

# Fisheries of the North Pacific: Pathways to Food Security and Nutrition

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# Fish, food security and nutrition

## - an example of focusing on people

1. Links between fish, food security and nutrition (FSN)
  - Results of a new global investigation for the UN Committee on Food Security
2. FSN in N Pac fisheries examples
  - Pollock
  - Sardine/anchovy
3. A PICES regime shift to incorporate more social science?

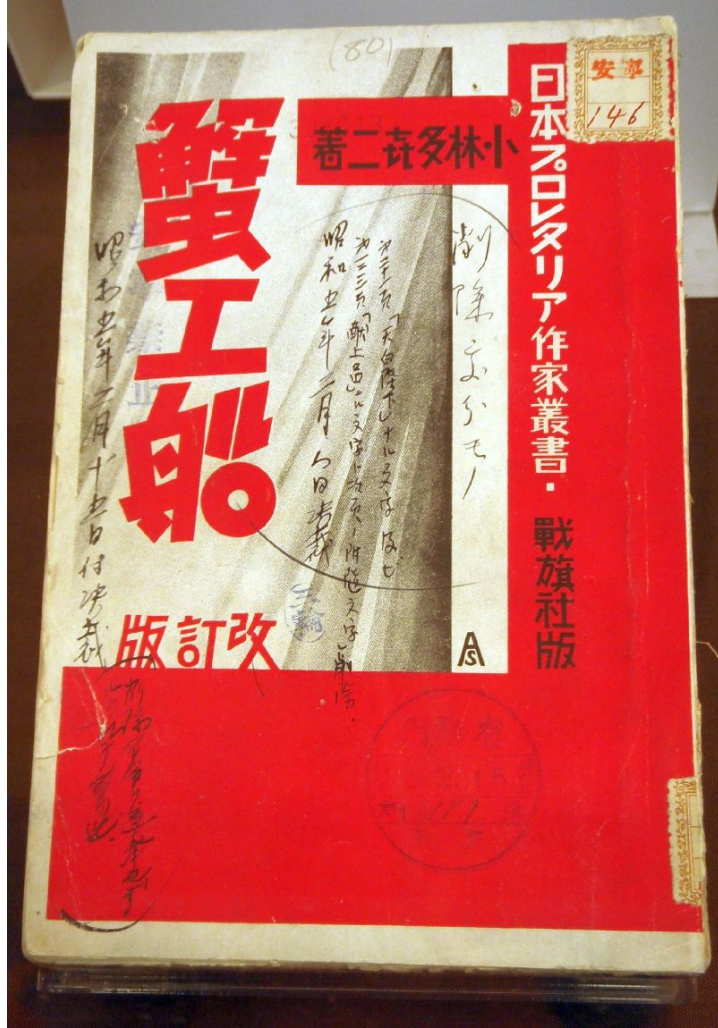
People and fish in the N. Pac:  
Public perceptions

# Yesterday: fish and people in history

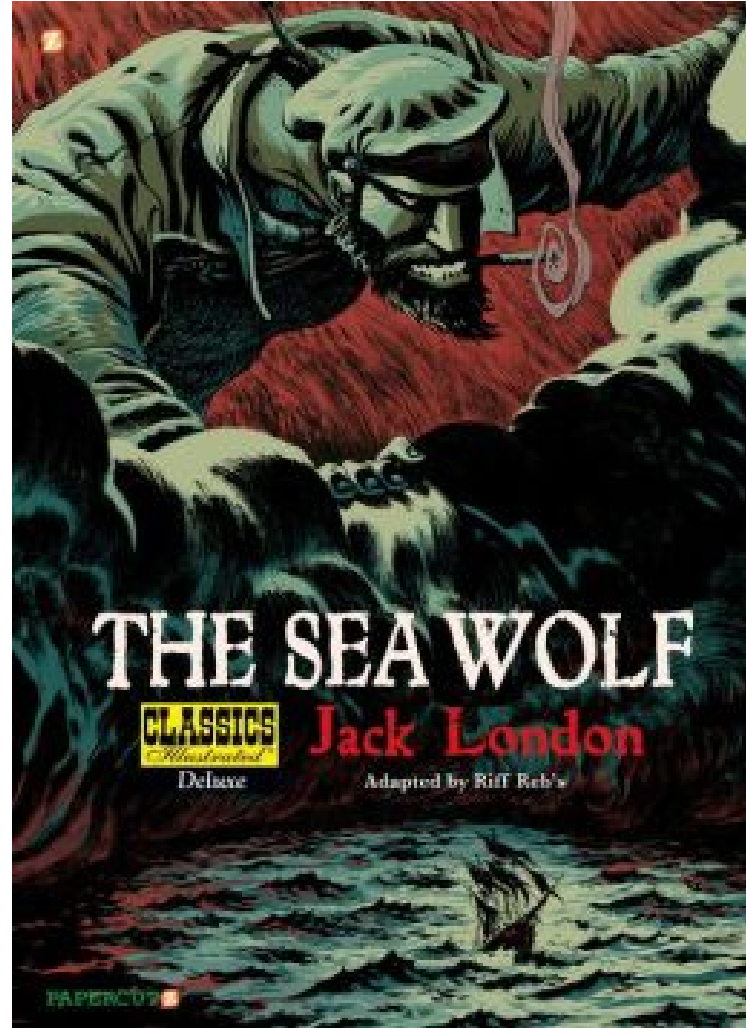


Wooden fish, fishing spear, fish leather tools, and beautiful fish leather clothing.

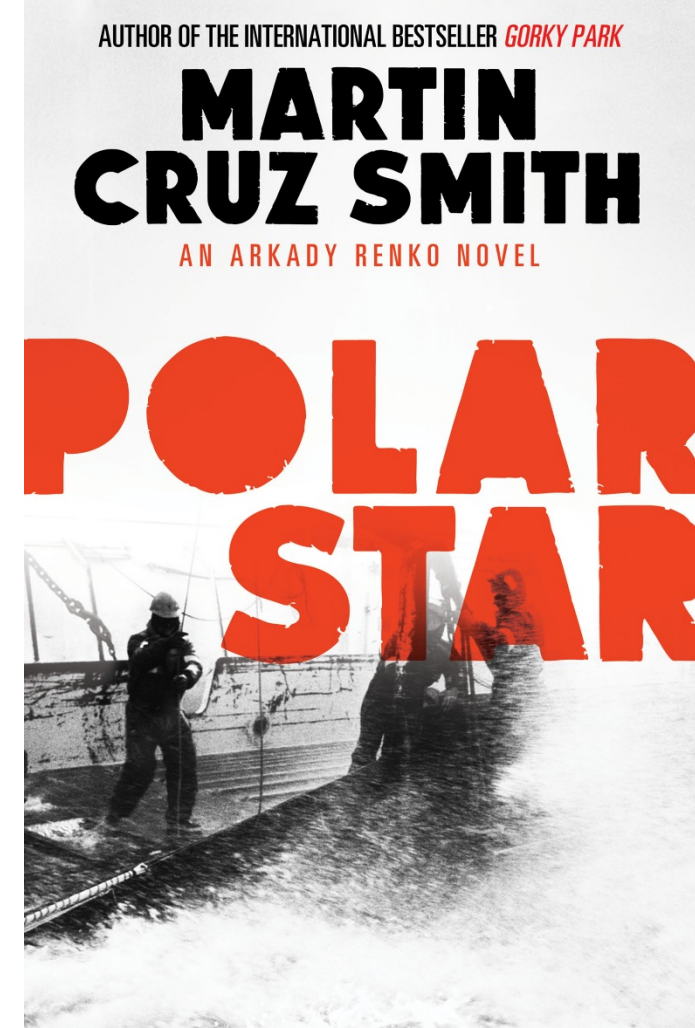
**Photos:** Arseniev Museum, Vladivostock, and Khabarovsk Museum, Khabarovsk, Russian Far East



**Kanikosen (The Cannery Boat) 1929.**  
Takiji Kobayashi. [US Library of Congress,  
copy for censorship examination,  
Interior Ministry]



**The Sea Wolf 1904.**  
Jack London



**Polar Star 1989.**  
Martin Cruz Smith

# Fish, people, fiction: heroes & villains

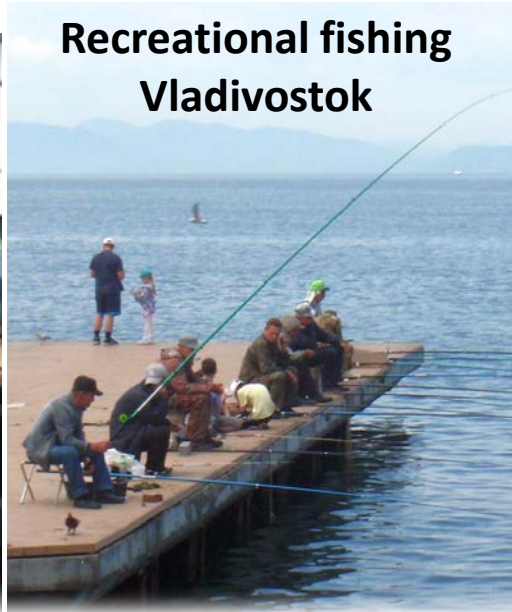
Chinese fishers released from arrest by N. Korea

*Photo:* chosun.com



Recreational fishing

Vladivostok



# Today: fish and people in the news and life

Kids with drying salmon, Alaska

*Photo:* pacificenvironment.org



UNALASKA  
a novel  
ALASKA

Wolf Larsen

# 1. Links between fish, food security and nutrition



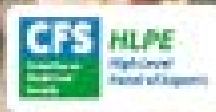
Sustainable fisheries and aquaculture  
for food security and nutrition

A report by

The High Level Panel of Experts

on Food Security and Nutrition

June 2014



## HLPE Report

# *Sustainable fisheries and aquaculture for food security and nutrition*

## HLPE PROJECT TEAM

Christophe **Béné**  
(Leader)

Gro-Ingunn **Hemre**

Moenieba **Isaacs**

Vijay **Gupta** Modadugu

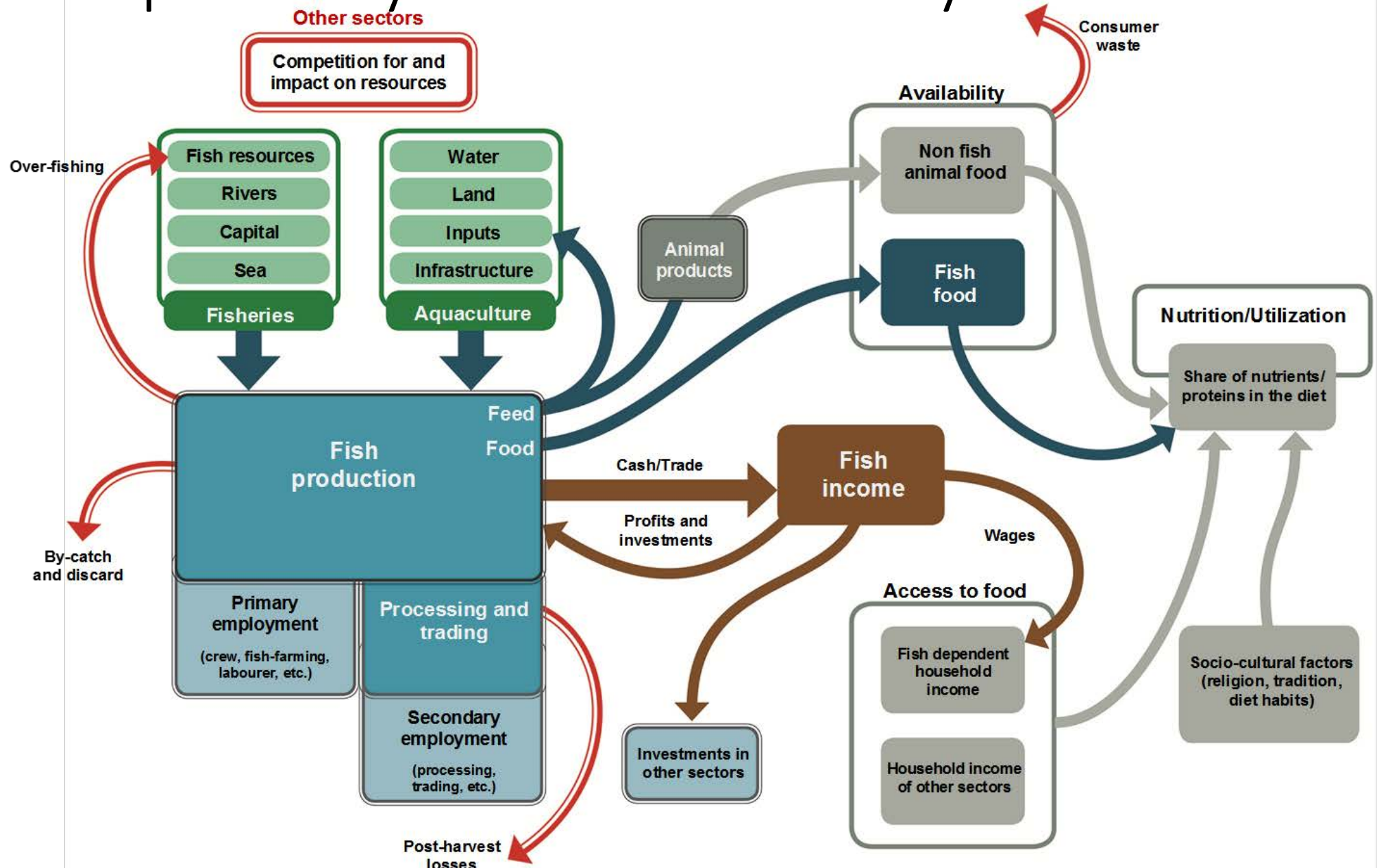
Meryl **Williams**

Ningsheng **Yang**

<http://www.fao.org/cfs/cfs-hlpe/reports/en/> (Report #7)



# Fish pathways to food security and nutrition



# Fish for food security & nutrition

- **Food**

- quantity
- quality
- trends in supply and demand

- **Cash**

- **Consumption**

- self-consumption (artisanal, recreational)
- purchase



Dried fish for sale to train passengers, Siberia.  
**Photo:** [AndreaZlphotography.com](http://AndreaZlphotography.com)

# Fish for food security & nutrition (1.01)

- **Food**

- quantity
- quality
- trends in supply and demand

- **Cash**

- **Consumption**

- self consumption (artisanal, recreational)
- purchase



Dried fish for sale to train passengers, Siberia.  
**Photo:** [AndreaZlphotography.com](http://AndreaZlphotography.com)

# Fish for food security & nutrition (1.02)

- **Food**

- quantity – including waste
- quality – nutrition, health
- trends in supply and demand

- **Cash - the workers**

- **Consumption**

- self consumption (artisanal, recreational)
- **Purchase – consumers, price**



Dried fish for sale to train passengers, Siberia.  
**Photo:** [Andreazlphotography.com](http://Andreazlphotography.com)

# Key issues behind the missing FSN factors (1)

- Fish and people
  - Critical livelihood for **150 m** and household support for **660-820 m**
- Importance of **women**
  - **Half the labor in value chain** but often marginal and under-recorded
- Ecological **sustainability** of fisheries and aquaculture
  - “*world fisheries crisis*” debate framed in ecological and economic **but not in FSN terms (access & distribution)**



Sierra Anderson, Alaska.

**Photo:** Intrafish.com, Women in Fishing

# Key issues behind the missing FSN factors (2)



Women vendor of Norwegian salmon  
Dahongman Jingshen Seafood Market, Beijing.

- International fish **trade** and FSN
  - Positive or negative for FSN? **Inconsistent results** from studies
  - Emerging debate on importance of domestic and regional trade
- **Small vs large scale** operators
  - **Management and research** focuses mainly on **large scale**
  - **Small scale** makes **most FSN contributions** but **large scale** can help
- **Governance**, management reforms
  - **Too little attention to winners & losers in the supply chain**, human rights

## 2. FSN in N Pac fisheries examples

**N Pac produces 1/3 of world marine capture fisheries by volume**

**Alaskan Pollock and Japanese sardine/anchovy - major food fish species (~6% global marine catch)**

# Alaskan pollock (*Theragra chalcogramma*)

- Major **global food fish** species
  - #2 fish landings after anchoveta
- **USA, Russia** take majority
  - also Japan, R. of Korea and others
- **Large scale operations**
  - Catching, processing, marketing
- Wide **variety of products** from fish oil, roe, white fillets through to surimi and fishmeal
  - **many value chains, many people**
  - many people who **eat pollock** and many who **eat because of pollock**



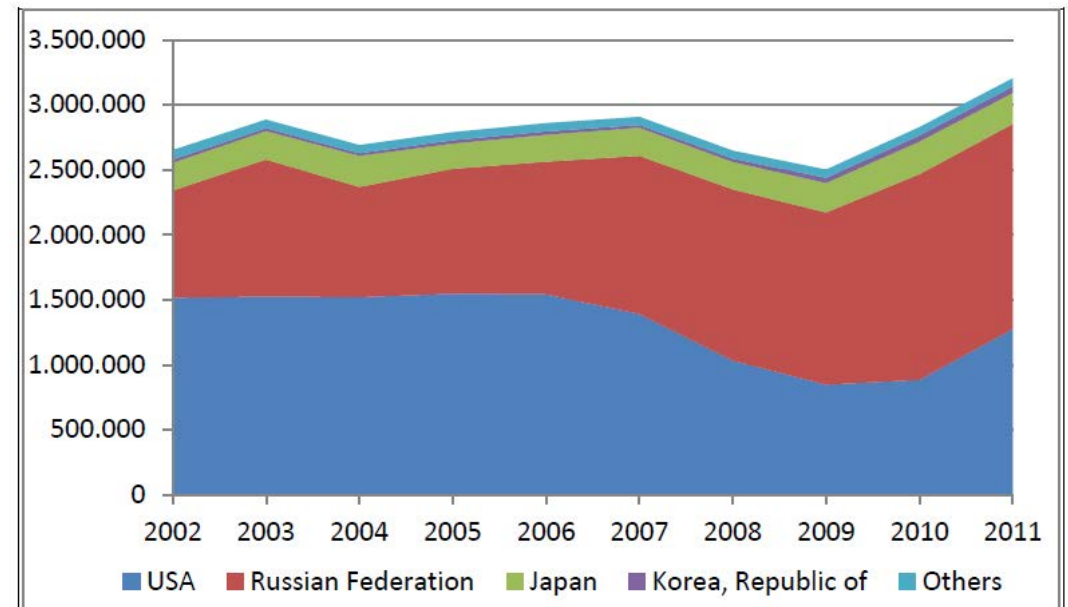
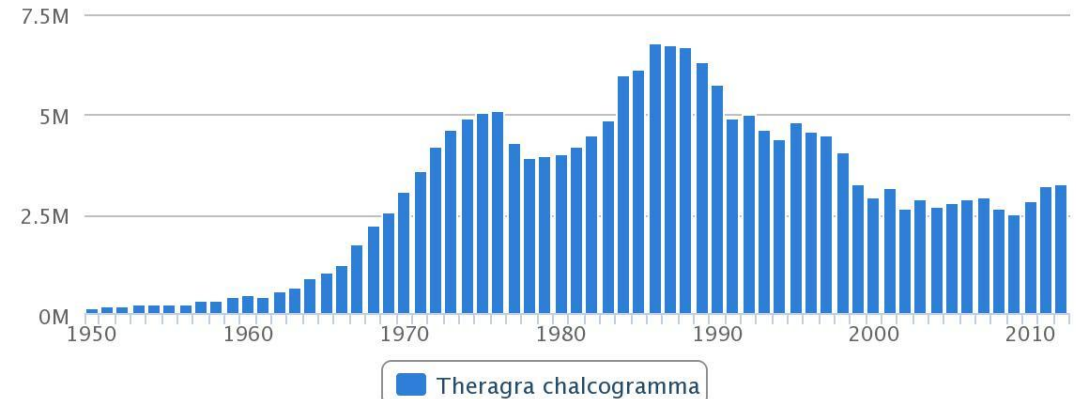


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Global Capture Production for species (tonnes)

Source: FAO FishStat



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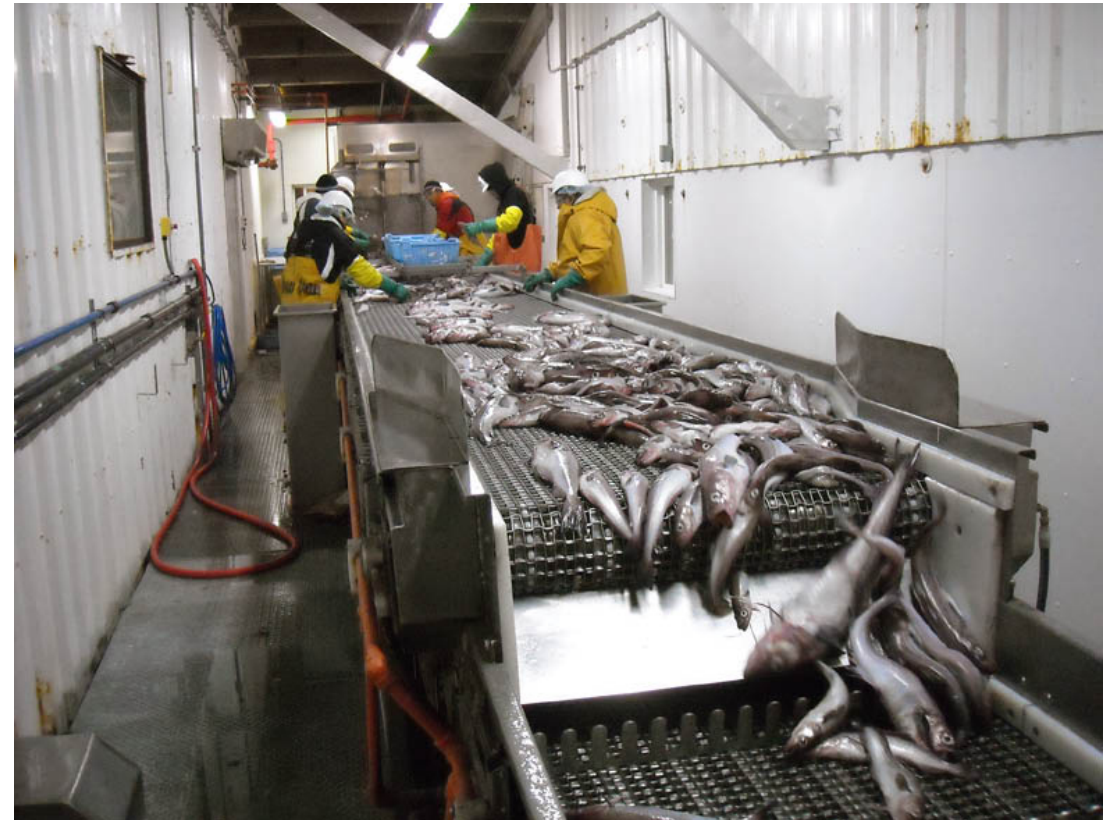
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Pacific Prince, [www.onearth.org](http://www.onearth.org)

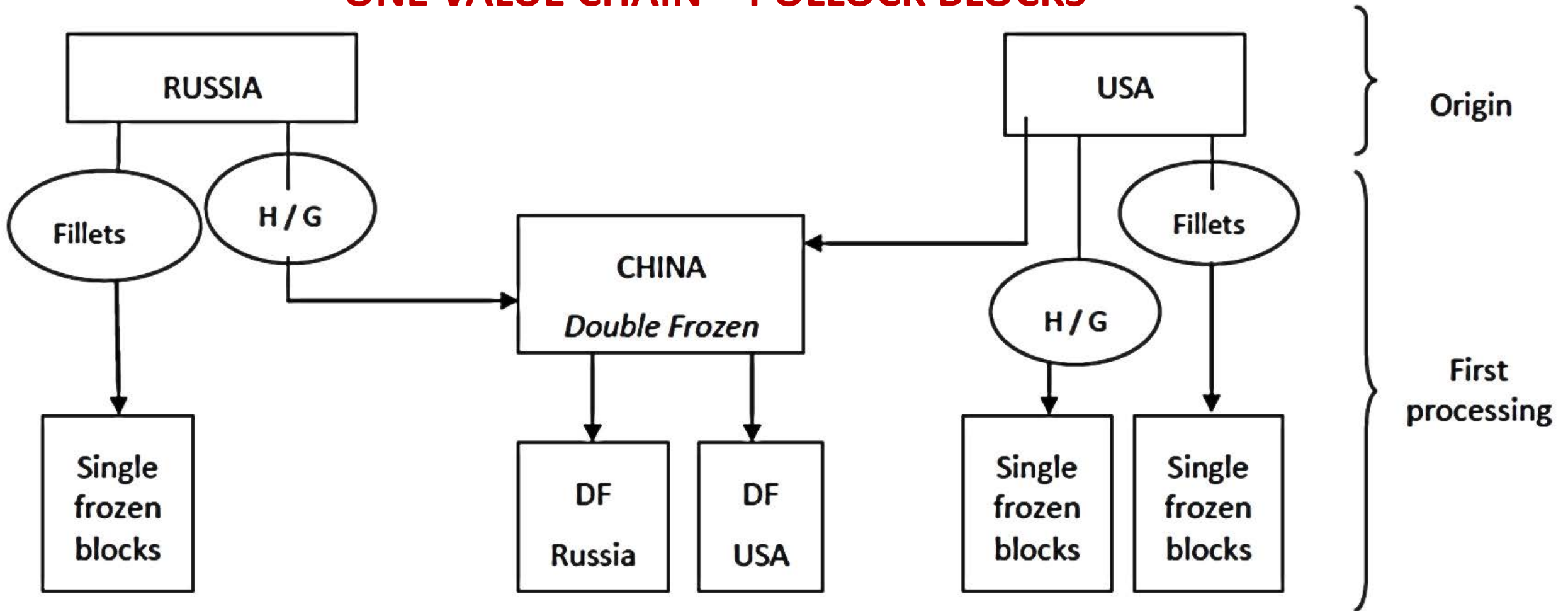
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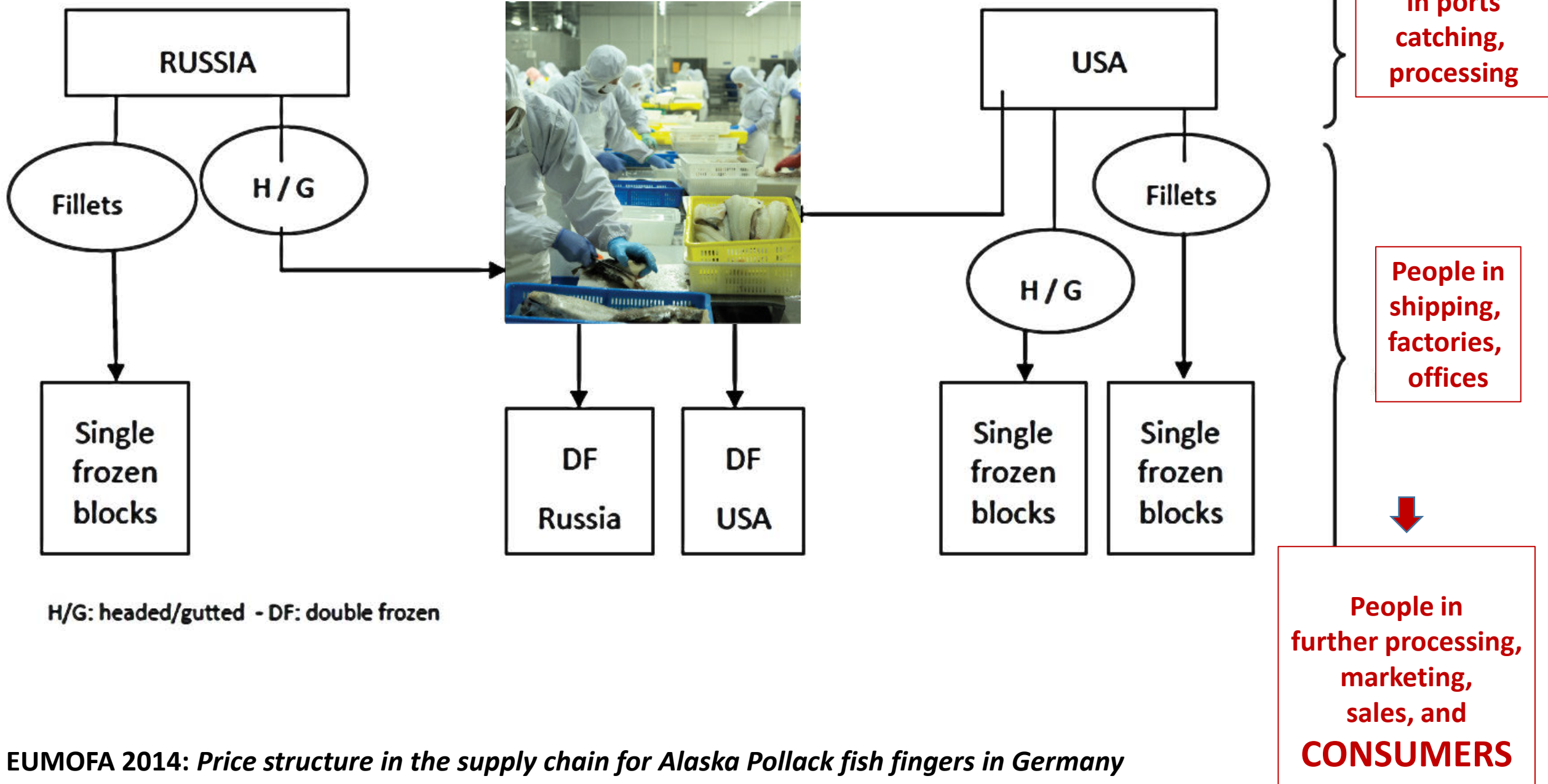
Pollock processing line, Alaska, where observers check for salmon bycatch. Photo: NOAA.

# ONE VALUE CHAIN – POLLOCK BLOCKS



H/G: headed/gutted - DF: double frozen

# ONE VALUE CHAIN – POLLOCK BLOCKS



# Alaska pollock

## Fish processing in China



Source: [www.newasiaseafood.com](http://www.newasiaseafood.com)

## MSC certified pollock as fast food



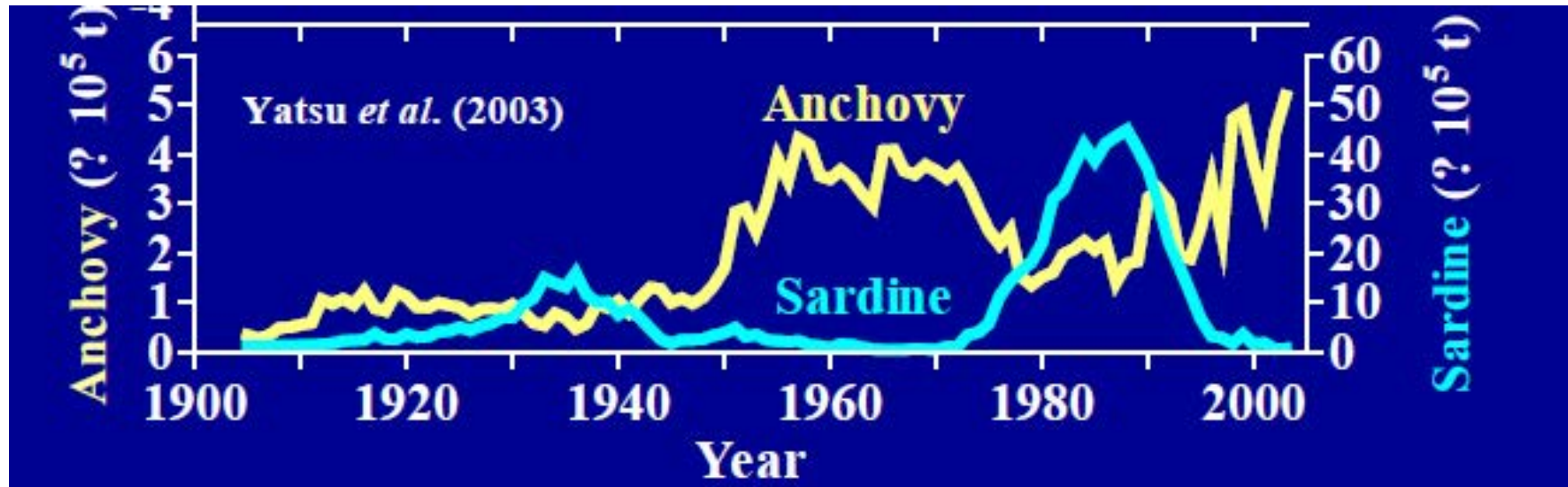
# Japanese sardine/anchovy



*Sardinops melanostictus*  
(Japanese sardine) Image: JFRA



*Engraulis japonicus* (Japanese anchovy) Image: Kr-NFRDI



# Japanese sardine/anchovy

- **China, Japan** main fishing countries
- Major small pelagics fishery
- Direct to human food in cans, fresh, several dried and processed forms
  - Low priced canned sardines are **important protein source** for people on **low incomes**
  - **Many value chains, many people**



Many brands of canned sardines, Malaysian supermarket.  
Photo: [Suituapui.wordpress.com](http://Suituapui.wordpress.com)



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Typhoon Haiyan, Philippines Nov 2013: World Vision relief items included cans of sardines.

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Online advert for Chinese canned sardines for self-branding. Photo: DIY Trade

# Alaskan Pollock, Japanese sardine/anchovy (1)

FISH FOR FOOD	
<i>Quantity</i>	<ul style="list-style-type: none"> <li>• Key global food fish species</li> <li>• <b>Abundance impacts global fish availability</b></li> </ul>
<i>Quality</i>	<p><b>POLLOCK</b></p> <ul style="list-style-type: none"> <li>• High protein, low fat and carbohydrate; good taste; low in mercury</li> </ul> <p><b>SARDINE/ANCHOVY</b></p> <ul style="list-style-type: none"> <li>• High protein, good fish oils, low carbohydrate; good taste; very low in mercury</li> </ul> <p><b>BOTH</b></p> <ul style="list-style-type: none"> <li>• Used in many forms</li> </ul>
<i>Trends in supply and demand</i>	<p><b>POLLOCK</b></p> <ul style="list-style-type: none"> <li>• Relatively <b>stable but questions over status</b></li> <li>• <b>Certification</b> has increased demand for some products</li> </ul> <p><b>SARDINES/ANCHOVY</b></p> <ul style="list-style-type: none"> <li>• Major fluctuations; <b>oscillations of Japanese sardine and anchovy</b></li> <li>• Demand rising on consumer interest in oily fish</li> </ul> <p><b>BOTH</b></p> <ul style="list-style-type: none"> <li>• Impacts of <b>climate change?</b></li> </ul>

# Alaskan Pollock, Japanese sardine/anchovy (2)

FISH FOR CASH	
<i>Income</i>	<p><b>Pollock</b></p> <ul style="list-style-type: none"><li>• Contributes to food security of <b>10 x thousands of value chain workers</b></li><li>• <b>Most on low-incomes</b></li><li>• Management attention is on the (few) <b>big corporations</b> in the fishery and value chains</li></ul> <p><b>Sardine</b></p> <ul style="list-style-type: none"><li>• Contributes to food security of ??? X thousands of value chain workers</li><li>• Most likely on low-incomes</li></ul> <p><b>BOTH</b></p> <ul style="list-style-type: none"><li>• <b>Women</b> are nearly invisible in these supply chains and support (unpaid) work, but are sure to have a major role.</li></ul>

# Alaskan Pollock, Japanese sardine/anchovy (3)

FISH FOR CONSUMPTION	
<i>Self-consumption</i>	<b>POLLOCK</b> <ul style="list-style-type: none"><li>• Of low consequence</li><li>• Fishing interacts with salmon of <b>indigeneous Alaskans</b></li></ul> <b>SARDINE/ANCHOVY</b> <ul style="list-style-type: none"><li>• Of low consequence</li></ul>
<i>Purchase</i>	<b>POLLOCK</b> <ul style="list-style-type: none"><li>• Millions of consumers, across spectrum of prices</li><li>• <b>Many consumers on low incomes</b></li></ul> <b>SARDINE/ANCHOVY</b> <ul style="list-style-type: none"><li>• <b>Millions of consumers across spectrum of prices - low, middle and high value food</b></li><li>• <b>Canned sardine</b> (especially) important as affordable, non-perishable transportable high value food</li></ul>

# 3. A PICES regime shift to incorporate more social science?

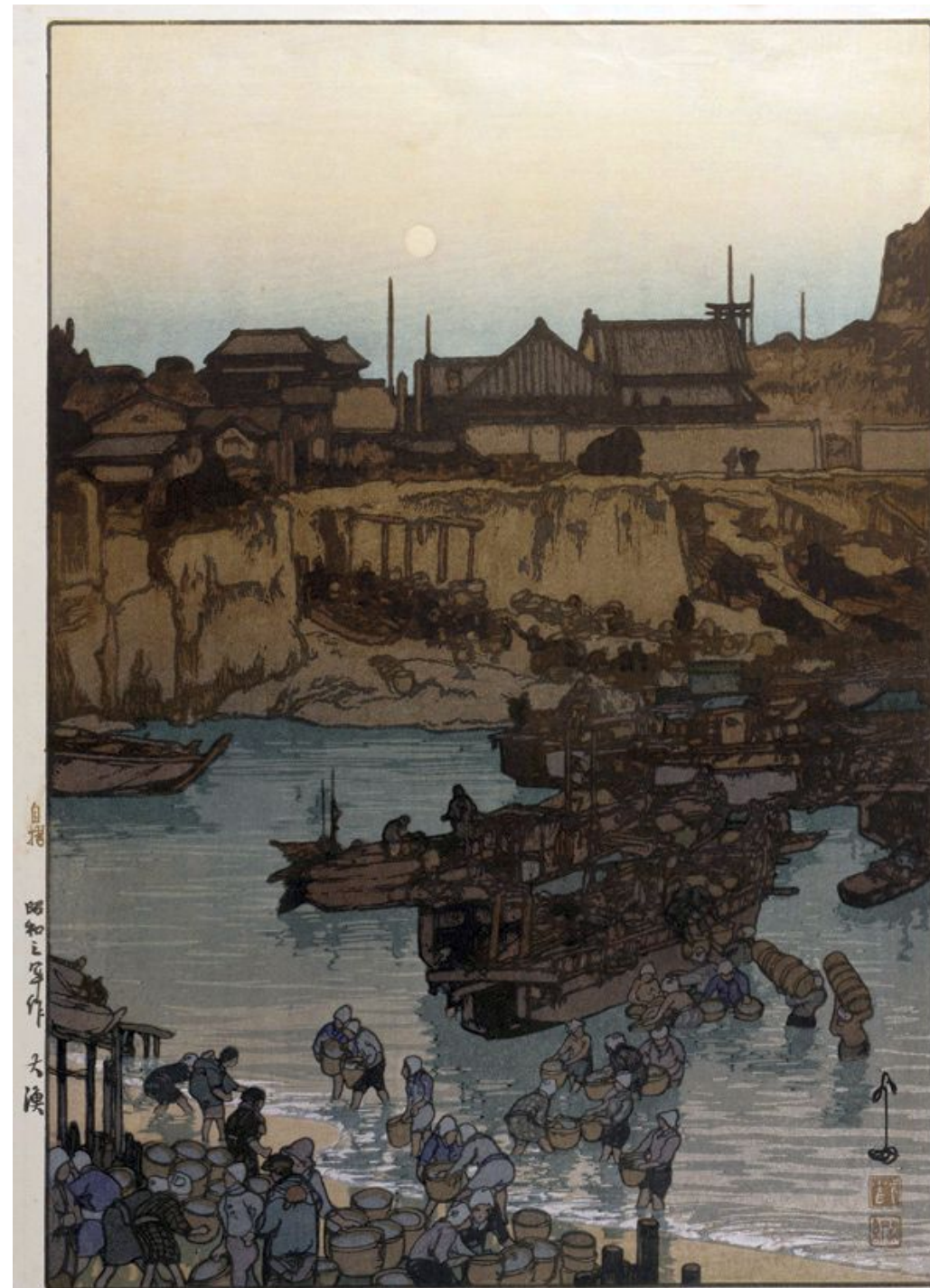
**Section - Human Dimensions of Marine Systems (S-HD)**

**Study Group – Socio-Ecological-Environmental Systems (SG-SEES)**

# A PICES regime shift?

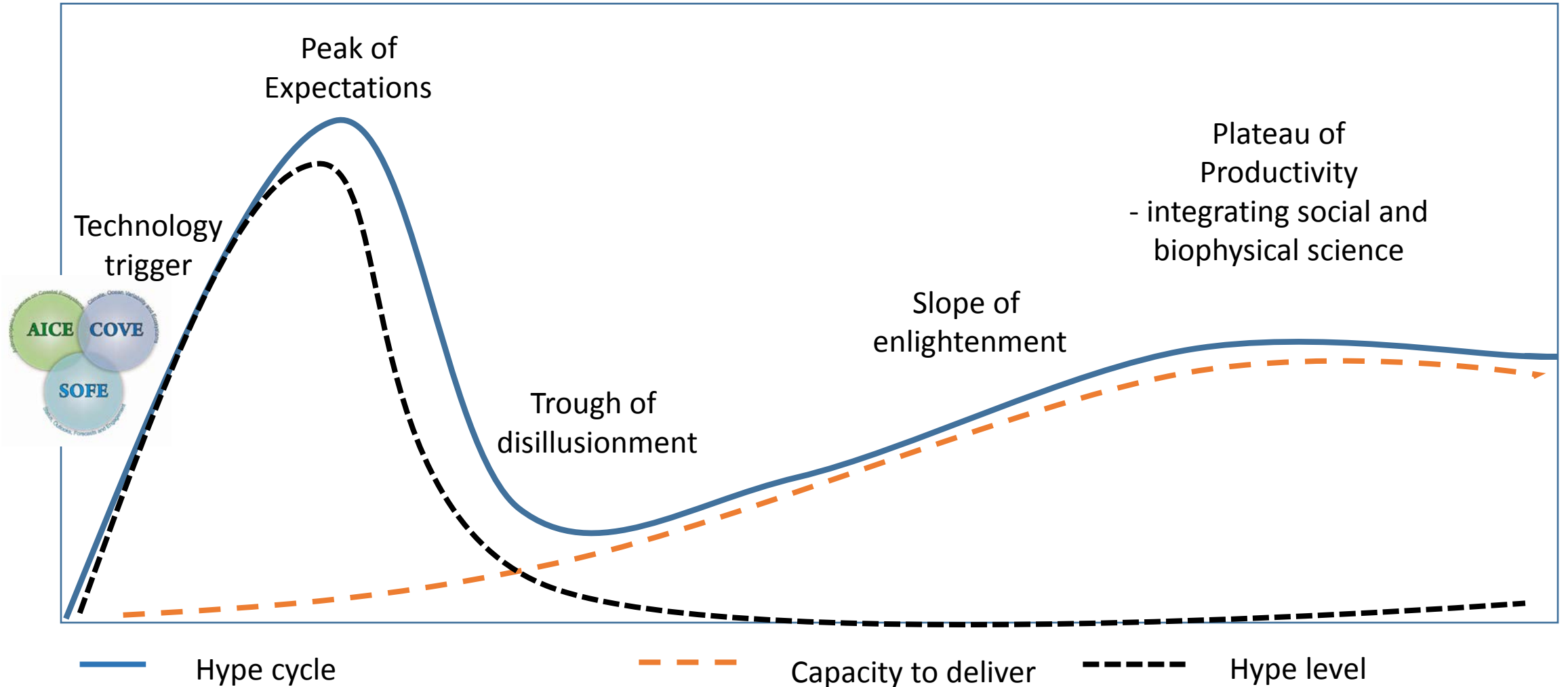
- FSN shows that “stakeholders” are **more than fishers, managers and scientists**
- PICES grasp of the **human dimension** is critical to **promoting the messages and importance** of the biophysical research and monitoring results
- PICES programs **need to be more comfortable with qualitative research** approaches
  - Draft human dimension indicators trying to **replicate the quantitative approaches** of biophysical science
  - Social science **conceptual bases need to be better developed** through stronger collaboration with anthropology, sociology, political science (**rights**)
- Many more women scientists taking part in PICES, but the management and social science work of PICES is **gender and culture blind**, hence likely **gender and culture biased** [\[http://genderaquafish.org\]](http://genderaquafish.org)

*Return of the Fishing Fleet*  
(Yoshiida Hiroshi ,1926) Sackler Gallery



# Conclusion: is PICES at a tipping point?

Adding social science to FUTURE (a Gartner Hype Cycle)





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