

# Life-Cycle Assessment (LCA) of Farmed and Wild Salmon: Results from new research and industry applications

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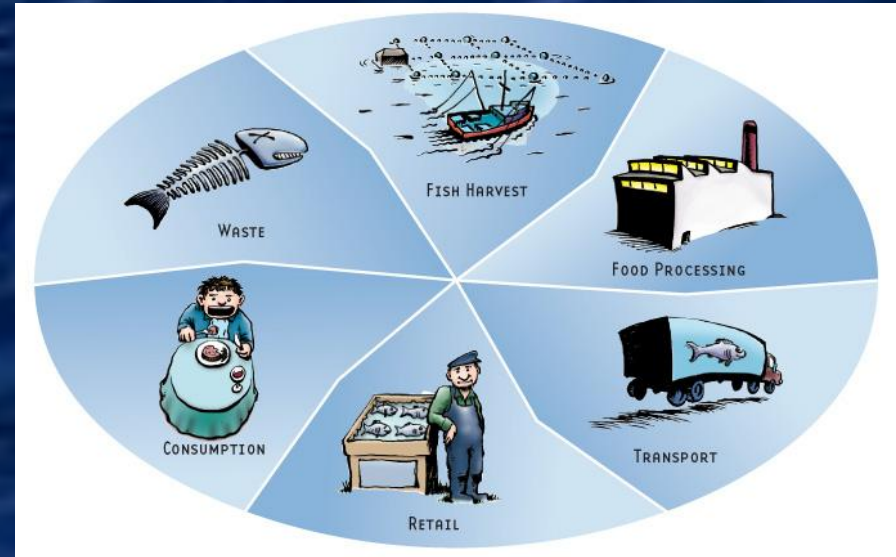
Salmon Aquaculture Dialogue 2007  
Santiago de Chile, December 12<sup>th</sup>, 2007

# Outline

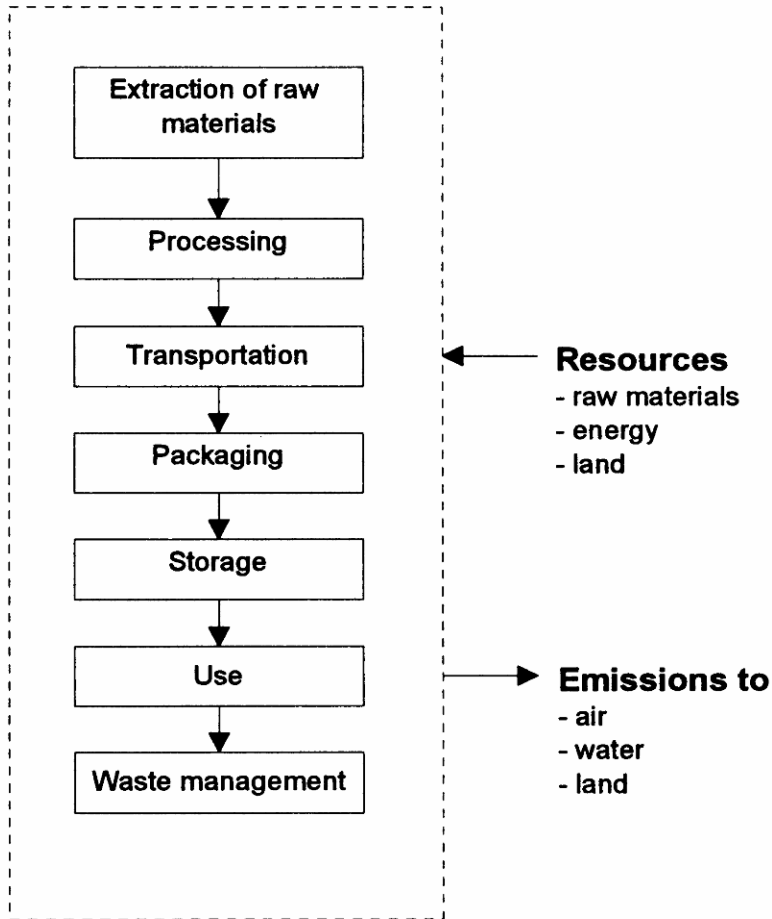
- What is LCA – Ulf
- Salmon LCA project overview - Astrid
- Preliminary results – Ulf
- Forthcoming work – Astrid

# What is LCA?

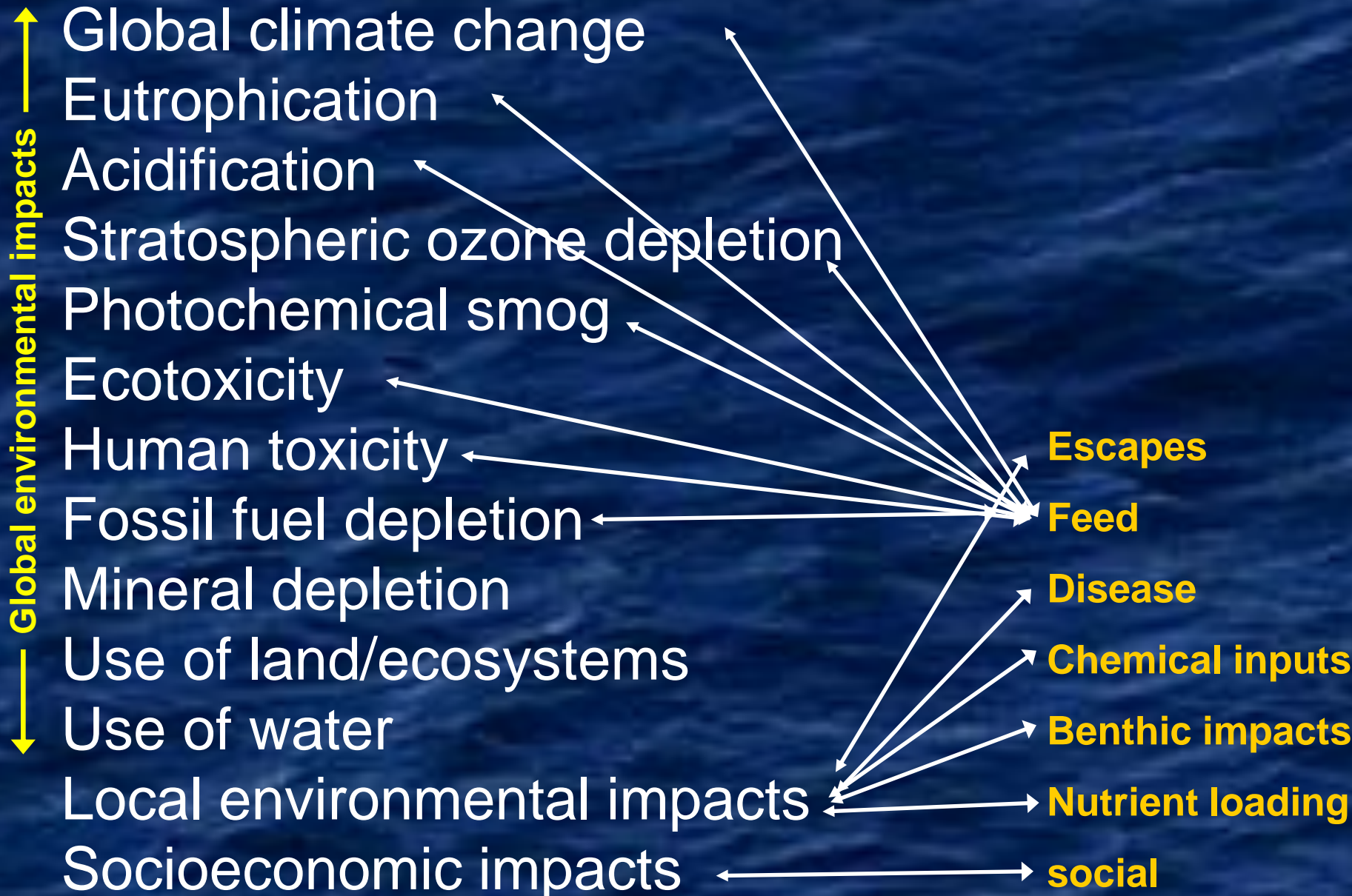
- A systematic tool to evaluate the environmental performance of a product or service at a global level throughout its “life-cycle”
- Formally standardized under ISO 14040 series standards



# What is LCA?



- Requires detailed quantification of inputs and output
- Translated into potential contributions to range of impact categories



# What does LCA provide?

- Comprehensive information on (global) environmental impacts associated with a product
- An overview of the "hot spots" in the production chain
- A basis for making process improvements
- A well-grounded basis for communications with different interested parties
- Possibilities to compare different products
- Data and information for labels and other consumer-facing initiatives

# Salmon LCA Overview

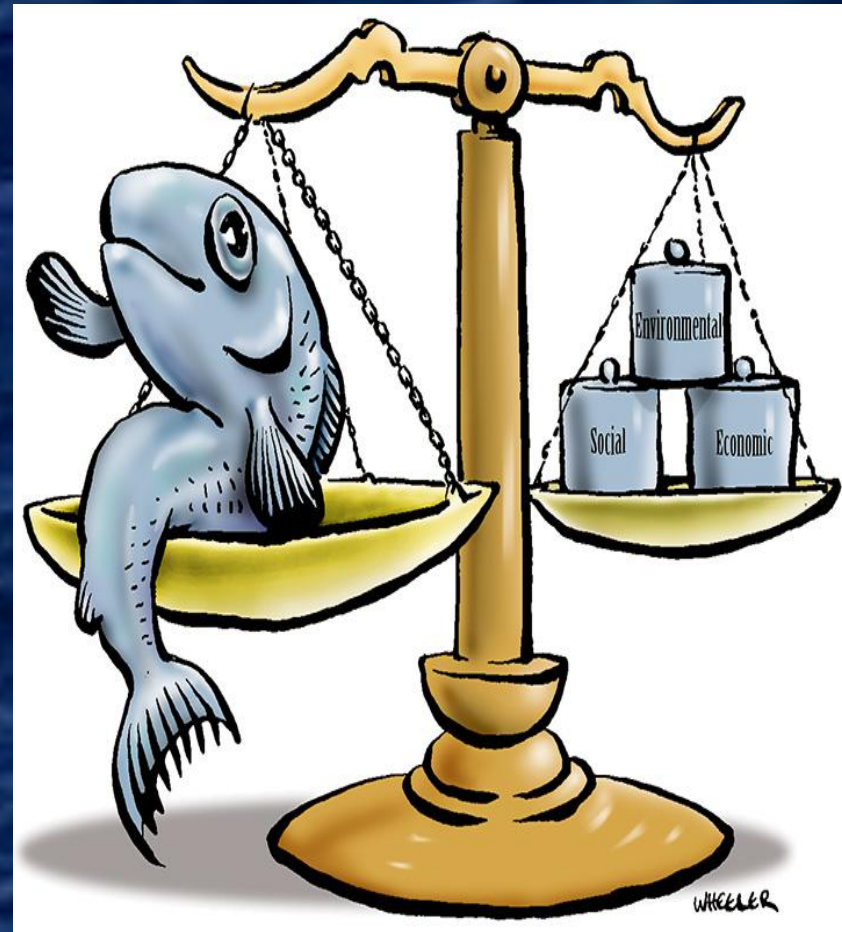
- International project begun in October 2005
- More information at [www.ecotrust.org/lca](http://www.ecotrust.org/lca)



# Salmon LCA Overview

Why salmon?

- Global super-commodity
- Illustrates three dimensions of sustainability:
  - ecological (local and global)
  - social
  - economic
- Model for other fisheries?

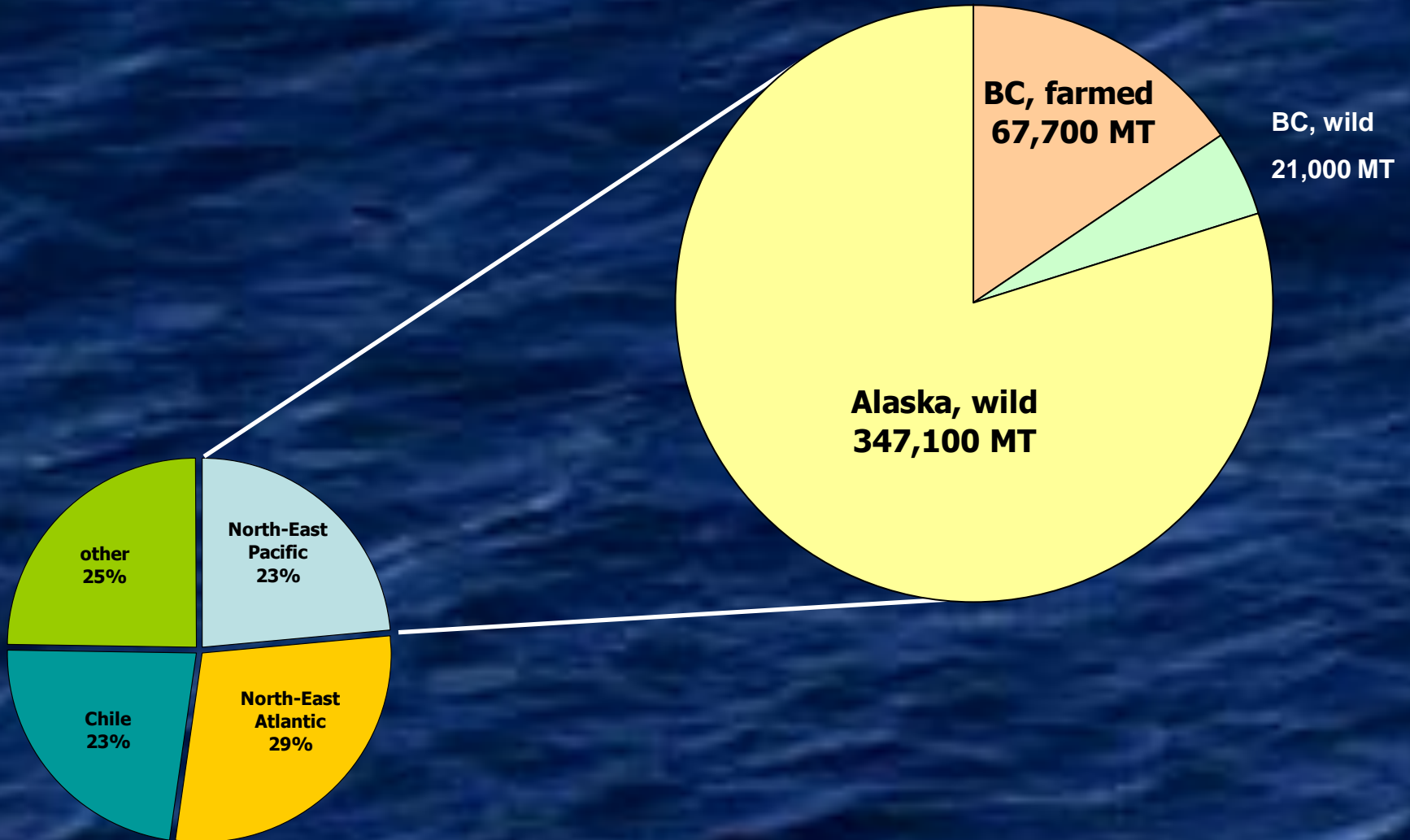




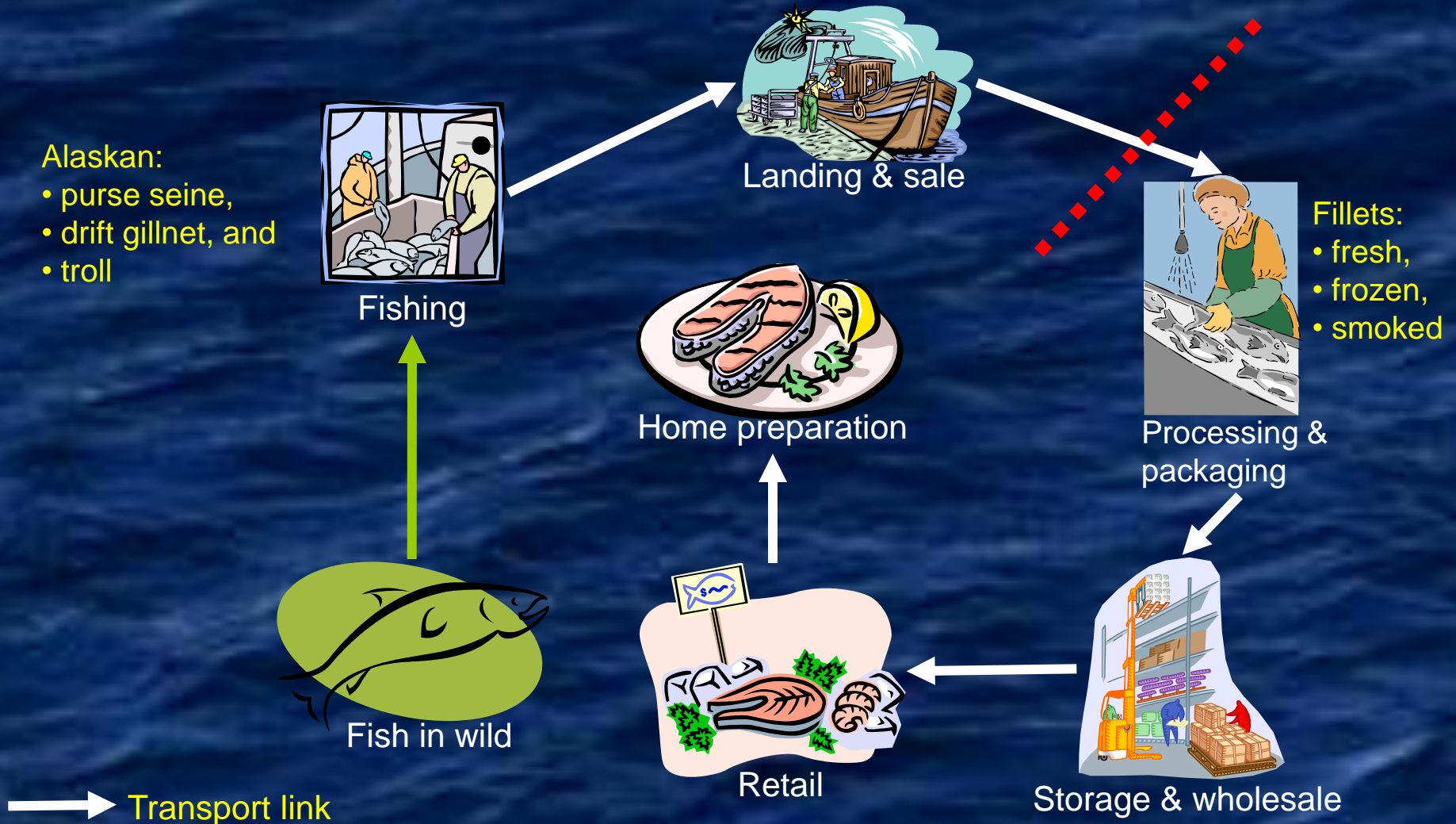
# Salmon LCA Overview

- Phase 1: North-East Pacific (Alaska and BC), started in October 2005
  - “heavy lifting” on methods development:
    - Socioeconomic and local ecological expansions of LCA framework
  - Supported by the Lenfest Ocean Program
  - Methodological results published and in prep
  - Substantive results presented (e.g., AAAS)
  - Full NE Pacific results will be presented as part of global study

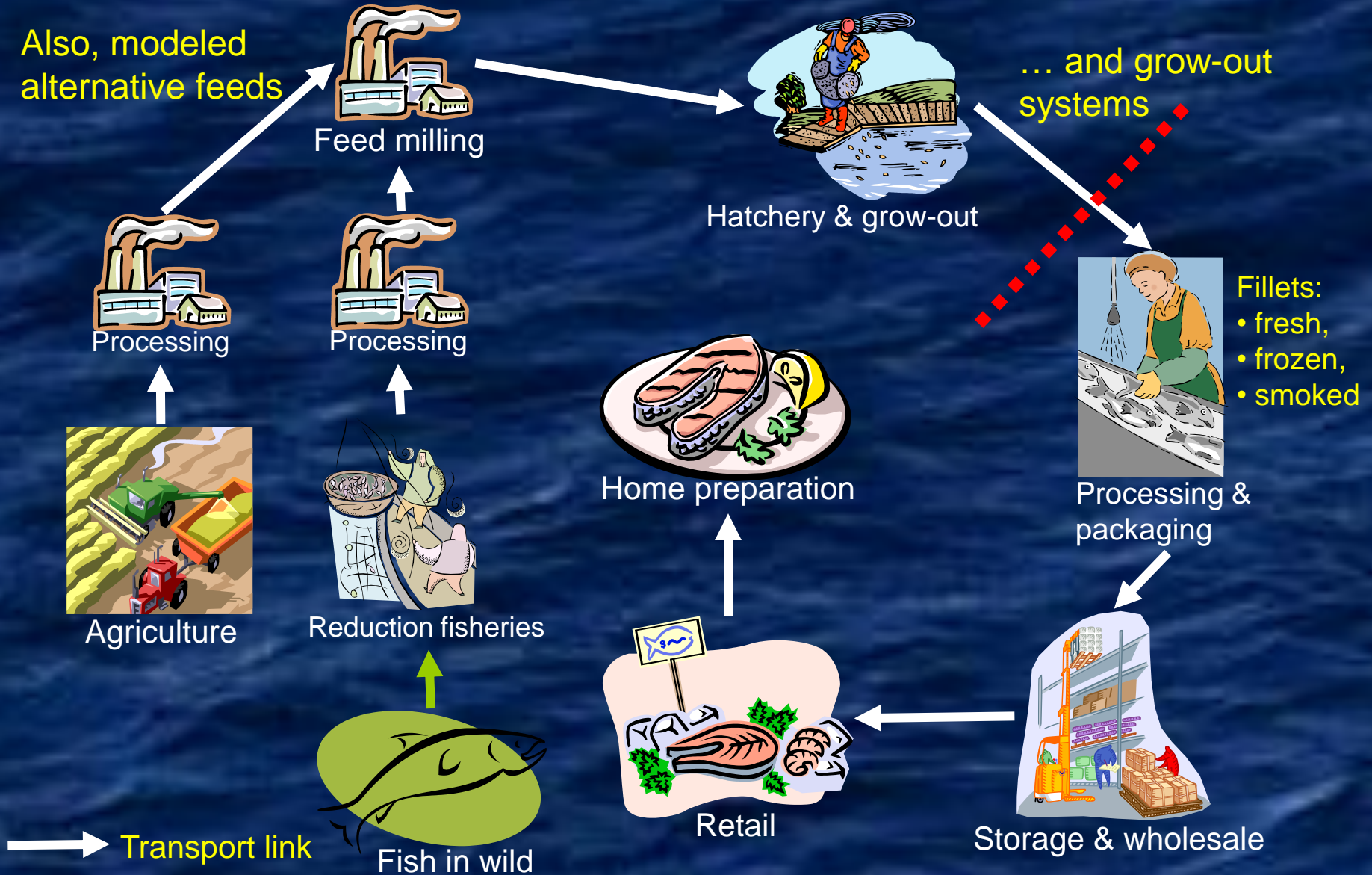
# Salmon LCA Overview



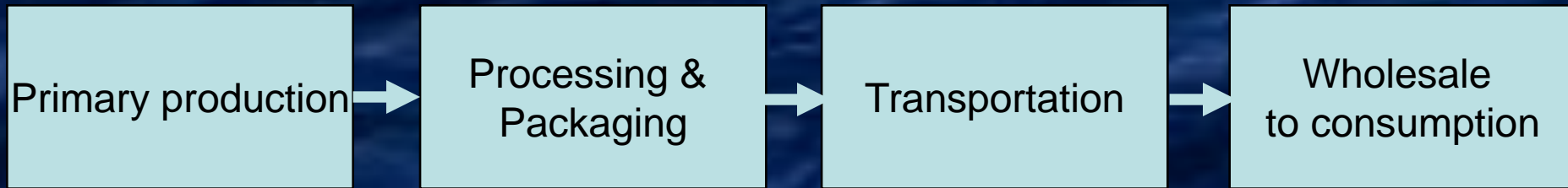
# LCA of Salmon Fishing



# LCA of Salmon Farming



# Impacts along the (sea)food value chain



**Global ecological, biophysical impacts**

**Local ecological and socioeconomic impacts (indicators)**

# Preliminary Results

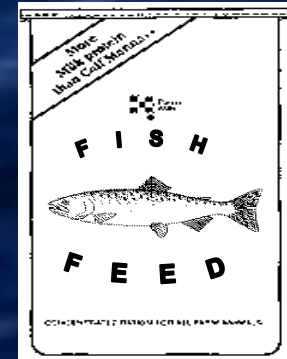
- Does not include socio-economic analysis or local ecological effects yet!
- Major insights re global effects include:
  - Seafood sustainability encompasses more than what happens in the water
  - Pre-dock, drivers of life-cycle impacts are very different for fishing and farming
  - Post-dock, major drivers include transport distances and modes, and time in storage

# Preliminary Results

- Data slides omitted from this version

# Take Home Messages

- Sustainable seafood?
  - More than what goes on in the water
- Up to the dock:
  - In farming, feeds are key – large scope for improvements
  - Hence feed utilization is important
  - As are feed composition
- After the dock:
  - Transport mode matters – potentially more than “food miles”





# Forthcoming work

- Phase II: Chile and North-East Atlantic
- Local partners: Pontificia Universidad de Valparaiso and Scottish Association for Marine Science (SAMS)
  - Technology transfer
  - Graduate students
- Have developed survey instruments for data collection
- Goal: complete global study by 10/2008!

# Forthcoming work

- Additional funders:
  - Oak Foundation (Switzerland)
  - Lighthouse Foundation (Germany)
  - Esmee Fairbairn Foundation (UK)
  - Industry sponsors
- Negotiating data access and confidentiality protocols with industry partners
- Panel on information products for European market at Seafood Summit in Barcelona, January 2008

**Any Questions?**

