

# Pink and Chum Management Around the North Pacific

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State of the Salmon



# Outline

- Pink and chum distribution/status
- Compare/contrast differences in
  - Fishers/gear
  - Management system
  - Hatchery practices

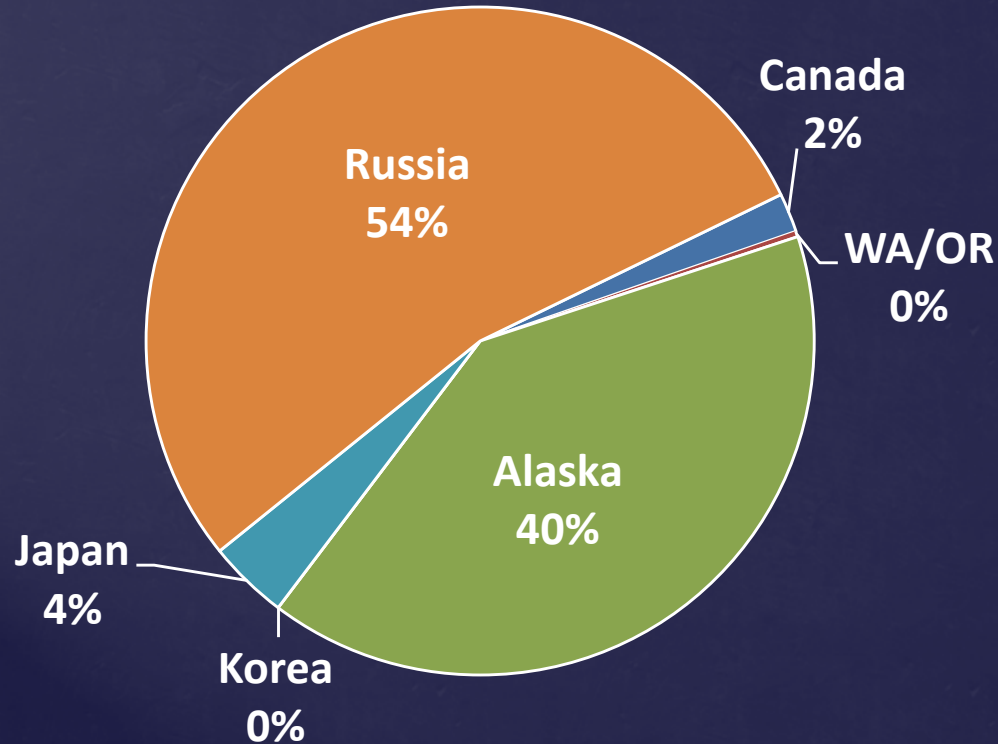




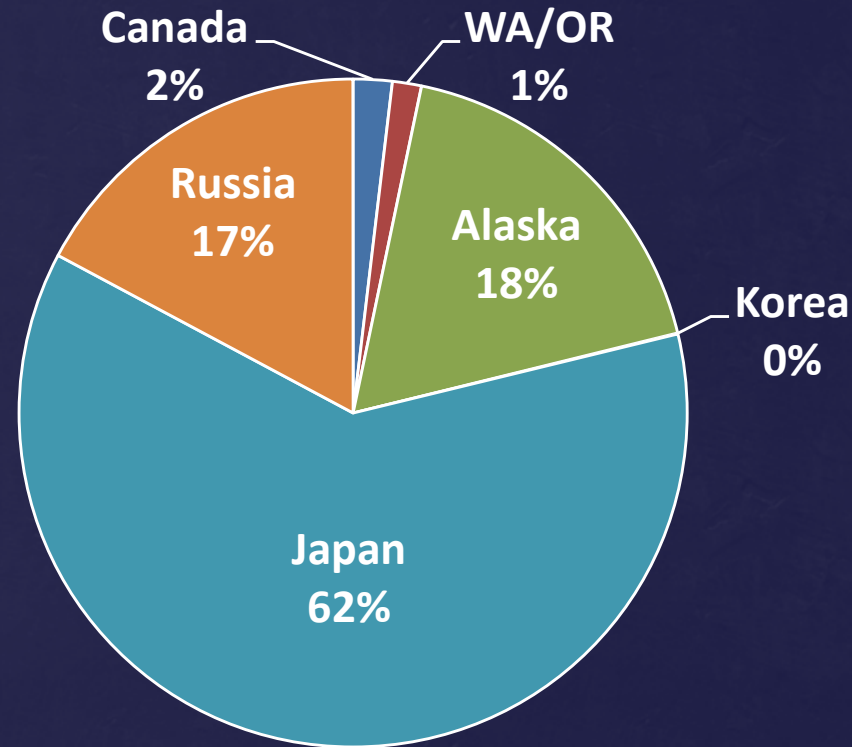


# Average Commercial Catch 2001-2010

**Pink Salmon**  
(274 million fish)

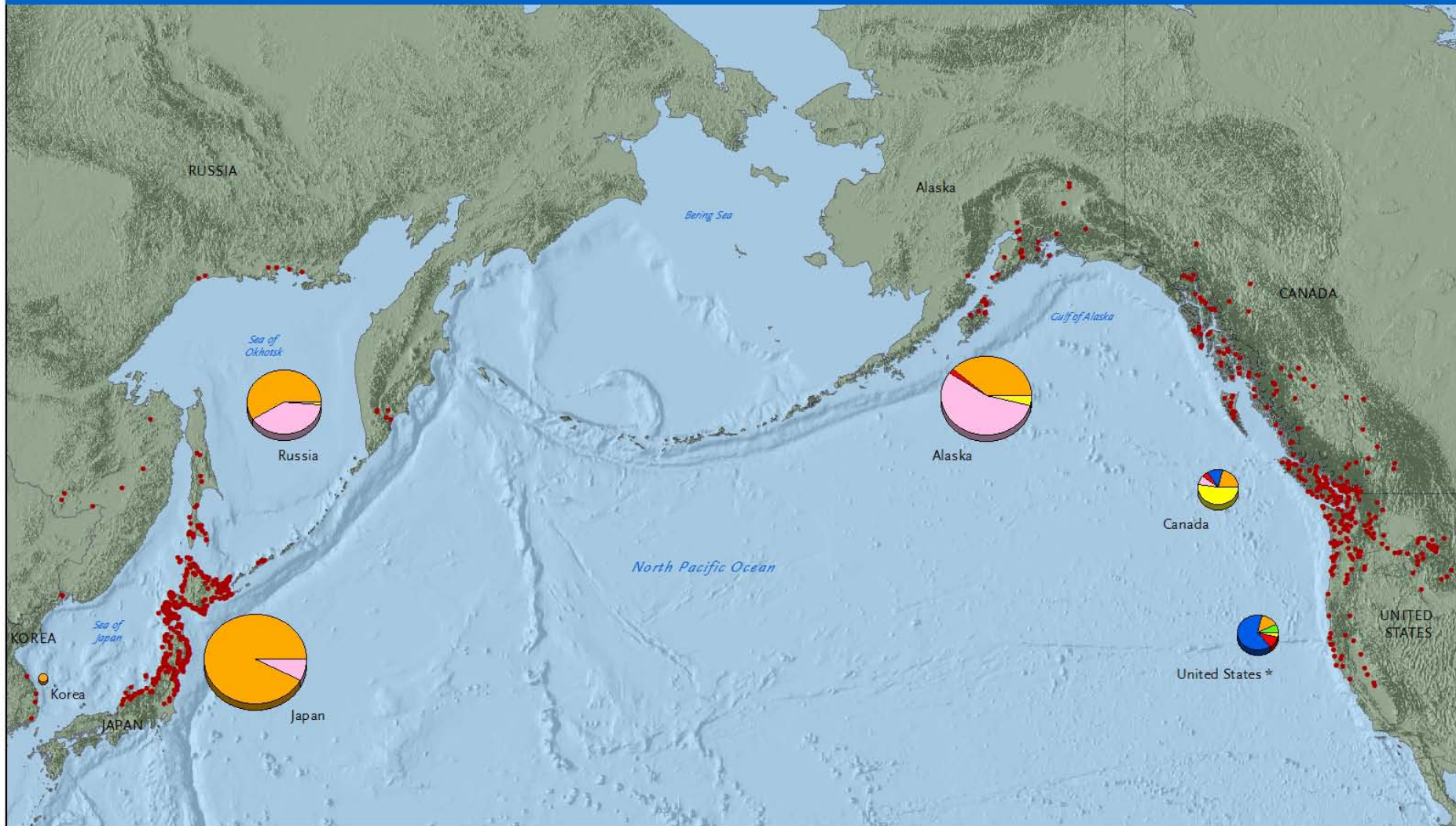


**Chum Salmon**  
(96 million fish)





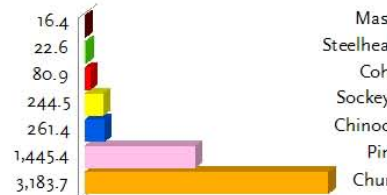
# North Pacific Hatchery Releases (in Millions)



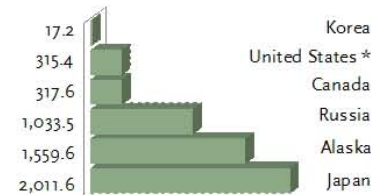
• Hatchery Release Site



Hatchery Releases by Species



Hatchery Releases by Region



\* California, Idaho, Oregon, and Washington

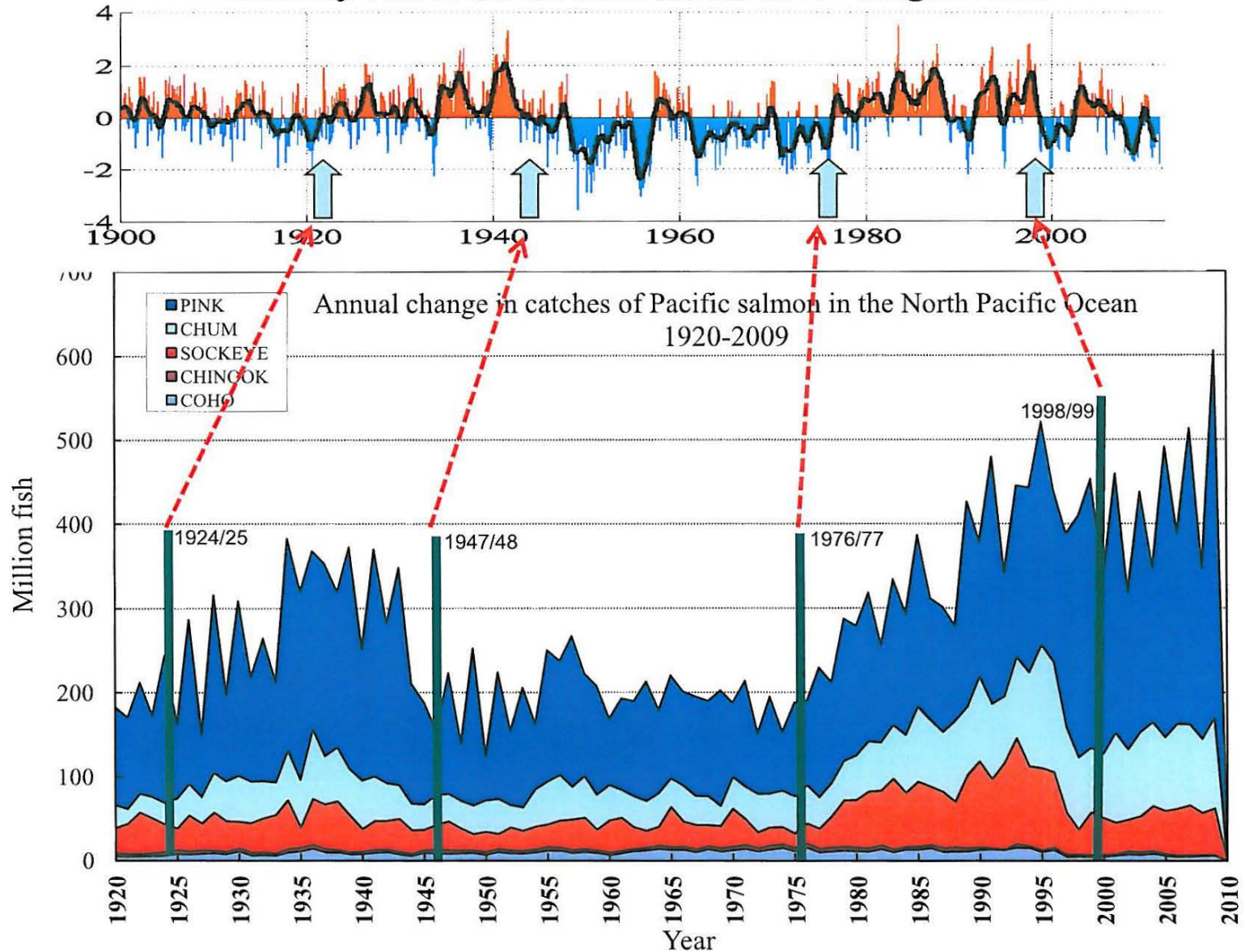
Data Source: North Pacific Anadromous Fish Commission 2010 Release Data

10 Feb 2012

# Production trend of Pacific salmon

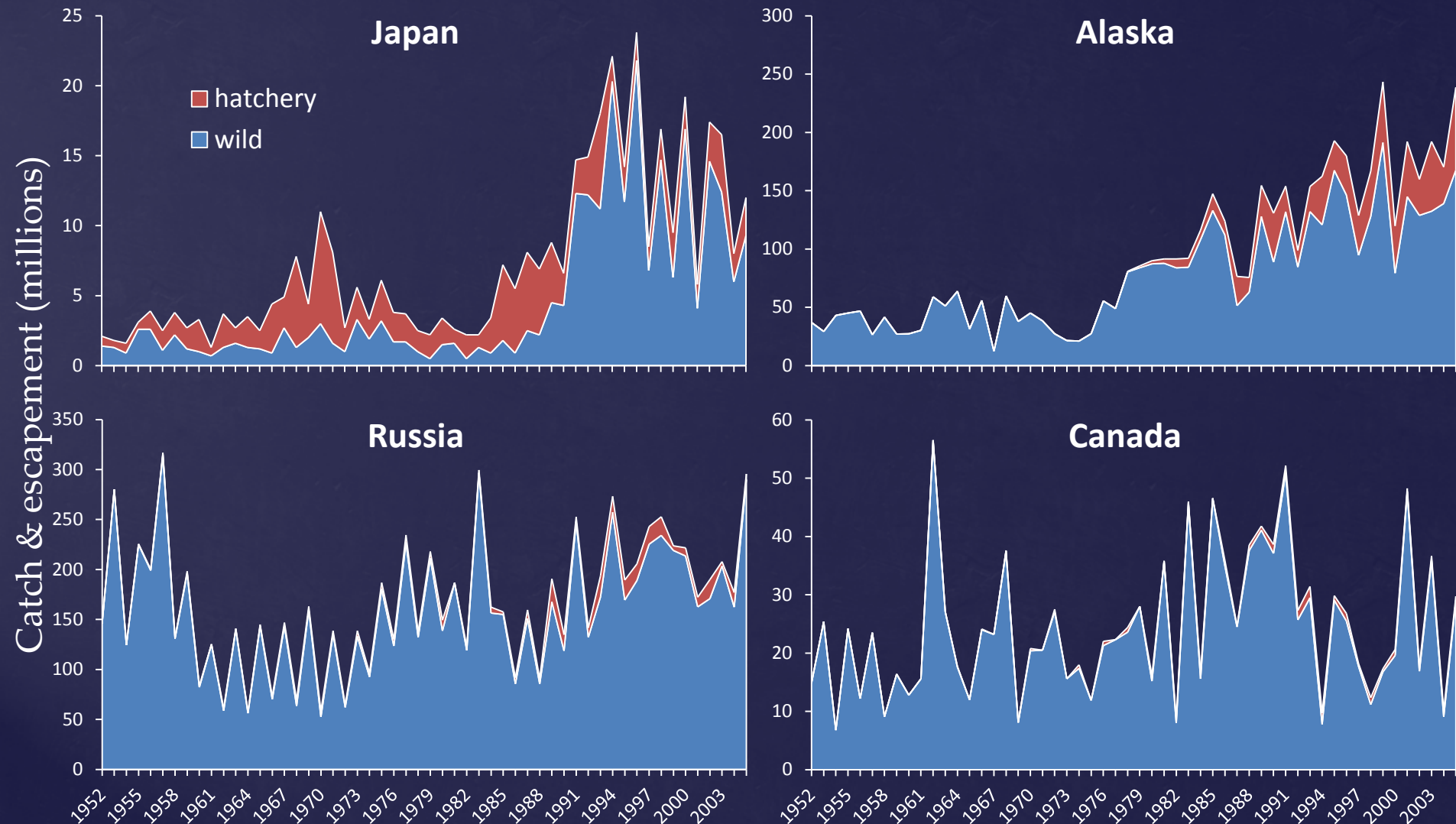
Synchronizing with the climate regime shift

monthly values for the PDO index: 1900 - August 2011





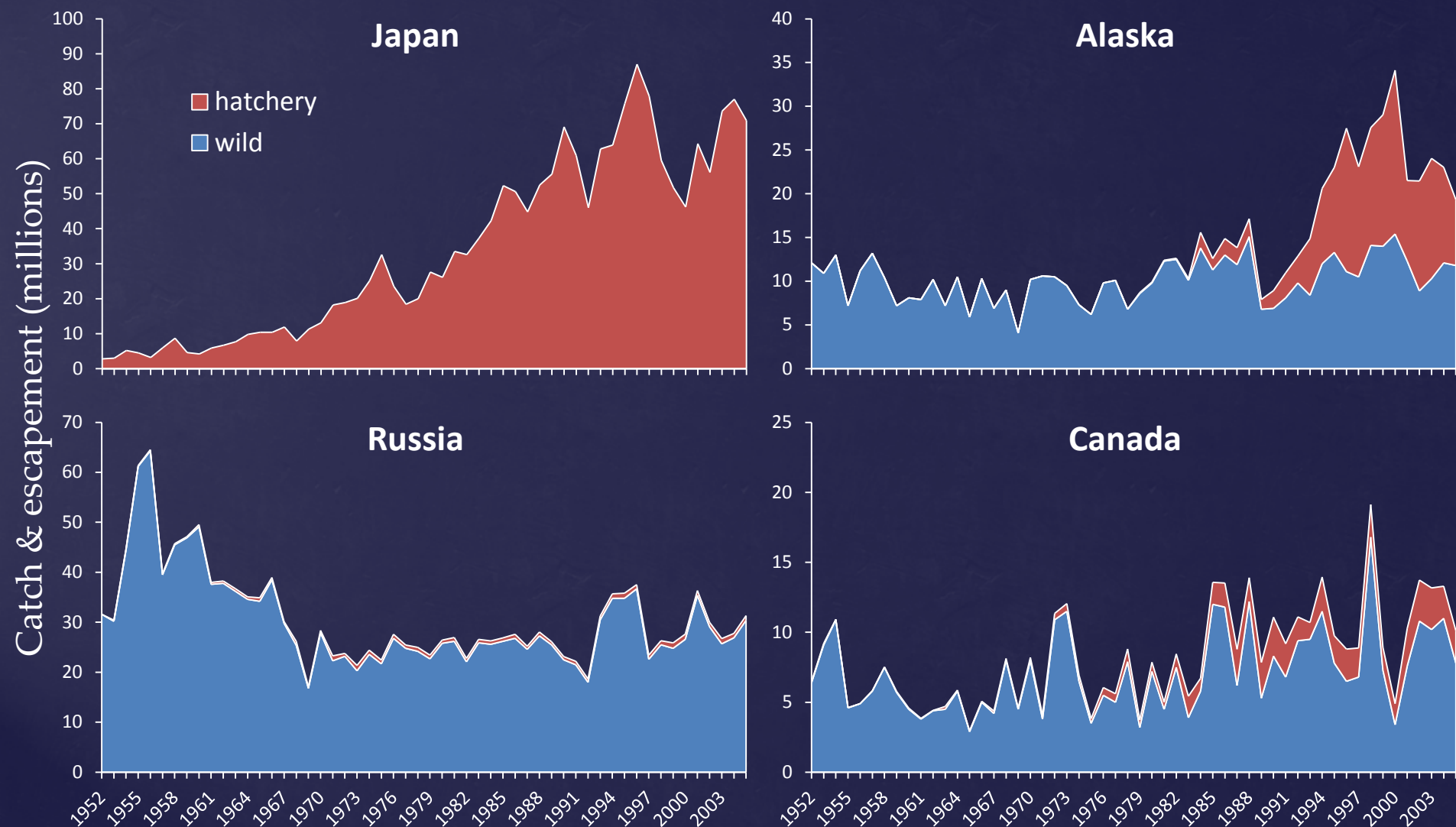
# Pink Salmon Abundance, 1952-2005



Source: Ruggerone et al. 2010.

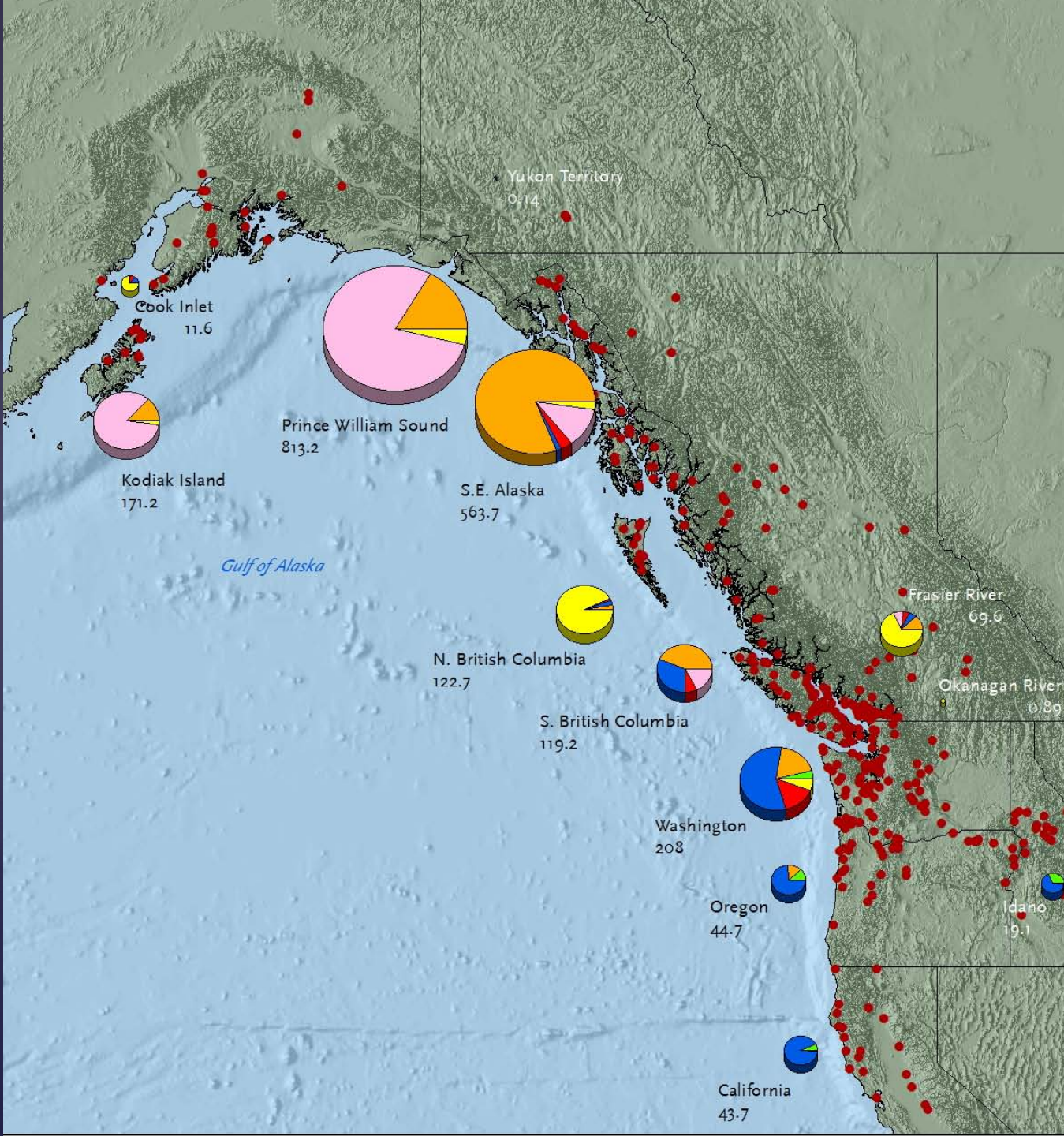
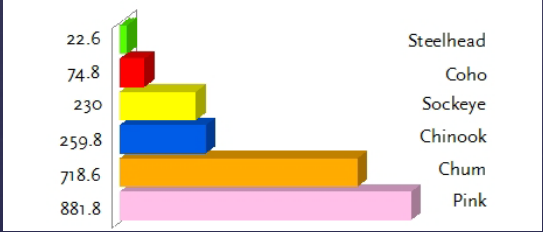


# Chum Salmon Abundance, 1952-2005



Source: Ruggerone et al. 2010.

# 2010 North America Hatchery Releases (millions)





# Alaska Fisheries

- Conducted by small commercial operators
- Primarily in coastal waters
- Purse seine, gillnet, troll

## Management System

- ADFG monitors escapement/catch
- Manage to meet escapement goals
- Differential harvest of hatchery fish

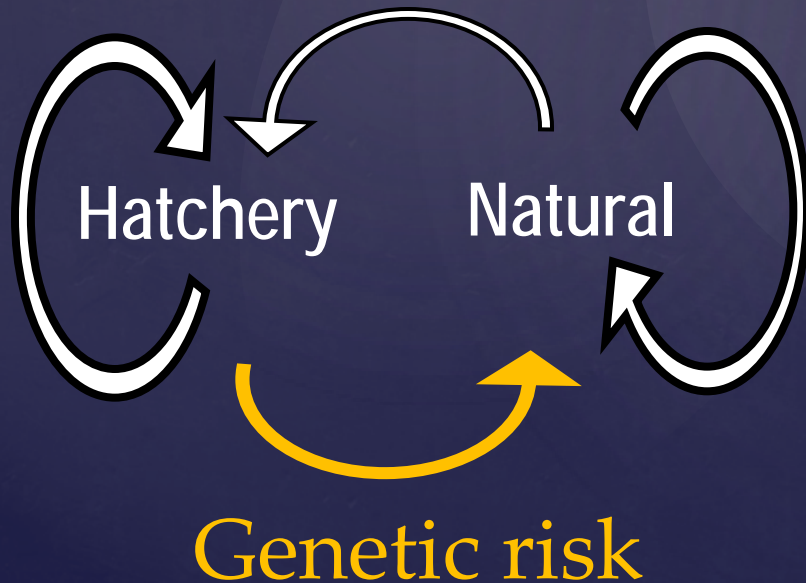
## Hatchery Programs

- Primarily privately owned/operated (PNP)
- “Segregated” strategy

# Hatchery Broodstock Strategies

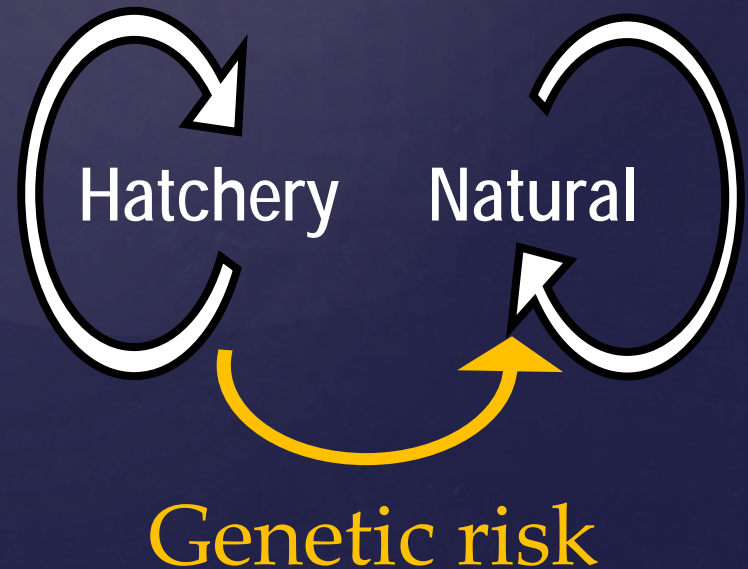
## Integrated

Goal: *1 gene pool*  
 *$pNOB > 0.1$*



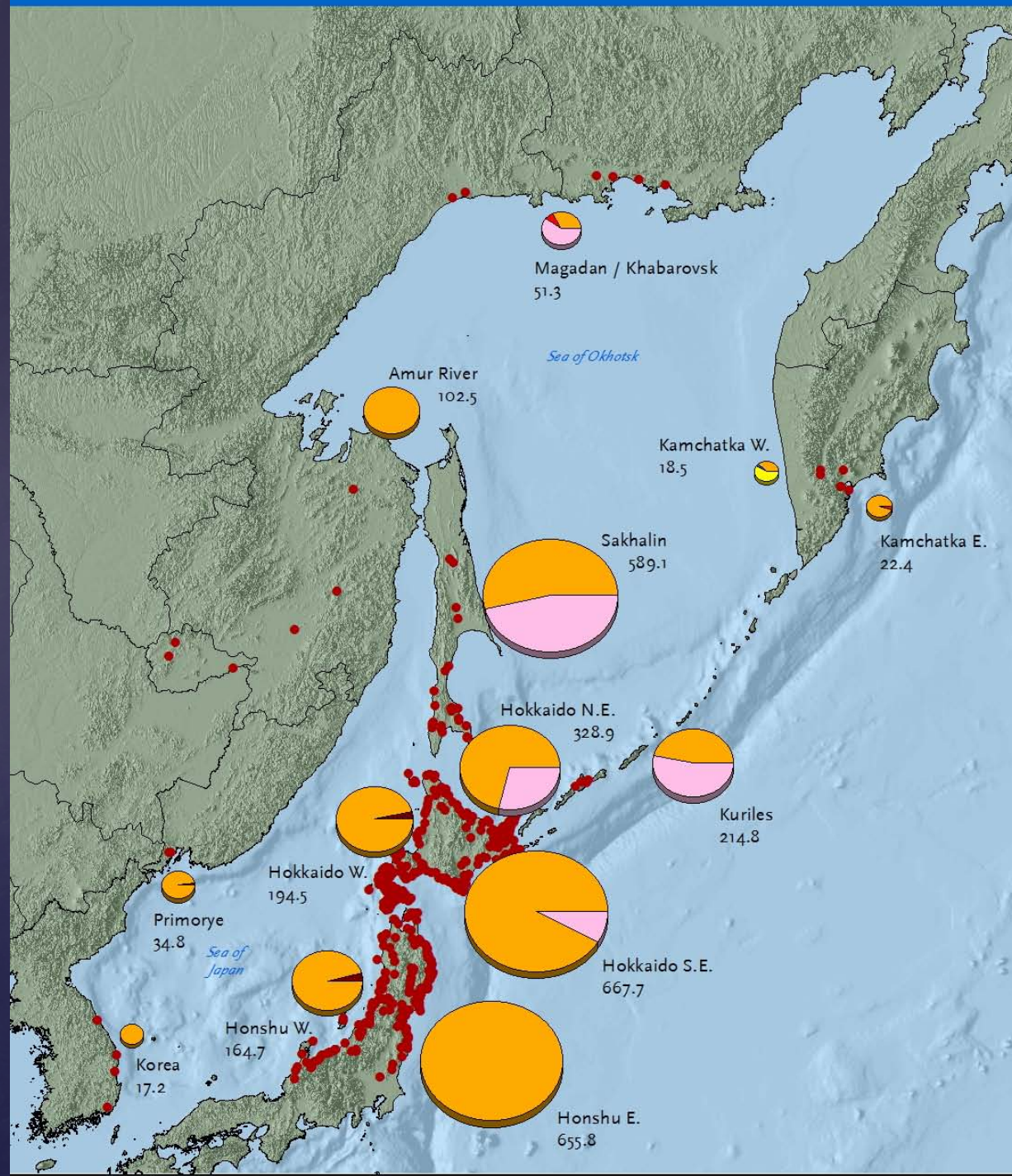
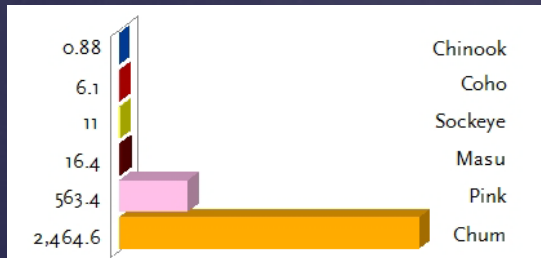
## Segregated

Goal: *2 gene pools*  
 *$pNOB = 0$*





# 2010 Western Pacific Hatchery Releases (millions)



# Russia

## Fisheries

- Fishing companies hire employees to fish
- Primarily in coastal waters
- Mostly coastal trap nets, some inriver fishing

## Management System

- Gov. agencies monitor escapement/catch
- Manage for spawning densities
- Hatchery/wild harvested as one

## Hatchery Programs

- Primarily privately owned/operated
- “Integrated” strategy











# Japan

## Fisheries

- Fisheries Cooperative Associations (FCAs)
- Primarily in coastal waters
- Mostly coastal trap nets

## Management System

- Co-managed by government and FCAs
- FCAs monitor/report escapement/catch
- Manage primarily for hatchery broodstock

## Hatchery Programs

- Primarily owned/operated by cooperatives
- Unique case: very little natural chum spawning

# Conclusions

- Alaska, Russia and Japan account for >97% of pink and chum catch
- Management systems are very different
- Nearly all chum returning to Japan originate from hatcheries
- Russia and Alaska fisheries increasingly hatchery supported



A large school of salmon, likely sockeye, swimming in shallow, greenish water. The fish are densely packed, moving in various directions, creating a dynamic scene. The water is clear enough to see the sandy bottom in some areas. The overall tone is naturalistic, with a focus on the vibrant red and orange hues of the fish against the green water.

Questions?