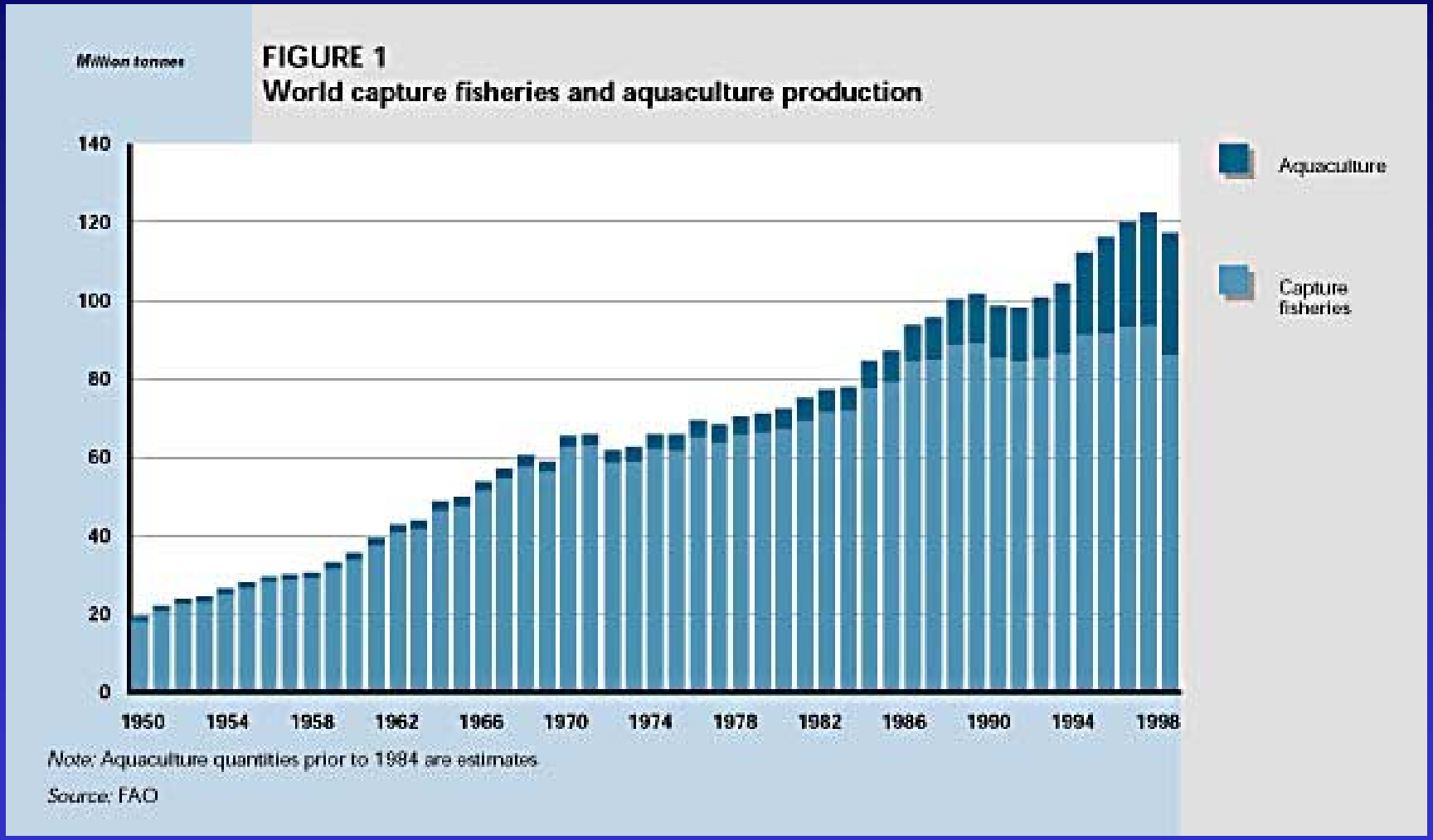
Aquaculture and the Role of Fisheries and Oceans Canada

World Aquaculture



Canada's Aquaculture Industry

- Aquaculture is one of the fastest-growing food production activities in the world.
- In Canada, it is characterized by a strong rural base (over 90% of jobs are rural), and export orientation (65% of production volume is exported),
- In 1999, the Canadian aquaculture industry produced approximately 113,083 tonnes of product, which represents 22.5% of the value of Canadian fish and seafood production
- Approximately 14,000 FTEs
- 27th in terms of world production, 4th in farmed salmon

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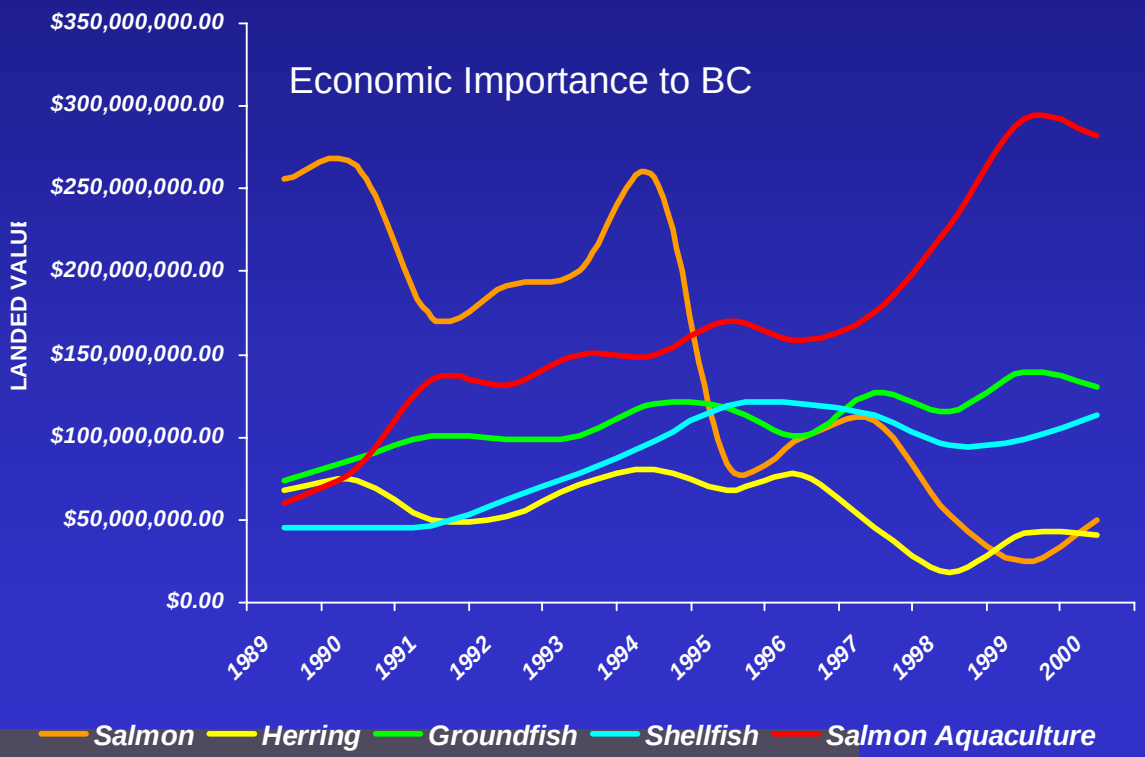
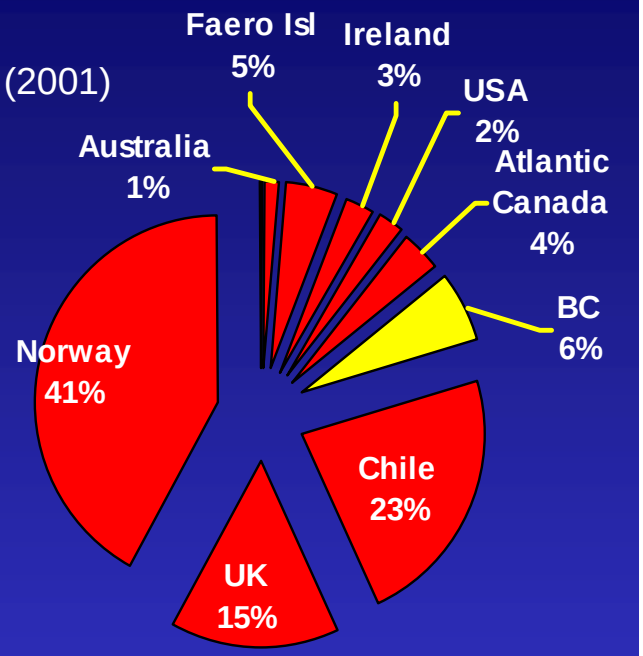
BC Finfish Aquaculture Industry

80% Exported

BC produces 25% of the US
Total Salmon Imports



World Production (2001)



122 tenures
80 active farm sites

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BC Shellfish Aquaculture Industry

- Approximately 480 tenures occupying 2114 hectares
- Average tenure size is 4.39 ha
- Oysters, clams, mussels, scallops primarily
- BC contribution to world production of shellfish is miniscule at best
- In 2000 worth approximately $20 million
- Washington State industry worth 5X value of BC industry
- Currently ~1000 jobs

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Fisheries and Oceans Canada

- Priorities
  - **Manage and Protect the Fisheries Resource:**
  - **Manage and Protect the Marine and Freshwater Environment:**
  - **Understand the Oceans and Aquatic Resources:**
  - **Maintain Marine Safety:**
  - **Facilitate Maritime Trade, Commerce and Ocean Development:**

- Responsible for Federal Fisheries Act, Oceans Act and is the RA for Canadian Environmental Assessment Act as it applies to aquaculture**.**

- Key Divisions within DFO
  - Science
  - Coast Guard
  - Fisheries Management
  - Oceans (Habitat Management)

DFO's Aquaculture Role

- In 1985 DFO was named as the lead federal agency responsible for aquaculture development.
- 1995 Federal Aquaculture Development Strategy confirmed role of DFO
- 2002 Aquaculture Policy Framework further defined the priorities for DFO's Aquaculture role
- Several Divisions within DFO are involved with Aquaculture
  - Office of the Commissioner for Aquaculture Development
  - Office of Sustainable Aquaculture
  - Fisheries Management
  - Oceans (Habitat Management)
  - Science
  - Regional Aquaculture Coordination Offices

DFO's Aquaculture Policy Framework

- Puts aquaculture on an even footing with other resource users in context of integrated and ecosystem-based management
- Commits DFO to follow an adaptive management approach while maintaining adherence to the Precautionary Approach.
- Increase consultation and communication of aquaculture issues.
- Work with interested First Nations to develop AQ opportunities.
- Better coordination with provincial and local governments.
- Clarifies what DFO means by "enabling"
  - not relaxed, but clear, efficient, effective and consistently applied laws and regulations
  - Support initiatives which assist industry as well as other stakeholders (NAAHP)

DFO's Aquaculture Role

- OCAD
  - Serves to orient the federal government to foster the growth of a sustainable aquaculture industry in Canada
- OSA
  - DFO's internal aquaculture development and coordination office
- Fisheries Management
  - Access to broodstock
- Oceans
  - National habitat protection policies.

DFO Science Branch

- DFO maintains a core program for Aquaculture Science at its research laboratories across the country.
- Major areas of research
  - Aquatic Animal Health
  - Wild – Farmed Interactions
  - Marine Habitat Science
  - Aquaculture Development

Aquaculture Science

West Vanc Lab

Exptl Lakes Area

Inst. M Lamontagne

Gulf Fish Center

Pac Biol Station

N Atl Fish Centre

Inst of Ocean Sci

Bedford Institute

Freshwater Institute

Bayfield Institute

St. Andrew's Stn

Aquatic Animal Health

- NAAHP (National Aquatic Animal Health Program) in collaboration with CFIA, provinces, industry and academe
- FHPR (Fish Health Protection Regulations)
- I & T (National Code for Introductions and Transfers of Aquatic Organisms)
  - disease, genetic and ecological risk assessment
    - Section 56 licenses
- Industry partnered aquaculture development research

Wild – Farmed Interactions

- Atlantic Salmon Watch Program
  - Joint BC MAFF / DFO Program
  - Established in 1991, expanded each year since.
  - Includes otolith research program, public education program, catch monitoring, First Nations stream monitoring and active removal teams.
  - Conducts 50+ surveys per year, results published to web-site.
- Genetic determination of Chinook salmon escapees

ATLANTIC SALMON WATCH PROGRAM

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Aquaculture Development

- Genetic Research
  - Strain determination
  - Genomic manipulation
- Nutrition
  - Canola based feeds
- Species Diversification
  - Scallops
  - Sablefish
  - Halibut

Marine Habitat Science

- Research programs for the conservation & protection of fish, fish habitat and aquatic ecosystems
  - Far field and near field effects
  - Assimilative capacity
  - Determination and fate of chemicals
  - Impacts of Harmful Algal Blooms (HABs)
  - Depositional modeling
  - Current modeling for fish health

Pacific Region Sustainable Aquaculture Directorate

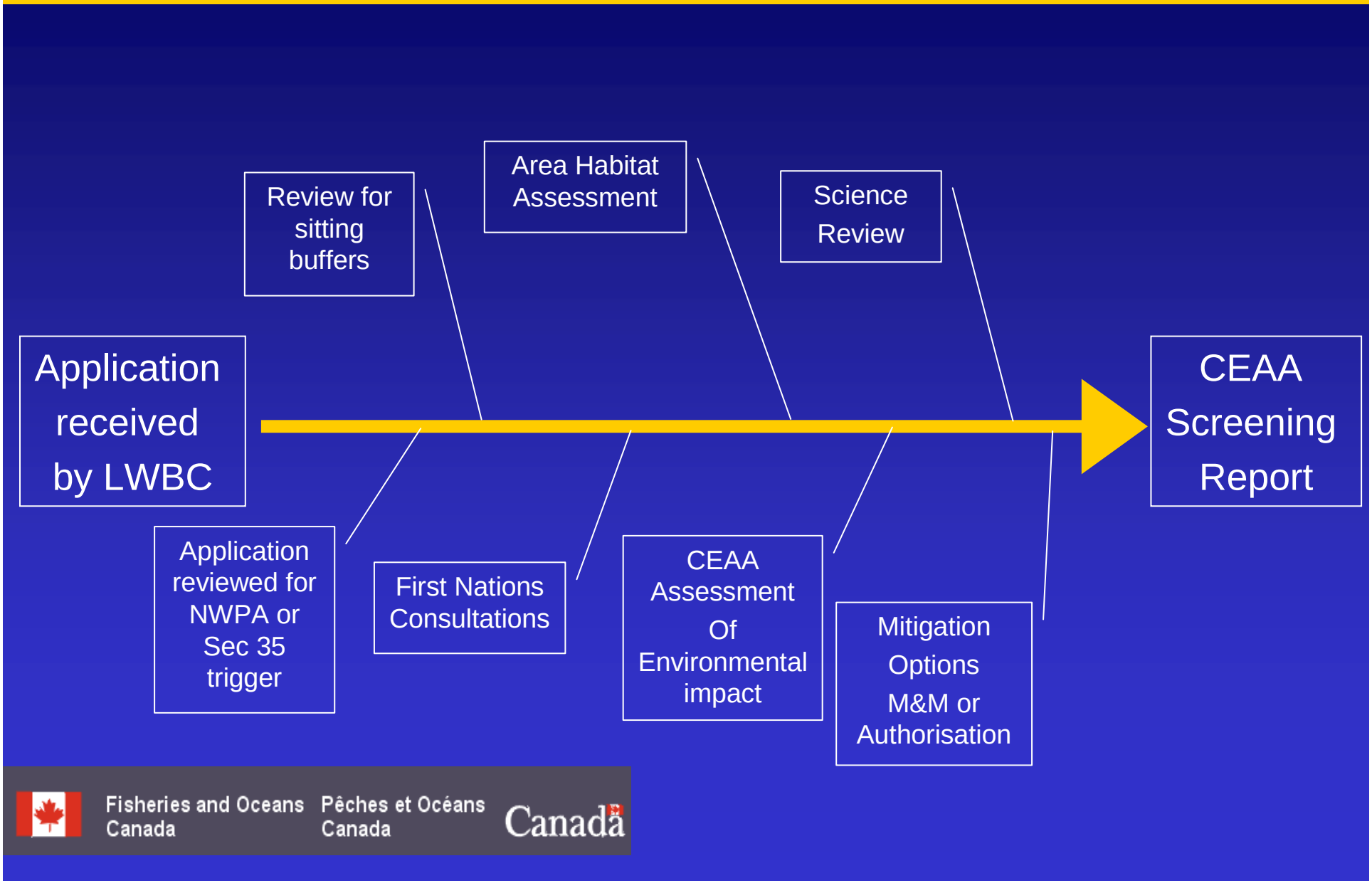
- Director: Allison Webb
  - Policy
    - Responsible for industry liaison, inter and intra government coordination and policy development
  - Regulatory
    - Responsible for CEAA assessments, including area habitat assessments.
    - Predator control permits

- NEW INTERNET SITE
  - www.pac.dfo-mpo.gc.ca/aquaculture

Canadian Environmental Assessment Act (CEAA)

- Screenings under the CEAA are stringently applied for aquaculture activities when triggered.
- Consider broad scope of environmental effects such as effects on salmon, other migratory species, shellfish, benthos, water quality, sedimentation, birds, marine mammals, application of siting buffers and cumulative effects.
- Standards are continually updated,
  - new CEAA applications require a sea lice management plan.
- FN consultation also a requirement of CEAA.
- Four possible outcomes
  - Negative
  - Positive
  - Positive with a M&M agreement
  - Positive with an authorisation

The CEAA process



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Current Status of Finfish Applications

- 3 types: relocations, renewals and new sites
  - Relocations are farms that have been chosen to be relocated due to environmental and/or social reasons - ~ 30 sites
  - Renewals are sites whose provincial aquaculture licence and lease have expired and must be renewed
    - All of these farms existed pre-1995 (moratorium and promulgation of CEAA) ~ 90 sites
  - New sites are those that have been accepted post-moratorium (Sept 02)
    - Only a handful of new sites have been received, but it is expected that new sites will be sought in the Central and North Coasts