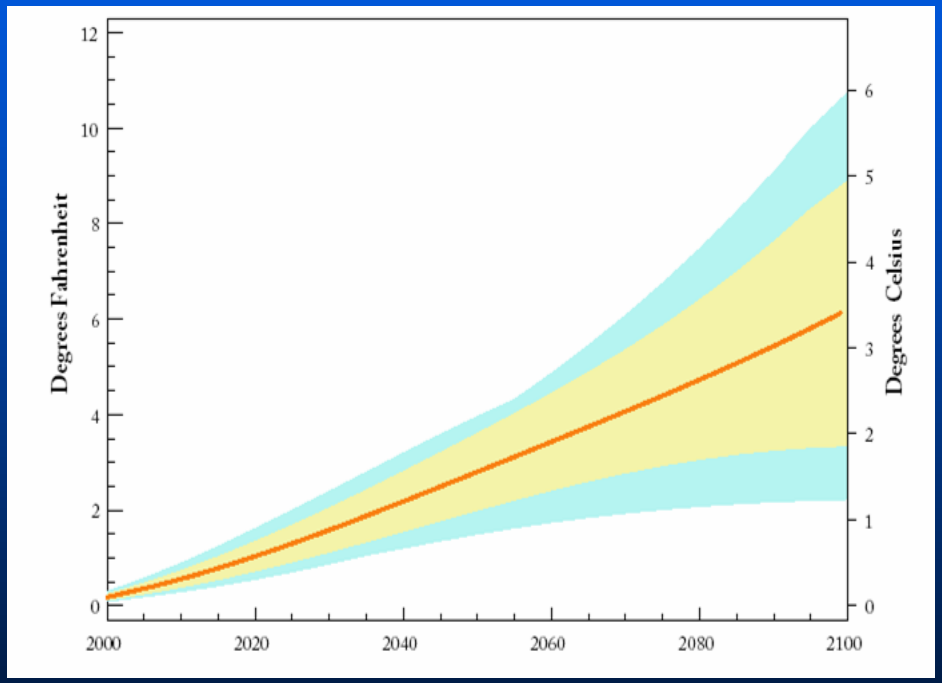
Walleye

Future Concerns

- Climate change
- Human population growth and development



US and Canada censuses. State and regional district projections for 2010 and 2020



The latest climate model simulations show a +1 to +6 ºC warming for the PNW by 2100.

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ISAB Recommendations

- Exploratory Surveillance/Monitoring
- Enforcement
- Prevention
- Fisheries Management
- Habitat Restoration
- Planning
- Education
- Research

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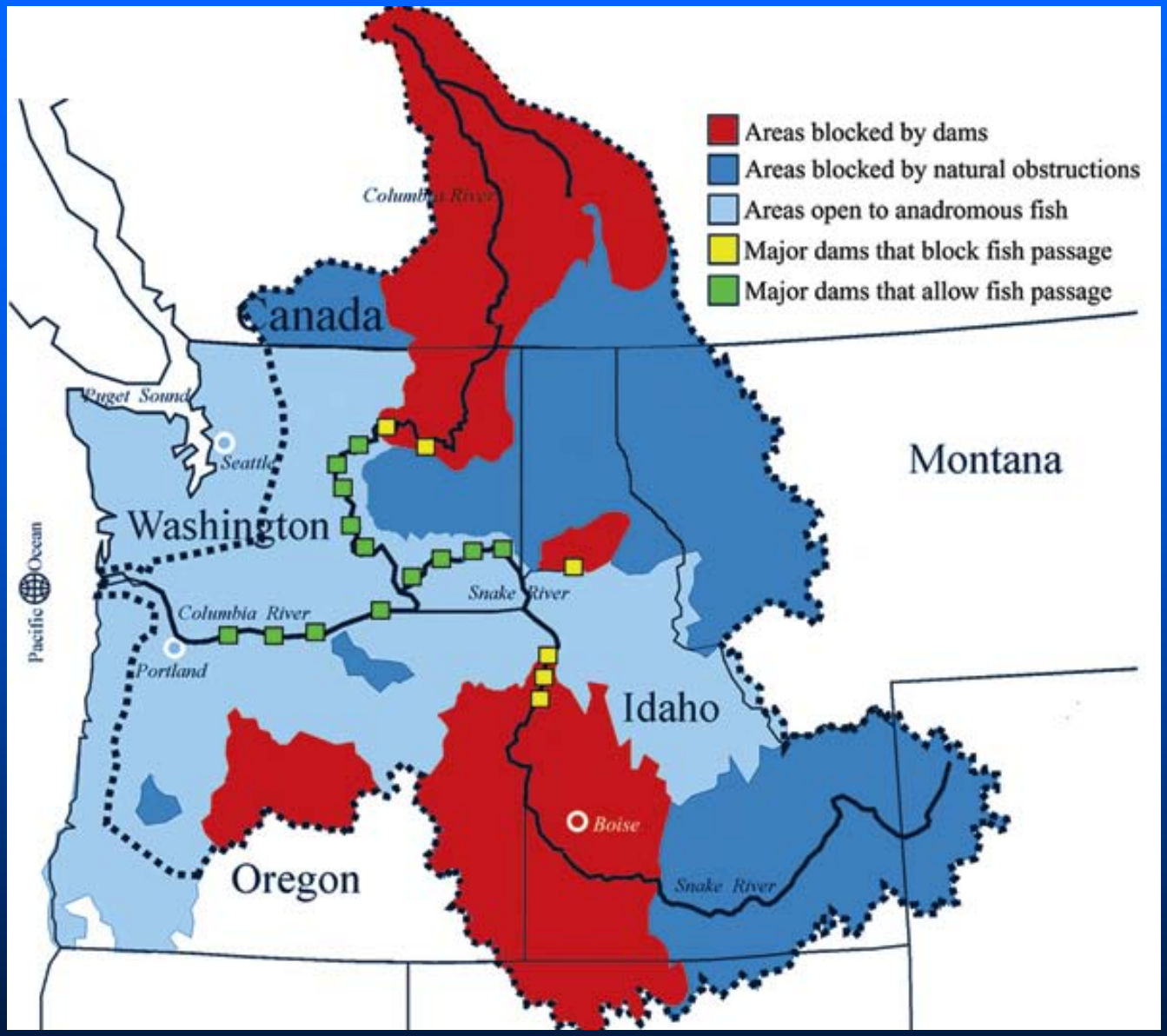

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Non-native Fish in the F&W Program

- Resident Fish Substitution – can utilize introduced species, artificial production can be used to sustain those species.
  - compatible with the continued persistence of native resident fish species
  - appropriate risk management

Risk management → Risk Assessment

- Risk assessment elements:
  - interactions with other species in system
  - genetic effects
  - escape/dispersal
  - carrier of disease/parasites
  - monitoring for success or negative consequences.

Program Example

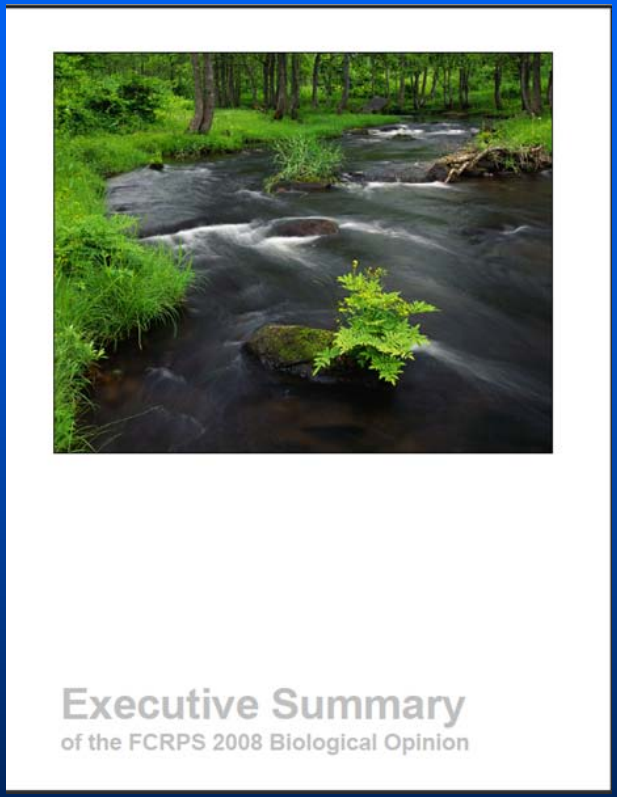
- Resident Fish Substitution Program:
  Kalispel Tribe Resident Fish Project

largemouth bass

brook trout

2008 FCRPS Biological Opinion

- **RPA 44:** Develop strategies to reduce non-indigenous fish
  - recommendation for more RM&E
- Adaptive Management Implementation Plan
  - increased attention on predation
- RM&E under basin wide scrutiny



The future in the Columbia River

- One size treatment does not fit all

- Geographic difference: Lower River
  - May see changes to harvest regs, but long term effectiveness is questionable
  - Some potential for removal in some areas
  - Need for research and evaluation

The future, continued

- Upper river/blocked areas:
  - Habitat too severely altered to expect native species recovery in the near term
  - Eradication unlikely, short term treatment
  - Cultural & political issues very difficult to address

Lake Trout

In the spotlight -

Quagga Mussels