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**IGNORE**

*Global Partnership for Small-Scale Fisheries Research*

# The importance of Fish as Food

Moenieba Isaacs, Phil Loring, and Josh  
Stoll

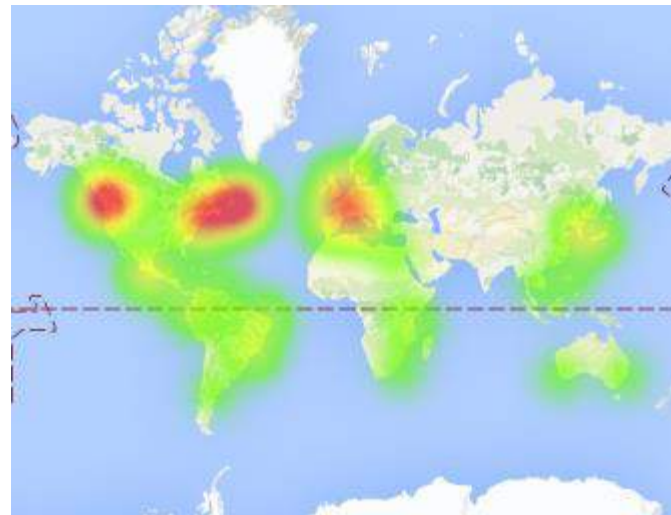
TBTI Webinar # 5

June 1<sup>st</sup>, 2016

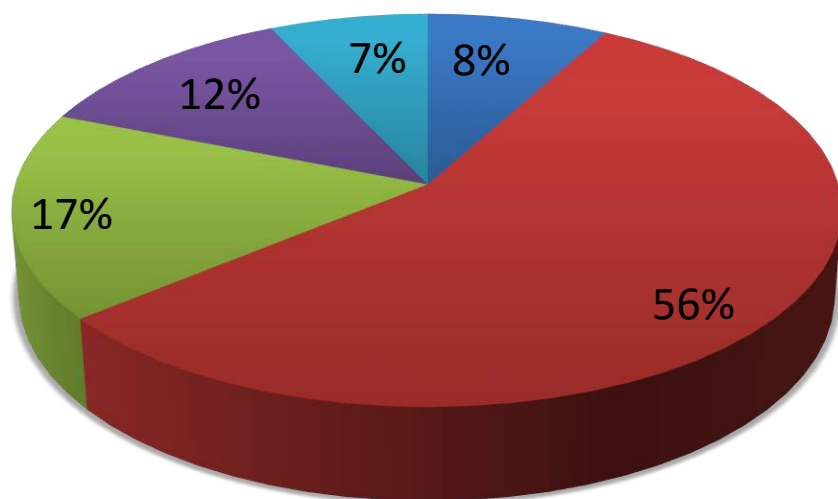


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## How often do you eat fish?



- Once a day
- Once a week
- Once a month
- Less than once a month
- Never

Fish-as-Food online poll: [toobigtoignore.net](http://toobigtoignore.net)

# TBTI: Fish as Food Research Cluster: Research and community engagement

Moenieba Isaacs

# Goal of this cluster

- This ultimate aim of this cluster is to provide evidence that fish, and in particular small fish, are a critical source of nutrition for humans and that when more fish are prioritized for human consumption, the global food security will be enhanced.



## Fish as food cluster



- Concern about food security and malnutrition continues to rise globally, including among communities living near water bodies where fish should go directly to feed local populations.
- Competition for fish in these communities is prevalent, not only in terms of harvesting for human consumption but also for feed production industries that rely on fish as raw materials. The reliance of aquaculture on wild-caught fish, fishmeal and fish oil add to food security concerns.
- How vulnerable are small-scale fishers to malnutrition and with whom do they compete in order to secure food for their families?



VOLUNTARY GUIDELINES ON THE

# Responsible Governance of Tenure

OF LAND, FISHERIES AND FORESTS IN  
THE CONTEXT OF NATIONAL FOOD SECURITY



Food and Agriculture  
Organization of the  
United Nations

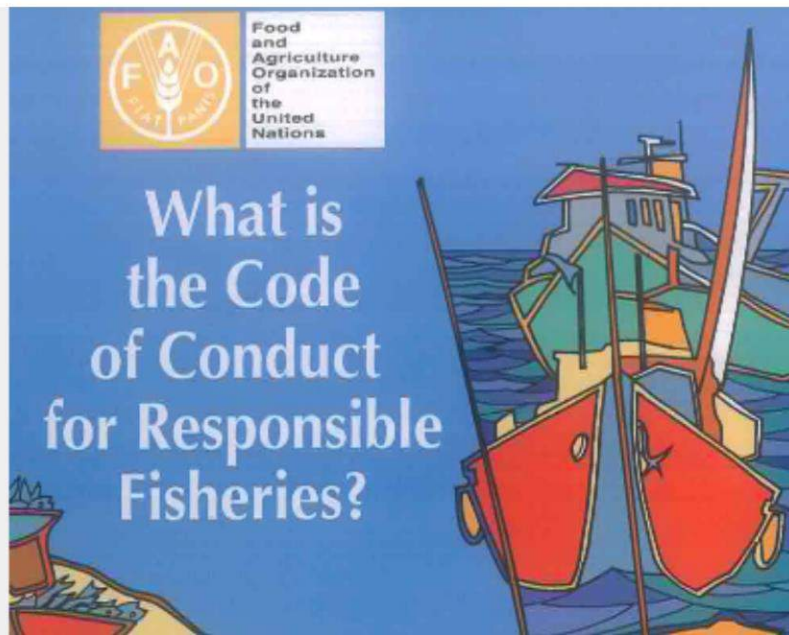
## Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries

in the Context of Food Security  
and Poverty Eradication



Food  
and  
Agriculture  
Organization  
of the  
United  
Nations

## What is the Code of Conduct for Responsible Fisheries?



# Food security in Fisheries context

- Fish as food (production, consumption, prices, supply and demand).
- Fish as cash (livelihoods)
- Fish for self-consumption for household and nutrition security
- Fish's nutrition and human health benefits
- Fish losses and implications on food security and nutrition



**We pose five main research questions:**



- How important are small-scale fisher catches to family consumption and nutrition?
- Do small-scale fishers value catch as a source of protein or as a livelihood to purchase other food?
- How do small-scale fisher catches contribute directly and indirectly to food consumption?
- Have consumer preferences for small-scale fisher catch consumption changed over time?
- How have national and international food policies influenced small-scale fishers and domestic fish consumption?



# Methodological Approach

- Short survey on fish consumption in small-scale fishing communities.
- In-depth case studies
- Transdisciplinary in nature – researchers for example social scientists, economists, nutritionists, policy makers and social actors.

# Fish for Whom?

Key to this debate is how does it impacts on the poor or those who produce/catch the food. According to Kurien 2004:5 “The economic attribute that varies most with regard to fishery products is price. The price ratio of bluefin tuna to anchovies can be on the order of 200:1. However, both can be delicacies: the former for the well-to-do Japanese, the latter for the poor Sri Lankan. Bluefin tuna is fish for “luxury consumption” and anchovies are fish for “nutritional consumption”. In the aggregate, their contribution to direct food security – fish as food – is vastly different.”



# Why the importance of fish in the diet of the poor? “The humble sardine”.

- First, the bioavailability of fish protein is approximately 5–15 percent higher than that from plant sources. Fish also contains several amino acids essential for human health; especially lysine and methionine.
- Second, the lipid composition of fish is unique, having long-chain, poly-unsaturated fatty acids (LC-PUFAs) with many potential beneficial effects for adult health and child development. Many low-cost, small pelagic fish such as anchovy and sardine are some of the richest sources of LC-PUFAs.
- Third, fish is an important source of essential micronutrients – vitamins D, A and B, minerals (calcium, phosphorus, iodine, zinc, iron and selenium) – especially so for many small fish species that are consumed whole (with bones, heads, and viscera).

# Coastal small pelagics in Tanzania



# Inland small pelagics, lake Victoria (Tanzania and Uganda)



# Industrial canning and food security, South African case





# Gendered dynamics and food security



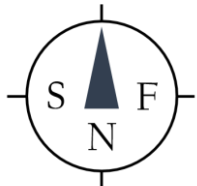
# Concluding remarks

- Fish deserves a central position in food and nutrition security strategies.
- Recognize the contribution of large-scale fisheries (canned small pelagics) to food and nutrition security and argue and advocate for more small pelagics for human consumption than the reduction for animal feed, aquaculture, pet food, omega oil tablets.
- Recognize the important contribution of small-scale fisheries to food and nutrition security as consumption and livelihoods (sell and trade).
- Recognize the informal trade, value chains in the supply of fish protein to the poor.

# Seafood as Local Food: Fish and Food Security in Alaska

Philip A. Loring

University of Saskatchewan  
School of Environment and Sustainability



Sustainable Futures North



# Food Security

“Access by all people at all times to enough nutritious food for an active, healthy life.” (*USDA*)



Photo by Andrea Bersamin

# How do small-scale fisheries contribute to food security?

## Food Security

### Availability

- Production
- Distribution
- Exchange

### Access

- Affordability
- Allocation
- Preference

### Utility

- Nutritional value, safety
- Social value
- Psychological value



### IMPORTANT PRODUCE ALERT

AC has pulled all fresh packaged spinach from the shelves due to an outbreak of E-Coli in several states. To date Alaska has had no reports of related illness.

Although AC sells Fresh Express bagged spinach which has not been named as having a problem, to assure the safety we have eliminated all



# Food Sovereignty

The people who produce, distribute, and consume food should control the mechanisms and policies of food production and distribution.



# Fisheries and Food Sovereignty: Fisheries *for Whom?*



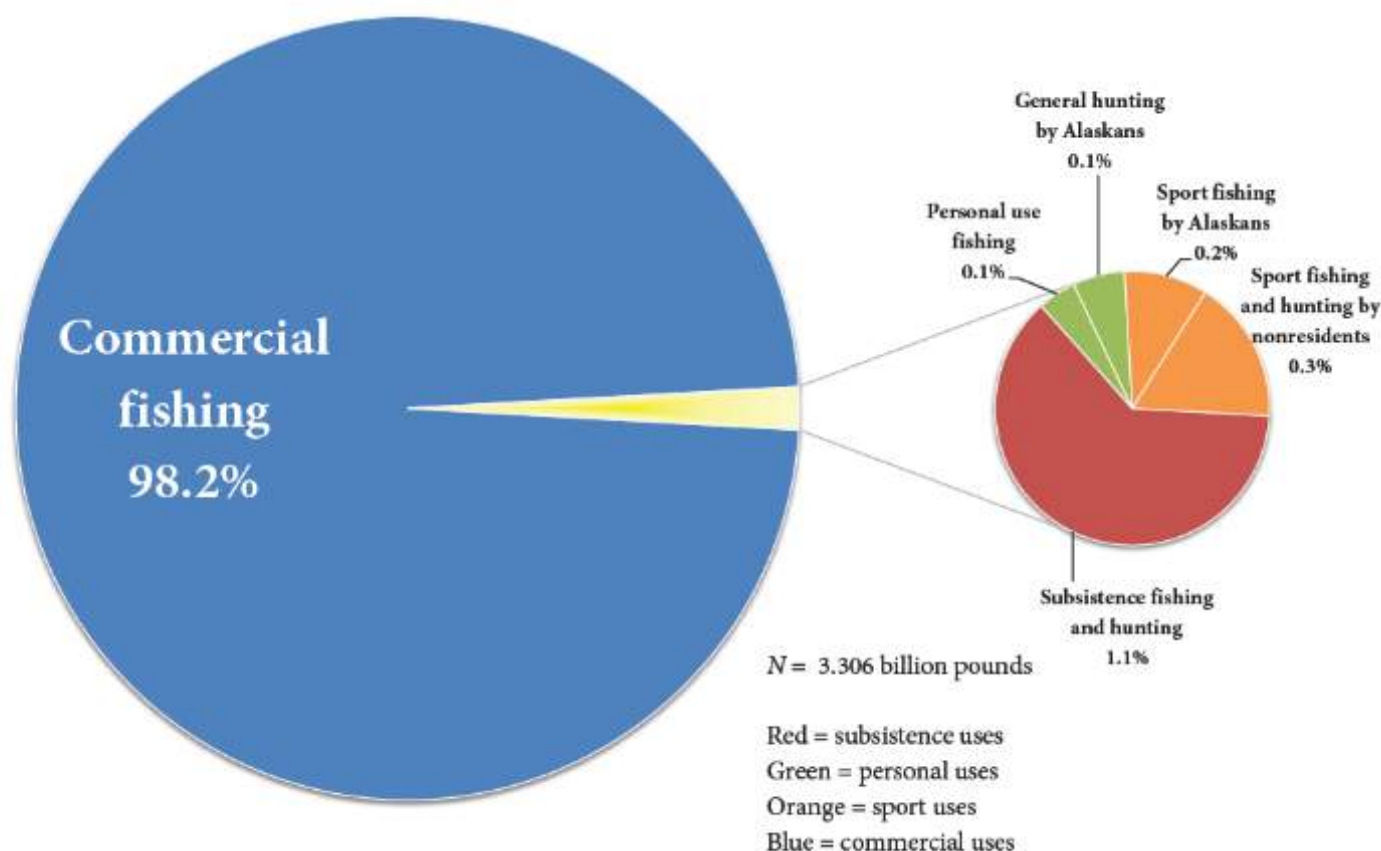
# The Alaska Food System: Vulnerabilities, Extremes



Food from the land, food from the store

# Fisheries in the Alaska Food System

Who harvests fish and game?  
Resource harvests by use in Alaska



>90% rural households use wild fish

36.9 million lbs/year

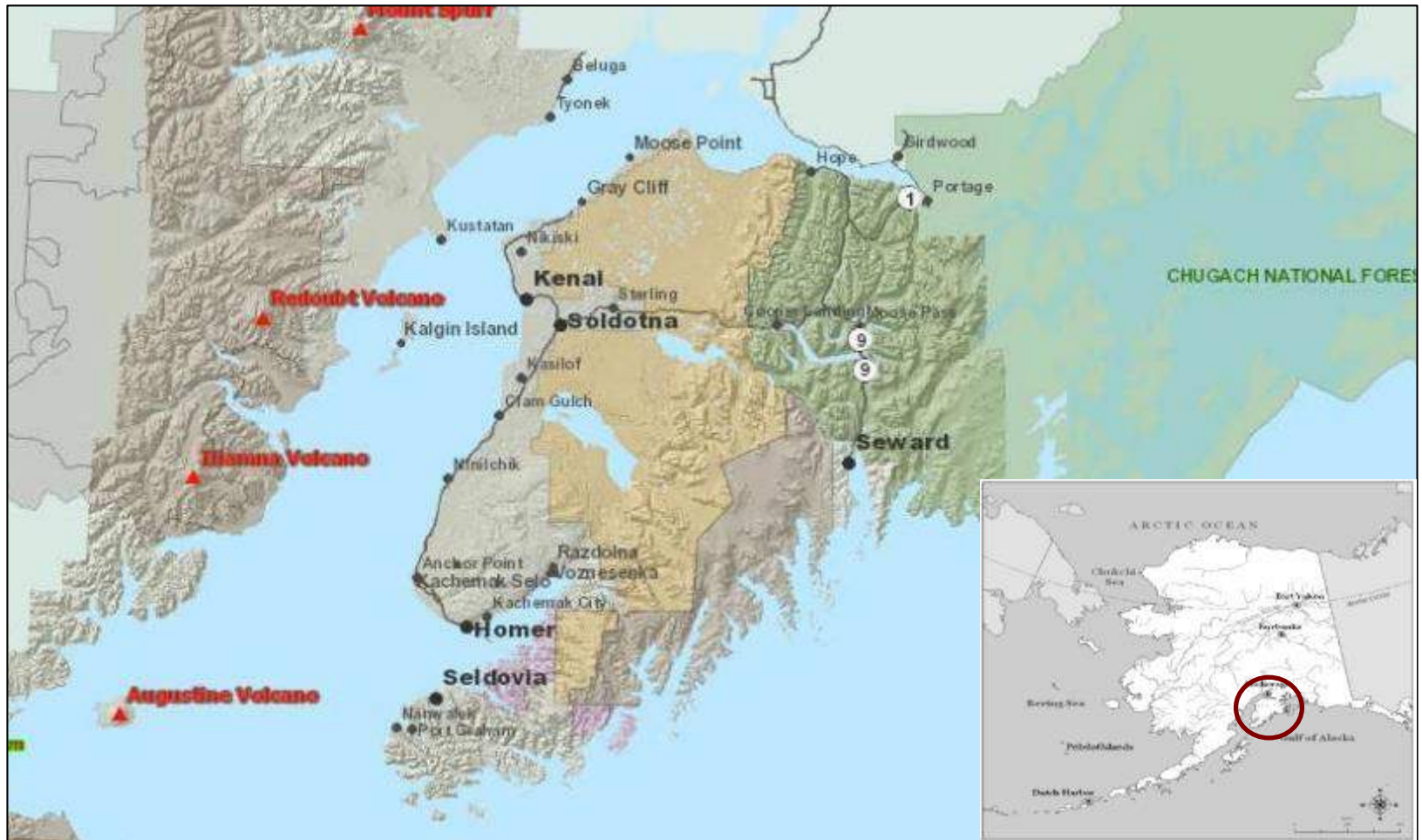
# Food Security on the Kenai Peninsula: What is the role of local seafood?



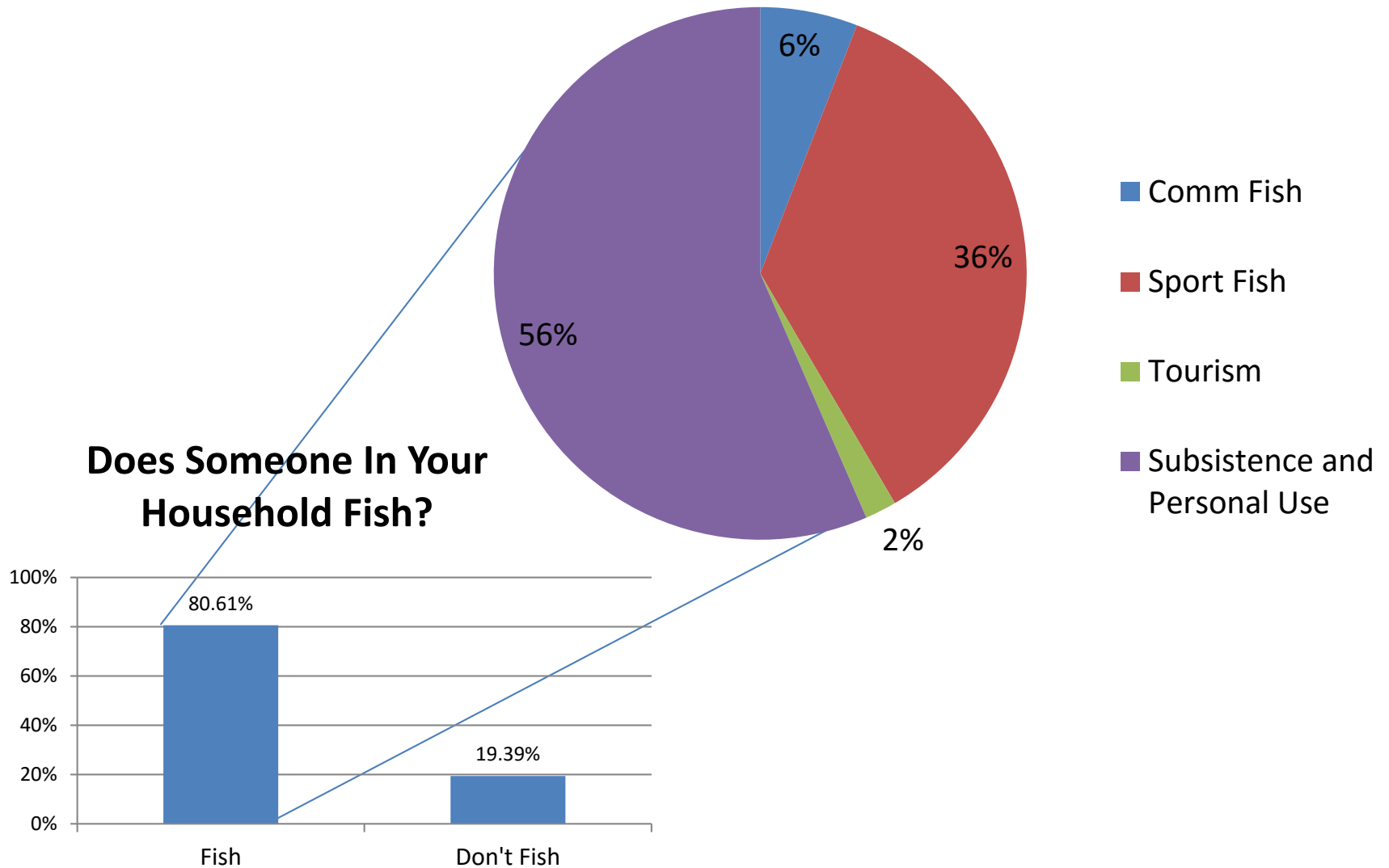


# The Kenai Peninsula:

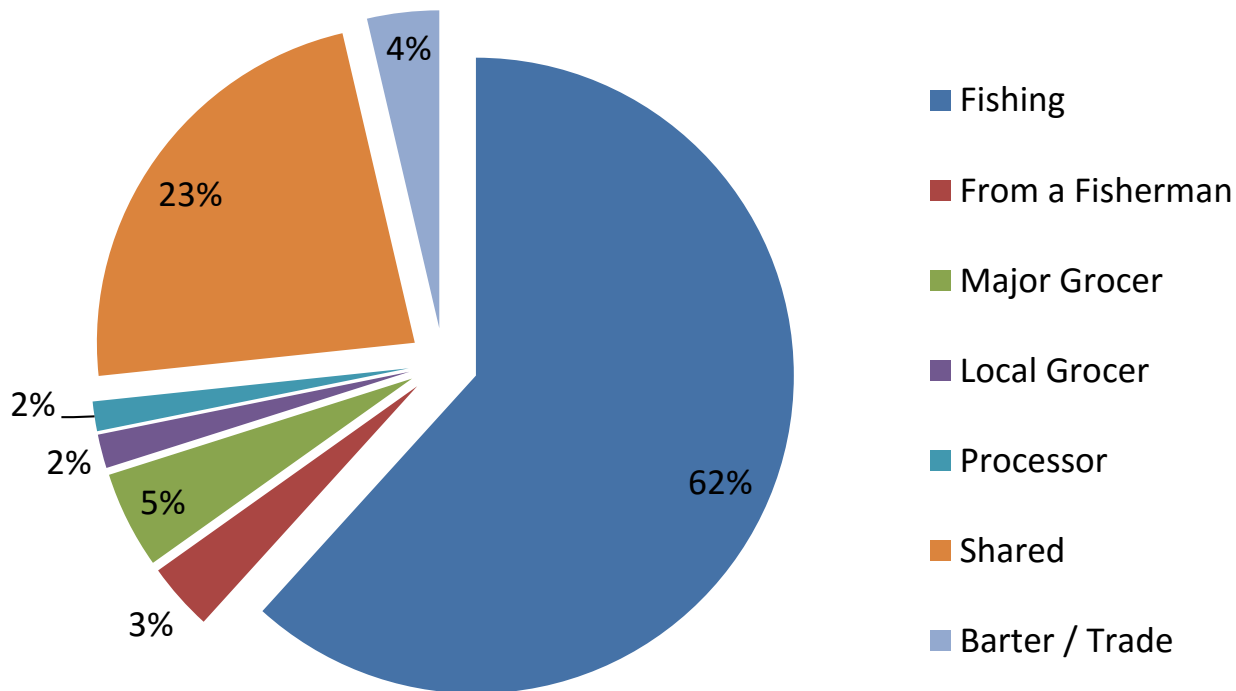
## A Microcosm



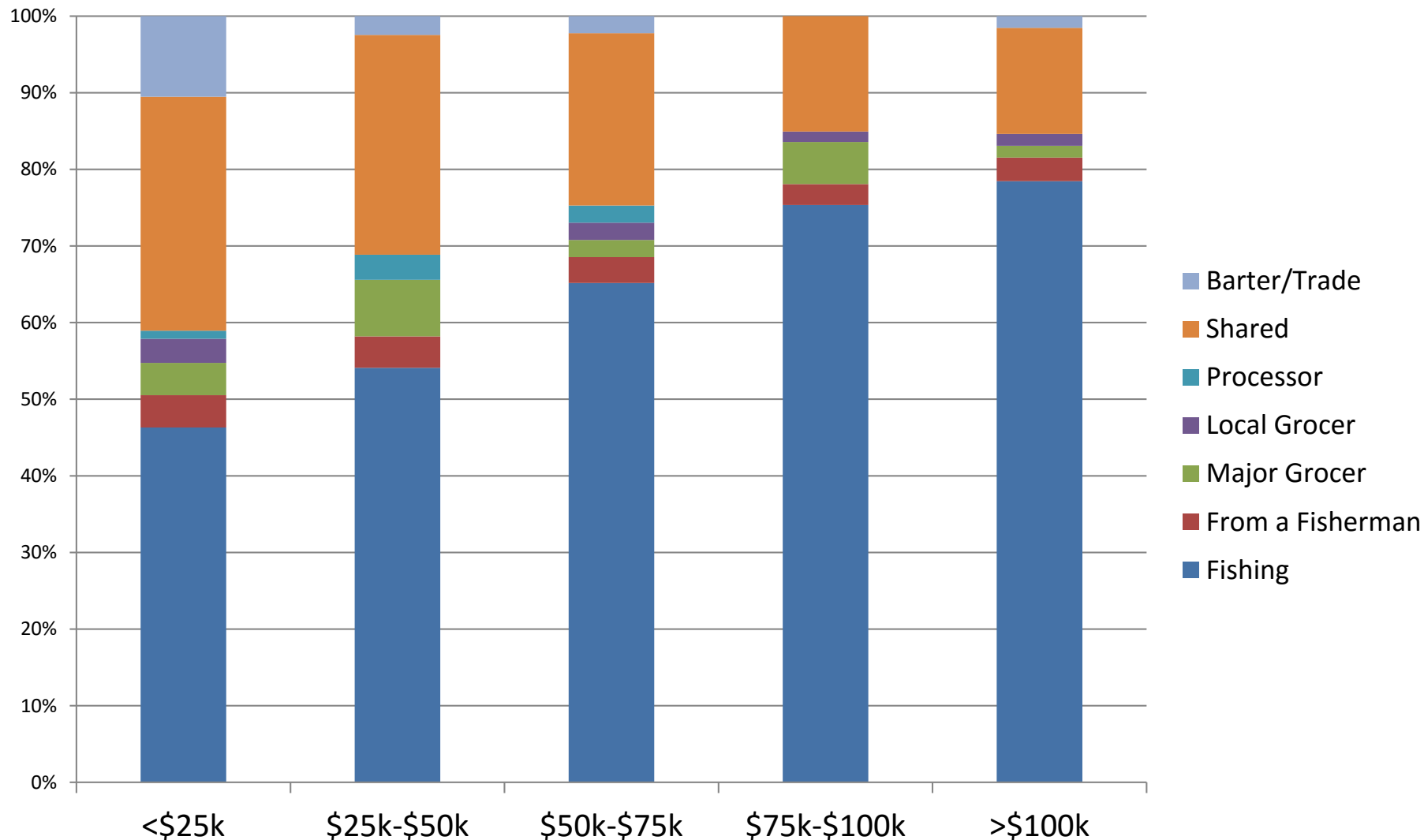
# Participation in Fishing Activities



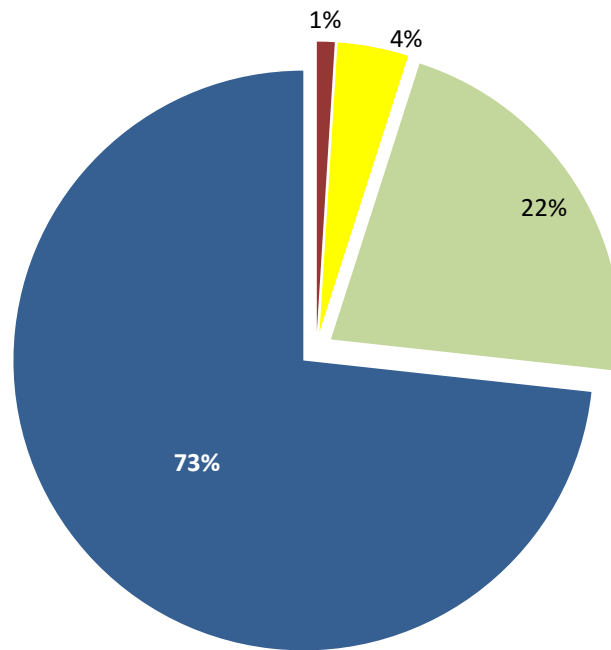
# Primary Method of Obtaining Fish



# Primary Method of Obtaining Fish

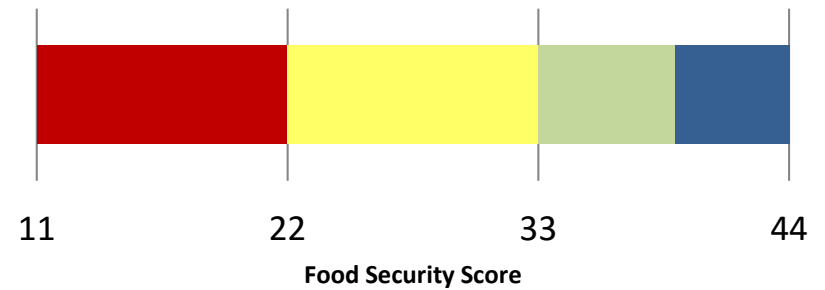


## Food Security



27% of respondents experiencing some degree of food insecurity

## Measuring Food Insecurity



- Extreme Food Insecurity
- Moderate Food Insecurity
- Slight Food Insecurity
- Food Secure



# Relationship between Access to Fish, Income, and Food Security

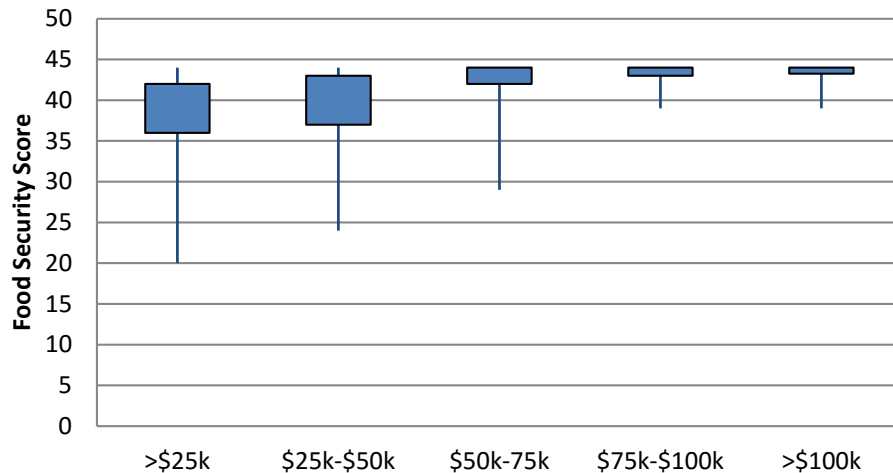
	Average Fishing FS	Average Non-Fishing FS	Difference	p
>\$25k	39.19	36.32	2.87	0.0036
\$25k-\$50k	39.42	38.23	1.19	0.1649
\$50k-75k	42.15	42.93	-0.78	0.2621
\$75k-\$100k	43.32	43.42	-0.10	0.7756
>\$100k	43.53	42.75	0.78	0.3760
All	41.30	39.31	1.99	
ANOVA	F=25.9	F=16.02		

Here there is a statistically significant difference in mean food security score among those who fish and those who do not, but only at the lowest income level.

We explore the meaning of this in the next slide.

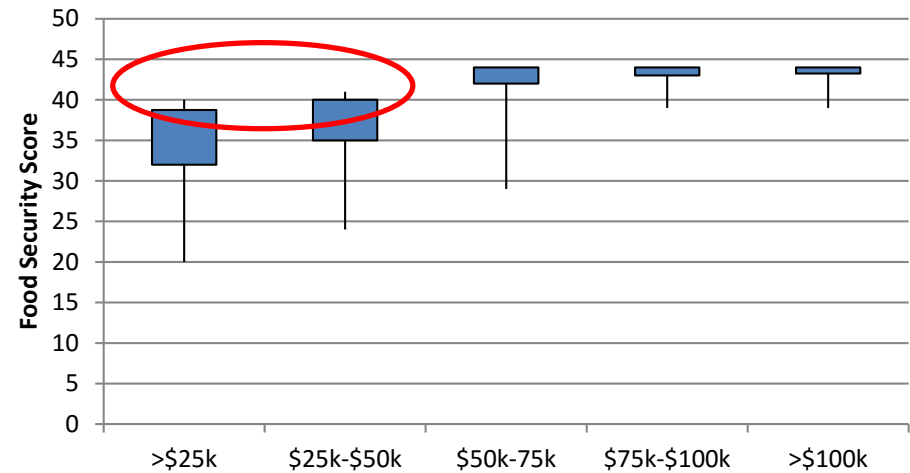
# Another View on the Relationship between Access to Fish, Income, and Food Security

Food Security by Income  
All Respondents



$r=0.500$   $p=0.000005$

Food Security by Income  
Adjusted, No Access to Fish



$r=0.709$   $p=0.000005$

Here (left), we see only a weak (but significant) correlation between food security score and income level

However, on the right we see a much stronger correlation if those people at low income levels who have access to locally-caught fish are excluded. **This supports the hypothesis that fishing buffers against food insecurity for low-income households.**

# Strengthening Local Food Systems with Small-scale Fisheries

## Strength

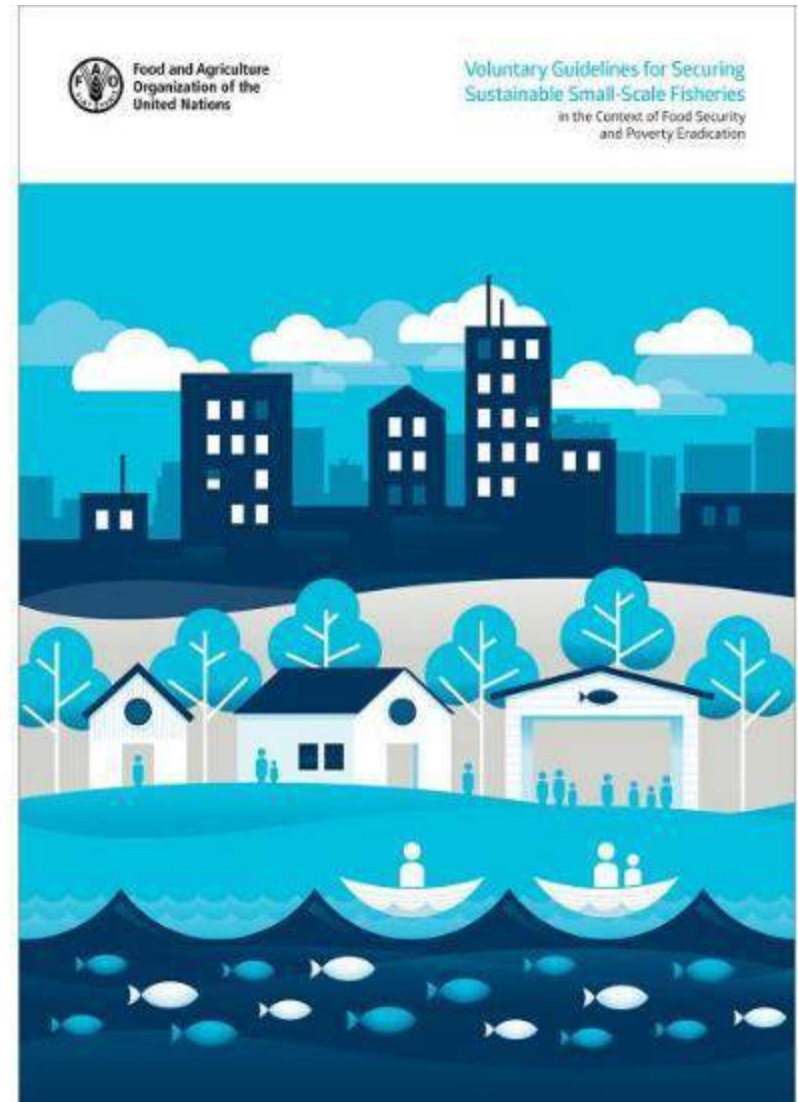
- Many families thriving through fishing
- Food insecurity rates in the KP would arguably be much higher if not for local seafood
- Local food systems are thought to couple people more tightly to their ecosystems ...

## Or Vulnerability?

- How much reliance on local salmon makes local communities vulnerable?
- While many people seem to have access to local seafood, there is still an issue of equity / social justice

# Global Relevance

- Many reasons to strengthen SSF
- Essential to understand where SSF fit in local food systems
- What larger processes hamper development of SSF?
- How to enable people to be stewards, limit illegal fishing?

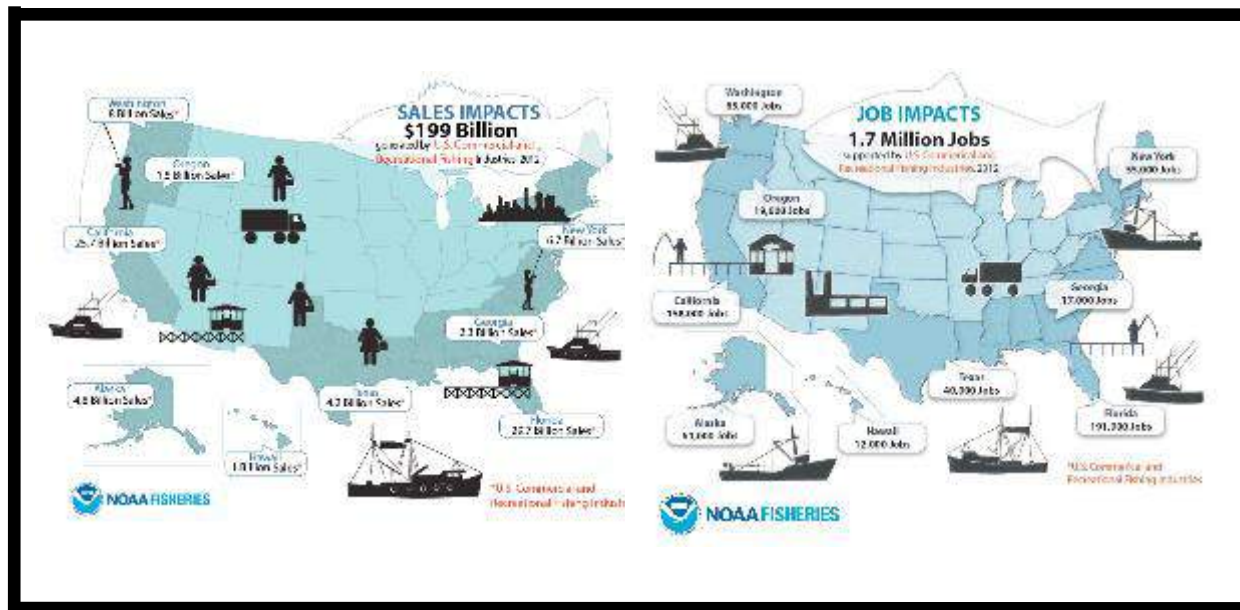


# LocalCatch.org

Building a community engaged in local and direct seafood marketing



Joshua Stoll – LocalCatch.org  
Too Big to Ignore Webinar – June 1, 2016



**FSSI + Economic Impact + Jobs = !**





boat

gigged  
flounder  
caught  
Tuesday  
night

filleted  
Wednesday

to

delivered  
Thursday  
afternoon

fork

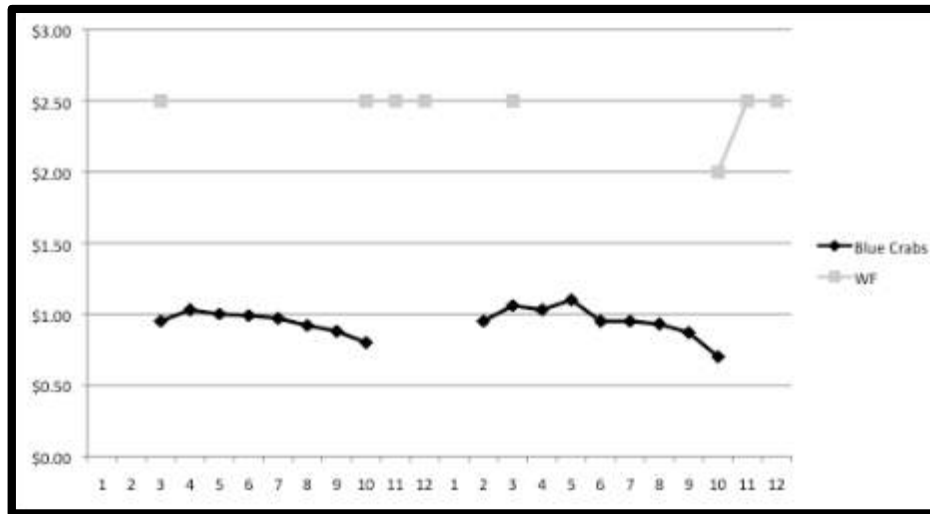
plated for  
company  
that evening





# Price Premiums

Blue crab (hard) *Callinectes sapidus*



Stoll et al. (2015)



Caught by Mark Hooper

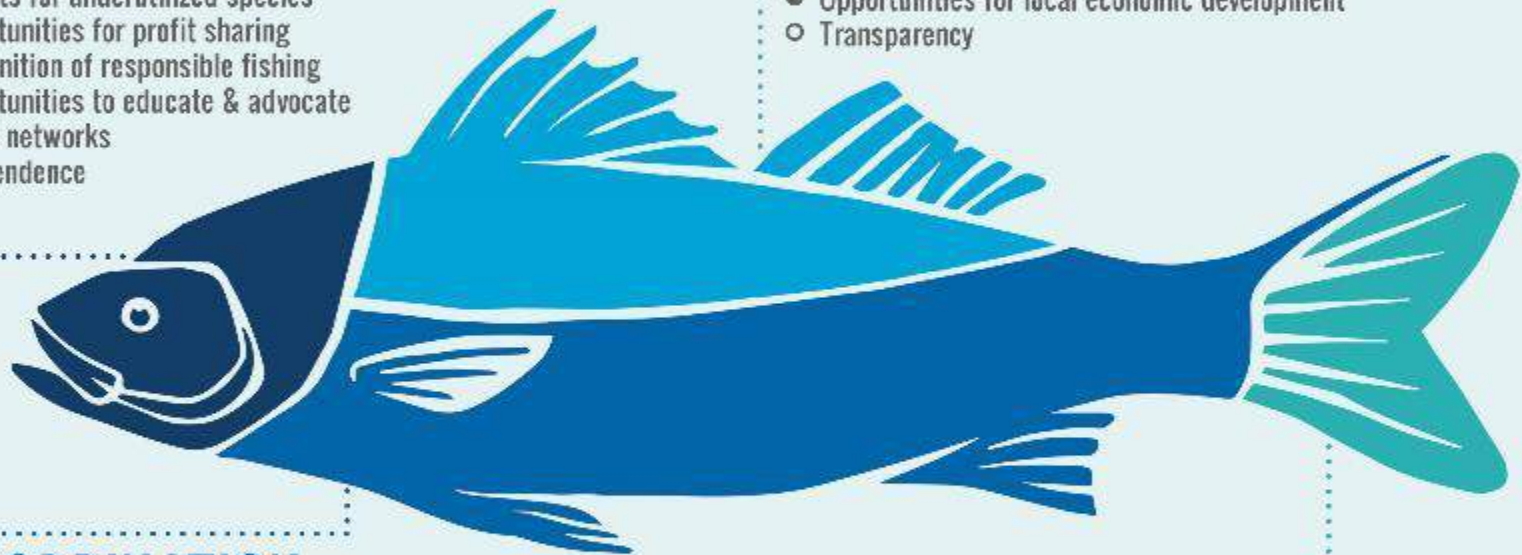


## MARINE HARVESTING

- Ex-vessel prices
- Market stability
- Income stability
- Rewards for quality
- Markets for underutilized species
- Opportunities for profit sharing
- Recognition of responsible fishing
- Opportunities to educate & advocate
- Social networks
- Independence

## PROCESSING, DISTRIBUTION & COLD STORAGE

- Employment
- Infrastructure
- Opportunities for local economic development
- Transparency



## COORDINATION

- Employment
- Risk-sharing through pre-payments
- Fair purchasing negotiations
- Traceability
- Education
- Advocacy
- Contributions to charity & research

### IMPACT INDICATOR

- Market Value
- Non-Market Value

## END MARKETS

- Seafood access
- Fair prices
- Accountability
- Community connections
- Opportunities for learning



[ABOUT](#) ▾ [HOW IT WORKS](#) ▾ [WHERE & WHEN](#) ▾

## Canadian fishermen's cooperative plans processing plant in Vancouver, Undercurrent News

▲ Christina Adams    📅 May 24, 2016    🗂 News    💬 [Leave a comment](#)



Read the full story at [Undercurrent News](#).

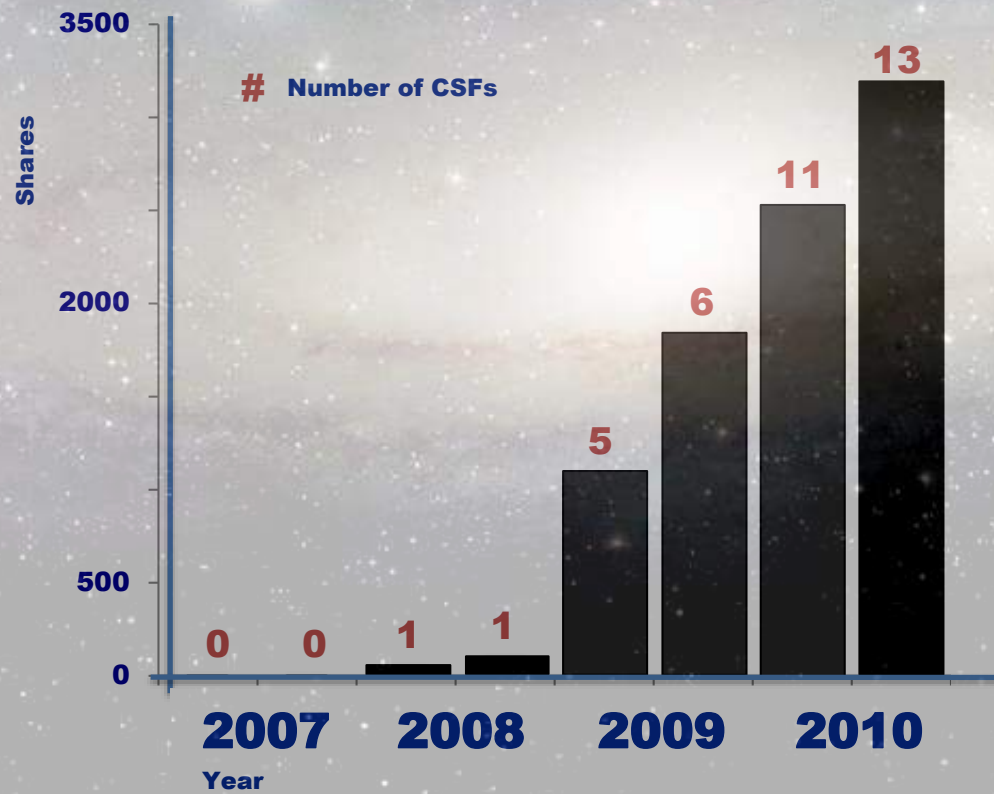
"Skipper Otto's Community Supported Fishery, which directly sells its produce to Canadian consumers, plans to build a processing plant at False Creek Fisherman's Wharf in a suburb of Vancouver.

The cooperative is in talks with local authorities to use federal land for the plant and is trying to grow its customer base to 2,000 from 1,700 now, founder Sonia Strobelt told Canadian TV network [CBC](#)."

📄 [Article, Press Release](#)

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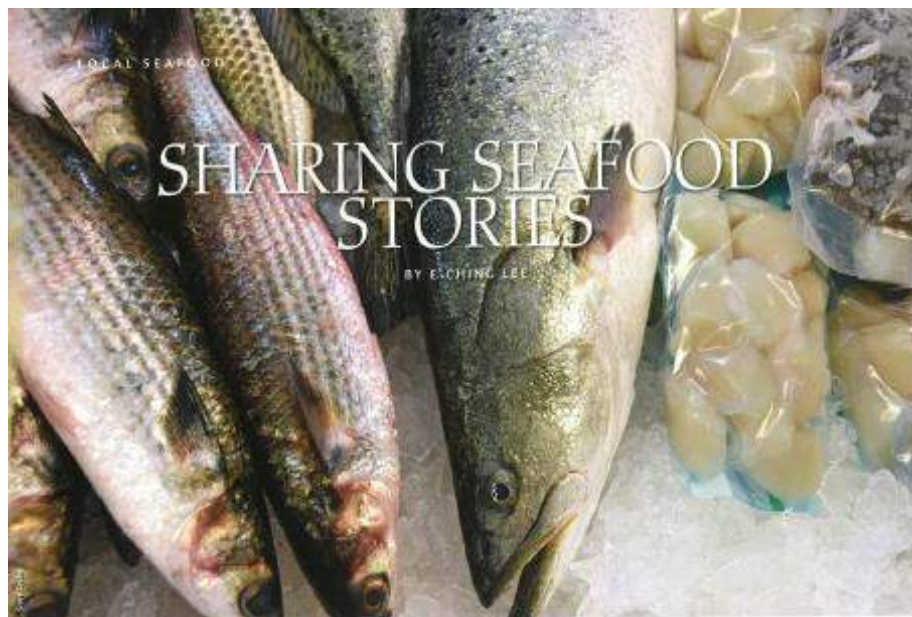
Stoll et al. (2010) – AFS presentation



LocalCatch.org (2015)

+ 100 participants from 21 states, 3 Canadian provinces, Australia, and Mexico

# Knowledge exchange field trip



North Carolina Sea Grant and North Carolina Catch led a tour of the state's fishing industry that highlighted efforts to market local products.

**A**S A TOUR GUIDE, SARA MIRABILIO, NORTH CAROLINA SEA GRANT FISHERIES SPECIALIST, EXCELS AT SPOTLIGHTING THE STATE'S COAST.

In February, she led a seafood industry group on a whirlwind trip through Wanchese, Hatteras Island, Ocracoke and Carteret County. Participants traveled from the east and west coasts of the United States, the Great Lakes, Hawaii, and even Canada.

Some were looking to start a community supported fishery, or CSF. Others already are running successful ventures — such as developing applications to help fishermen connect with consumers.

To get an idea of how people in the North Carolina seafood industry were marketing their products, this select group chose to join an optional field trip of North Carolina's coast, held after the Local Seafood Summit in Norfolk, Virginia. The summit was hosted by LocalCatch.org, an organization that focuses on sustainable seafood through direct marketing.

"I wanted to show the group North

Carolina's working waterfronts and what the seafood industry is doing to bring more value to their catches. But, I also made sure to point out different historical, cultural and natural assets along the way," Mirabilio says.

The group visited fishhouses, seafood markets and watermen's museums. They also dined at restaurants committed to serving local seafood and chatted with the chefs.

Speakers were on hand during the tour to share their experiences. They represented what Mirabilio refers to as the "movers and shakers in the retail seafood world" in North Carolina.

"Everyone who participated was impressed and very pleased that people from all over North America had taken the time to visit and learn about North Carolina's fisheries and seafood marketing," says Ann Simpson, director of N.C. Catch.

A statewide seafood branding and education initiative, N.C. Catch helped to organize the Ocracoke and Carteret County portions of the tour.

"I had a tremendously good time showing this hugely diverse group the good

things happening with local seafood in North Carolina," she says.

A week after the tour, Simpson returned to one of the stops. "The staff was still so pleased that the field trip group had visited the restaurant," she recalls.

"There was a two-way dialog between speakers and the tour participants," Mirabilio explains. "Those on the trip made a lot of connections." She noticed efforts to build new partnerships among speakers and participants, as well as networking among the individuals on the tour.

"It wasn't just instructional, it was oral history," says tour participant Joe Falcone. The speakers shared lessons that were "packed with personal stories — what life is like there, how things have changed."

Falcone, who lives in Half Moon Bay in California, is developing FishLine, an app that allows fishermen to notify consumers about the day's catch. Retail stores and restaurants also use the application to announce their daily offerings.

"More than information, the tour gave



- (1) Sign up for Newsletter**
- (2) Join conversation on social media  
(@LocalCatch)**
- (3) Become a member of the LocalCatch.org  
community**



**Joshua Stoll**  
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**@LocalCatch | boat2fork**





# Fish as Food: Next Steps

- Information System on SSF
  - How are people around the world utilizing SSF for food security?
  - <https://dory.creat.mun.ca/>
- Special Issue: Agriculture and Food Security Journal
  - Open Access
  - Follow up issue planned
- Fill out our simple poll on fish consumption:
  - <http://toobigtoignore.net/fish-as-food-online-poll/>





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**Ideas for the upcoming TBTI webinars?**

**Send us an email to [toobigtoignore@mun.ca](mailto:toobigtoignore@mun.ca)**

