

the David &
Lucile Packard
FOUNDATION



Tracking Change in the Global Seafood Market

May 2013

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Executive Summary

The sustainable seafood movement continues to make gains in the marketplace...

- Retailers, restaurants and food service companies in the US and Europe continue to strengthen their sustainable seafood commitments, with the help of several NGOs. Most major retailers now have some commitment or partnership around seafood issues.
- Certification systems are cementing their place in the market. MSC now covers 12% of the wild seafood market (certified and in full assessment). Aquaculture standards are gaining a foothold in advanced markets, with the Aquaculture Dialogues now complete.
- Fishery Improvement Partnerships (FIPs) have seen rapid growth and maturation over the past two years, and now cover another 12 percent of global landings across six continents.
- General interest in sustainability from the seafood industry appears to be stable or increasing, and remains strongest in Europe.

... but the overall impact of the movement on the water is only starting to emerge.

- Major fish stocks in the developed world appear to be unevenly turning the corner towards restoration, but the contribution of sustainable seafood market programs in this transformation is not well understood.
- Fish stocks without stock assessments appear to be in worse shape and continue on a downward trajectory. These fisheries may be some of the more difficult to influence through market incentives.
- The sustainable seafood movement is helping to improve management in certified fisheries and in FIPs, and is contributing to a political climate more conducive to fisheries reform.

Growth in the sustainable seafood market has occurred within the context of a growing market for sustainable products in general, but the strength of conscious shoppers is limited.

- Sales of organic foods continue to grow rapidly and now comprise more than 4% of the U.S. food and beverage market.
- Consumers state a willingness to pay more for sustainable seafood, but there remains little market evidence of price premiums.

Overview of CEA's Project

PURPOSE

- Continue systematic tracking effort to monitor the impact of sustainable seafood initiatives on the general seafood market
- Effort broadly maps to the NGO Community's Theory of Change developed in 2010

METHODOLOGY

- Simple and replicable
- Quantitative
- Informative for long-term adjustments to strategy and other market-based approaches to environmental issues

LIMITATIONS

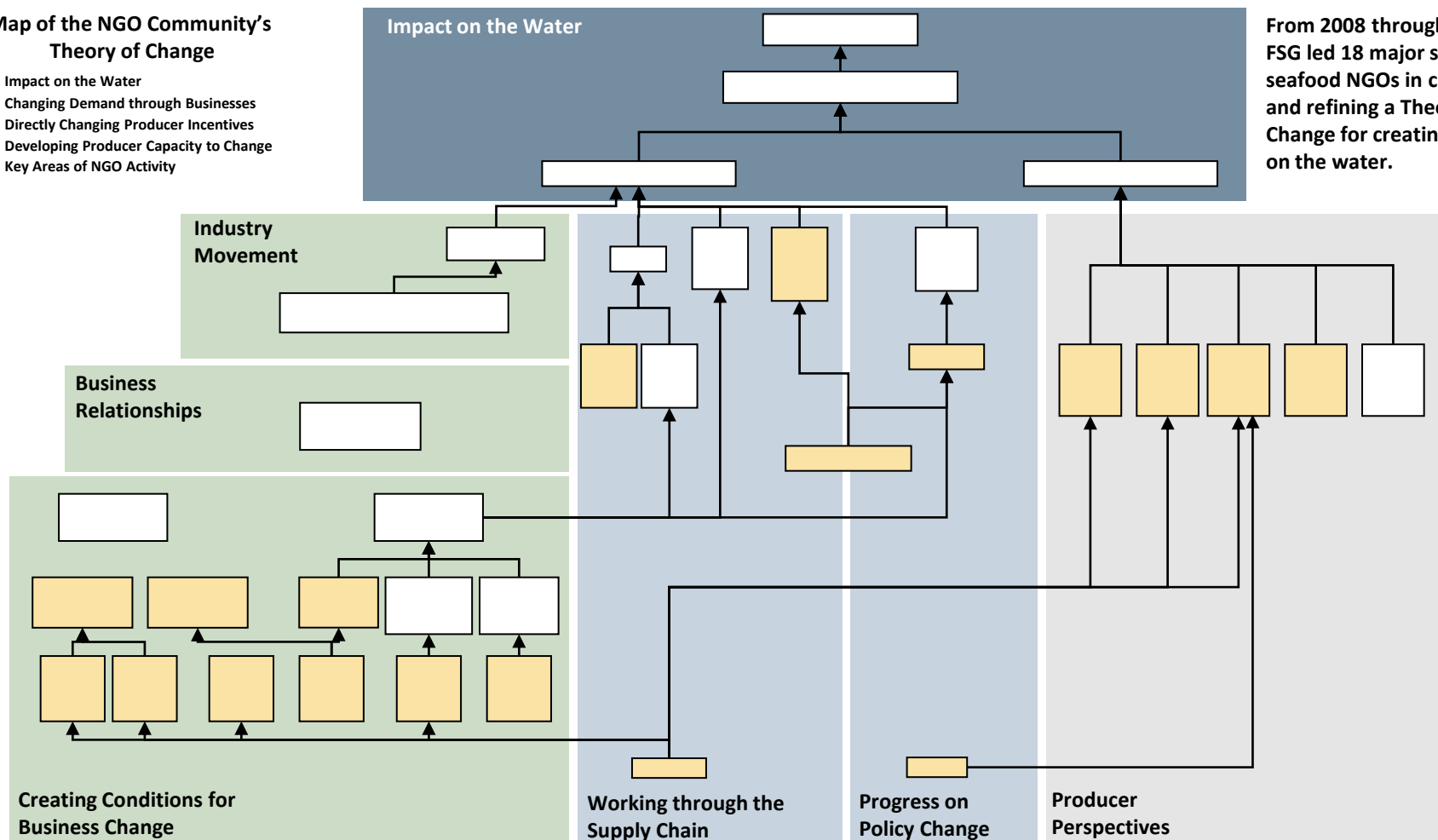
- Lack of time series data - most data will only serve as a baseline
- Difficult to attribute direct cause and effect relationship given market-orientation of grantee tools
- Quality and availability of data

INTRODUCTION

This report is structured to match the main categories of the NGO community's theory of change

Map of the NGO Community's Theory of Change

- Impact on the Water
- Changing Demand through Businesses
- Directly Changing Producer Incentives
- Developing Producer Capacity to Change
- Key Areas of NGO Activity



From 2008 through 2010, FSG led 18 major sustainable seafood NGOs in creating and refining a Theory of Change for creating impact on the water.

Overview of CEA's Project

FSG'S THEORY OF CHANGE

METRICS INCLUDED

US trends in fishery exploitation

US seafood consumption
FMI's Sustainable Seafood Group
Industry Media
Industry Event Attendance

Retail/Food Service - NGO Partnerships
Greenpeace's scorecard data

Media and Literature Penetration
Seafood Card Distribution
Organic sales and market share data
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LOHAS data
FishChoice data
FishSource data

IMPACT ON THE WATER

INDUSTRY MOVEMENT

BUSINESS RELATIONSHIPS

CREATING CONDITIONS FOR BUSINESS CHANGE

PROGRESS ON POLICY CHANGE

WORKING THROUGH THE SUPPLY CHAIN

PRODUCER PERSPECTIVES

METRICS INCLUDED

Global trends in fishery exploitation

Policy progress

Supplier/Distributor - NGO Partnerships
Traceability data

Certification Data
Fishery Improvement Partnerships

OUTLINE

US trends in fishery exploitation

IMPACT ON THE WATER

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PROGRESS ON
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CREATING
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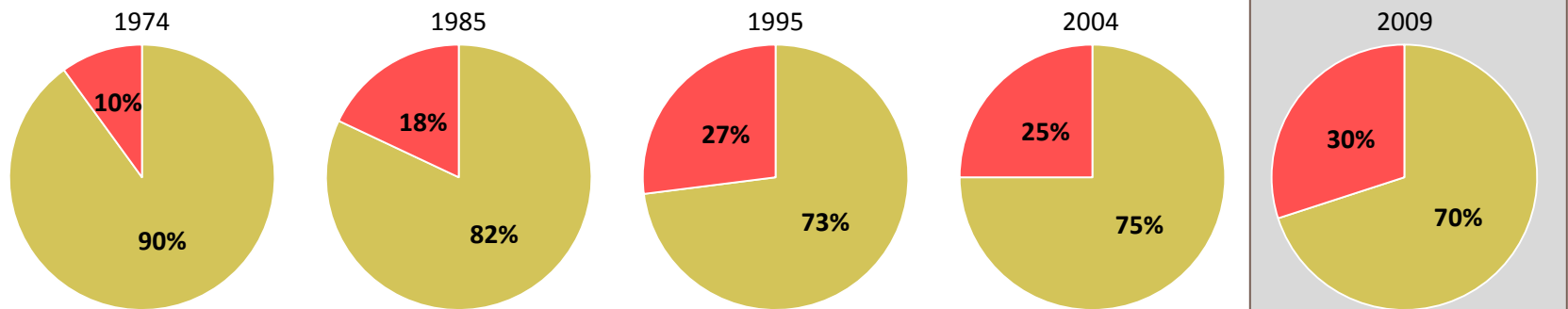
Certification Data
Fishery Improvement Projects

FAO and UBC assessments of the health of marine fish stocks are converging after decades of differing interpretation of the same dataset

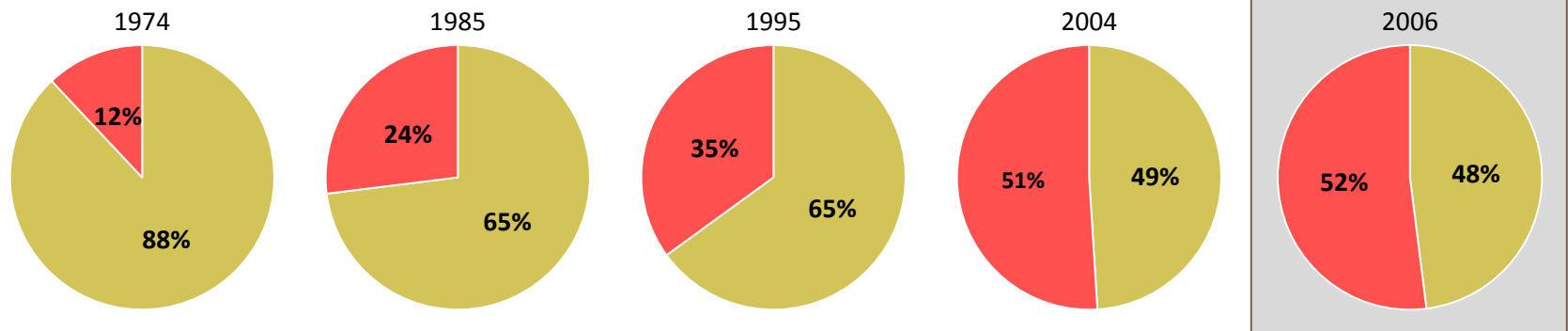
Global trends in fishery exploitation

Under or fully exploited
Crashed, overexploited, or rebuilding

FAO assessment



Sea Around Us Project

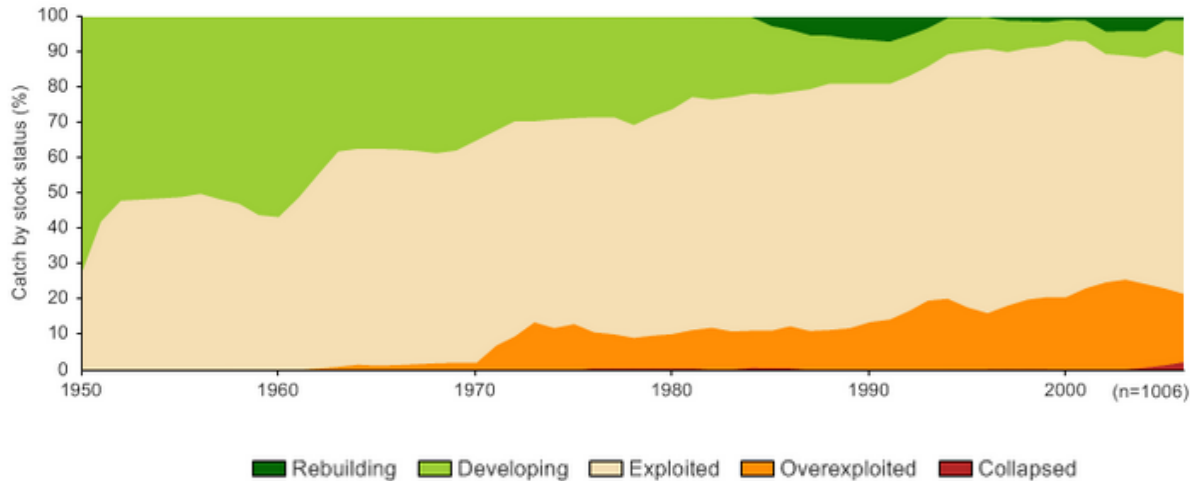


IMPACT ON THE WATER

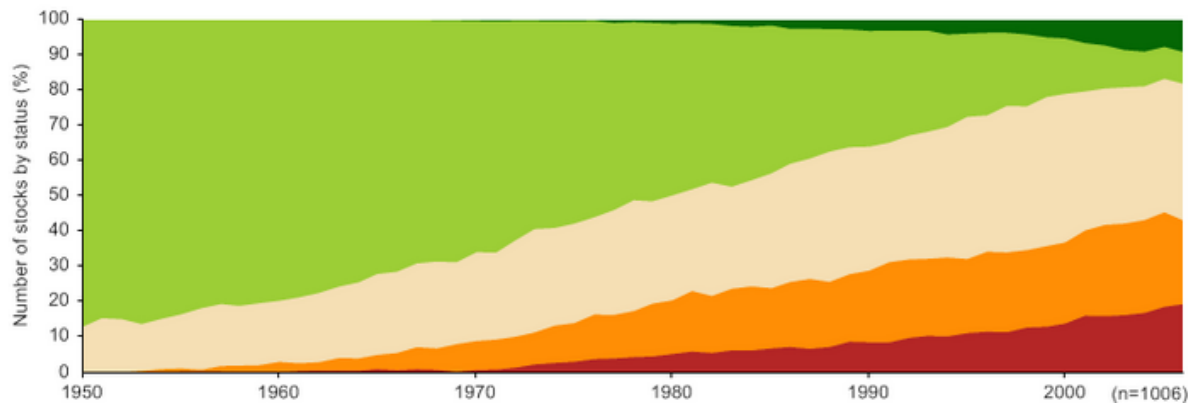
Roughly 20% of landings and 40% of stocks are either overexploited or collapsed, though there may be signs of stabilization in recent years

Stock Status in the Global Ocean

Percentage of catch from stocks of a given status



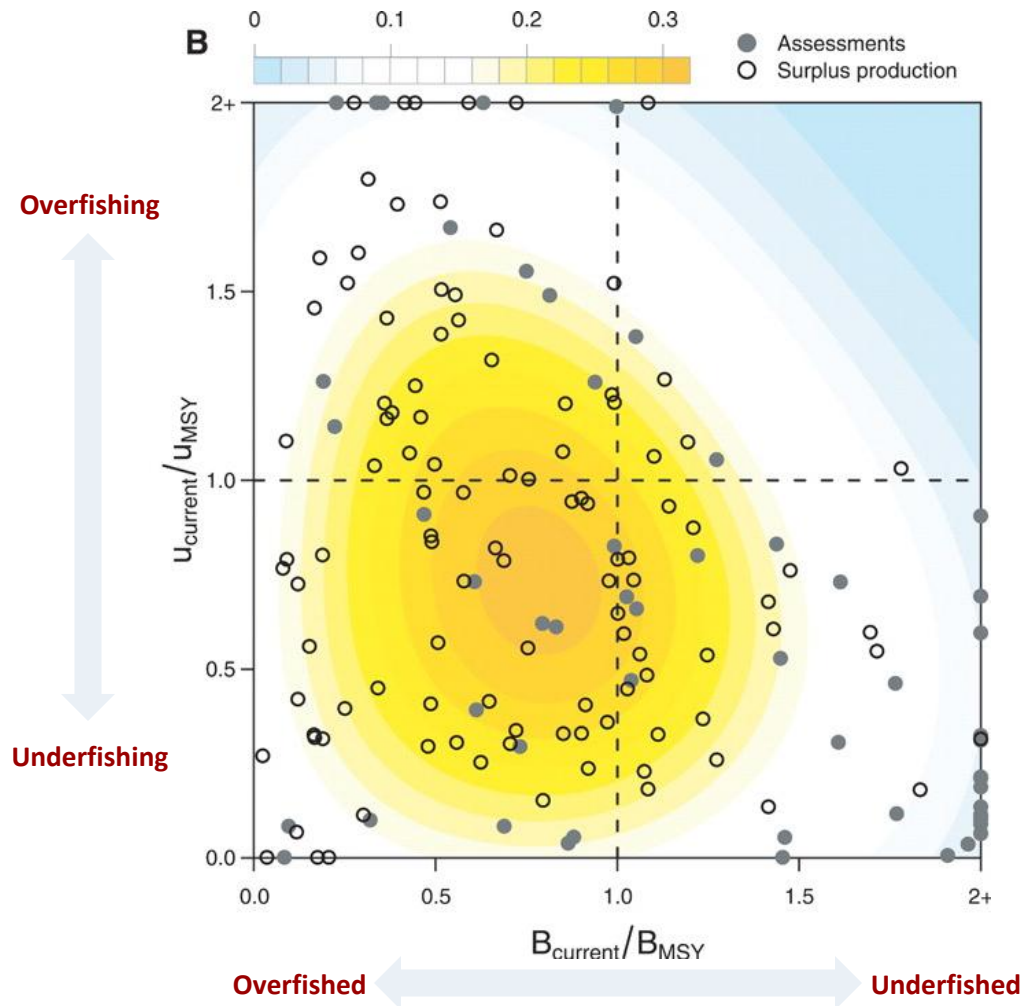
Percentage of stocks of a given status



- Stock status in the charts on the left is estimated using catch history trends. This method has been the source of controversy, but is a valuable tool for estimating the status of stocks without formal stock assessments.
- In 2012, Pauly et al. updated the criteria used to classify the status of fish stocks. A key change was the addition of a “rebuilding” category.
- Recent estimates of stock status from FAO and catch-history methods appear to be converging.

IMPACT ON THE WATER

Worm et al. published a report in 2009 on the state of fisheries with stock assessments and found that 63% were in need of rebuilding

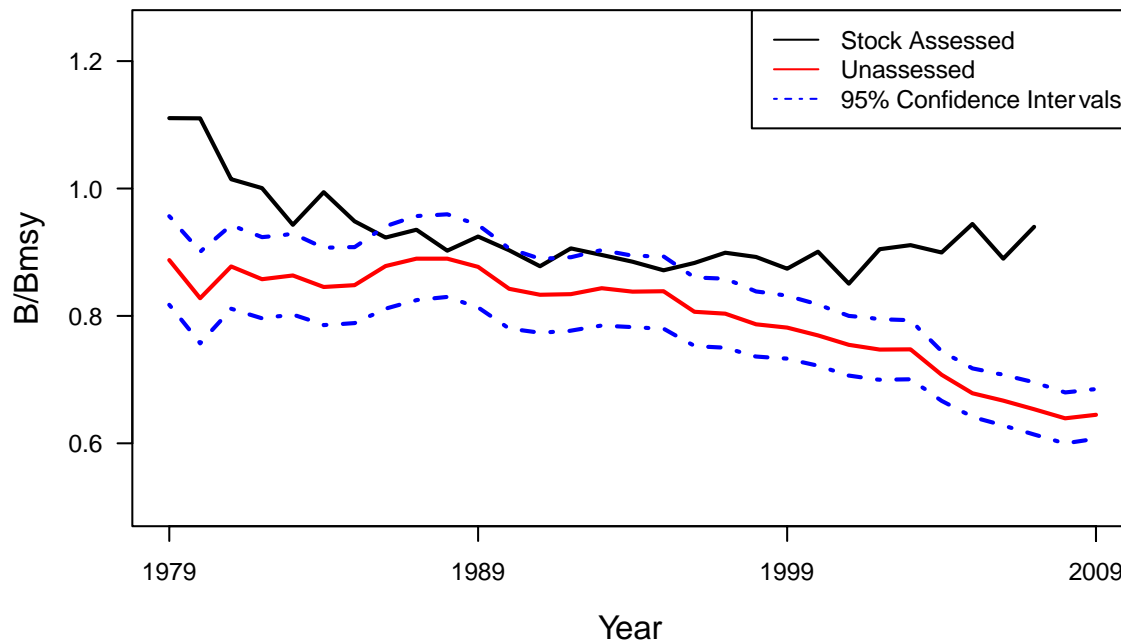


- 37% of assessed stocks do NOT need rebuilding. Of those, 77% are in the Pacific.
- We want fisheries to be in the lower right quadrant, near the cross-hairs.

IMPACT ON THE WATER

But the status of fisheries with stock assessments may not be indicative of all fisheries – a recent study found fisheries without stock assessments to be in worse condition

Status of stock assessed and unassessed fisheries over time

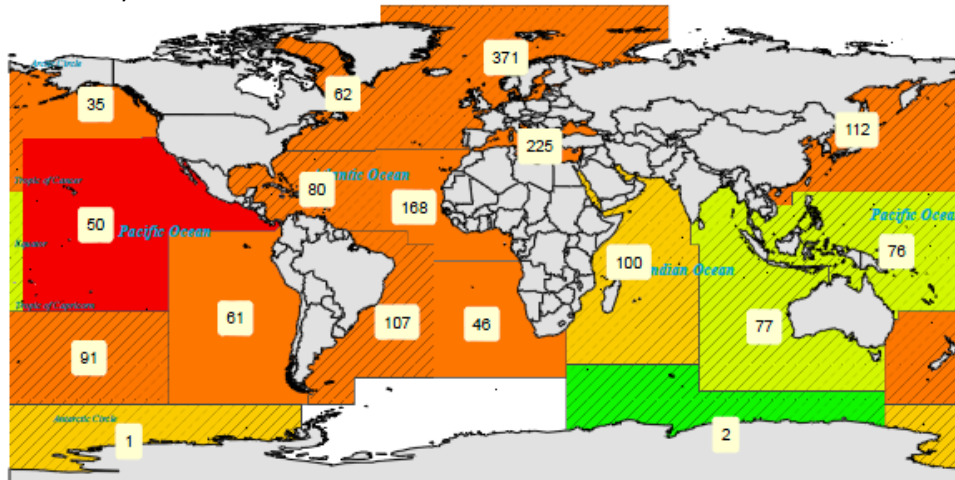


- Due to the selection bias of characterizing the state of global fisheries based solely on fisheries with stock assessments, Costello et al. developed a method to predict the health of fish stocks that did not have formal stock assessments.
- They found that fisheries without stock assessments were in worse shape than those with stock assessments and continue to trend downward.
- There is substantial potential for biomass and yield increases among the world's unassessed fisheries.
- Note that a B/B_{MSY} equal to 1.0 should be an absolute lower limit of biomass for fish stocks.

IMPACT ON THE WATER

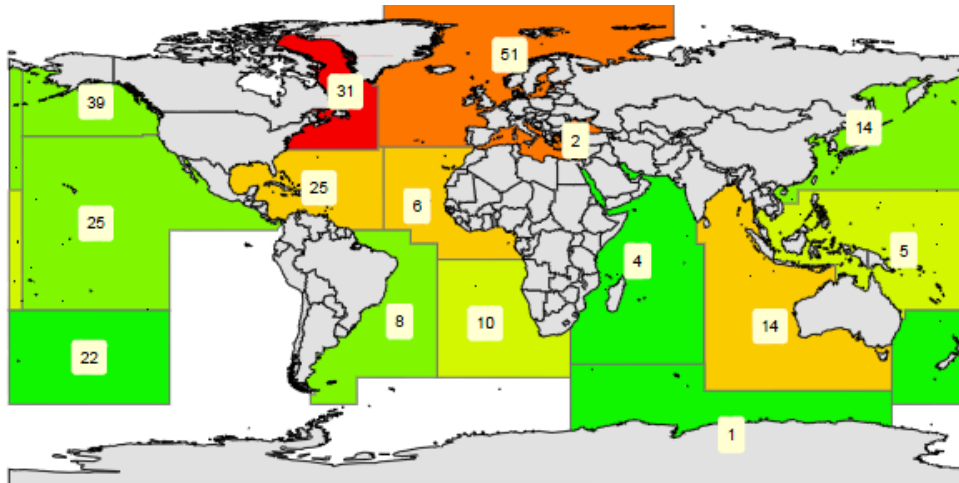
The trend of unassessed fisheries being more overfished appears to be consistent across most fishing regions of the world

Map of B/B_{msy} of unassessed fisheries in 2009, by FAO region



- Hashed regions are those where modeled landings comprise less than 40% of total reported regional landings.

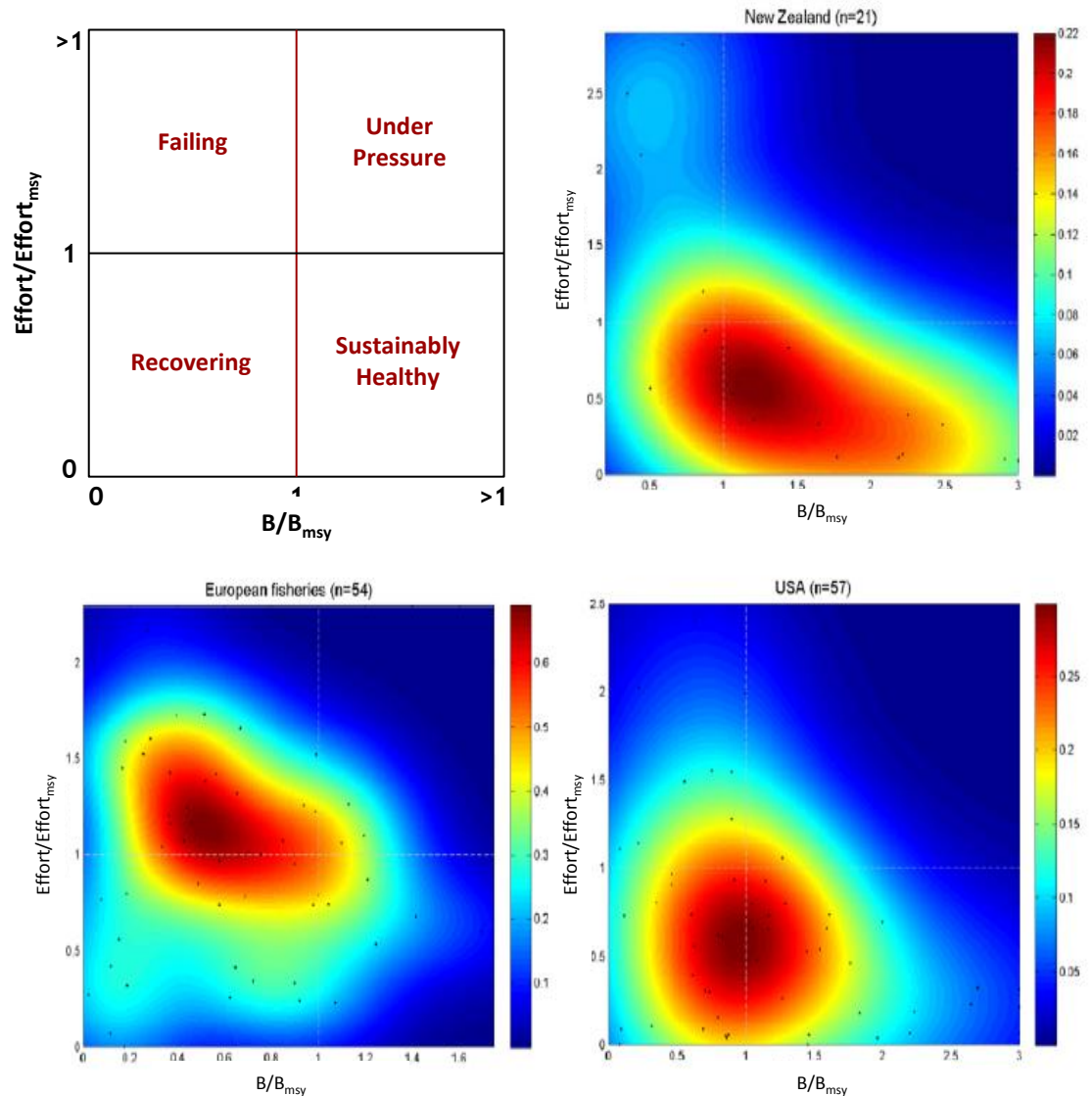
Map of B/B_{msy} of stock assessed fisheries from 2000-2007, by FAO region



IMPACT ON THE WATER

Within developed countries, rebuilding for large fisheries has progressed unevenly

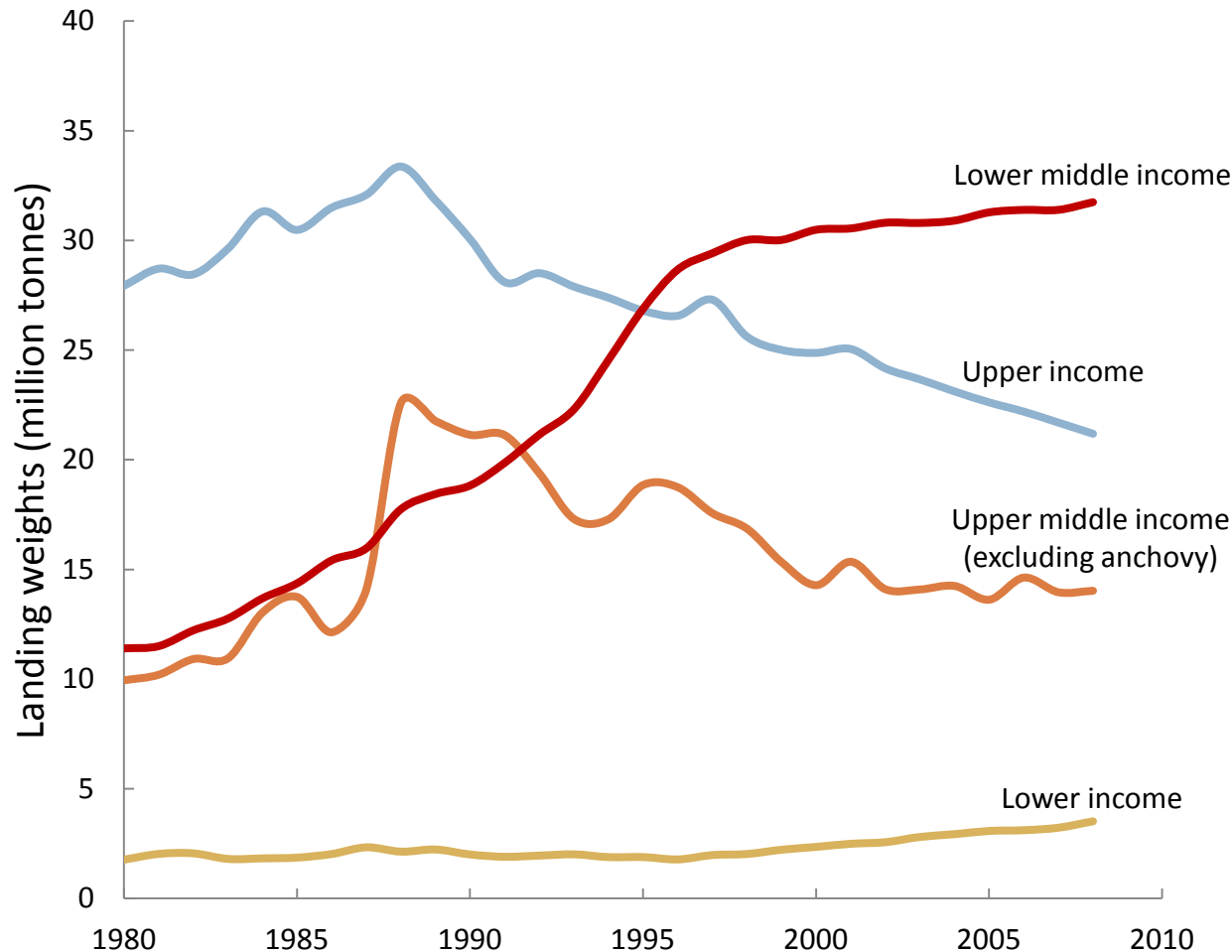
- The X axis represents $B_{\text{current}}/B_{\text{msy}}$ and the Y axis represents Fishing Effort $\text{Effort}_{\text{current}}/\text{Effort}_{\text{msy}}$, with 1 representing an optimal scenario.
- European fisheries' health are generally poor and overfishing continues, due in large to the multinational challenges of fisheries management in the EU.
- The U.S. regulatory regime (MSA and amendments) appears to have effectively reduced fishing pressure on most federally managed stocks, but overall stock health remains varied as stocks recover.
- New Zealand has successfully prevented overfishing, for the most part, maintaining healthy overall stock populations.



IMPACT ON THE WATER

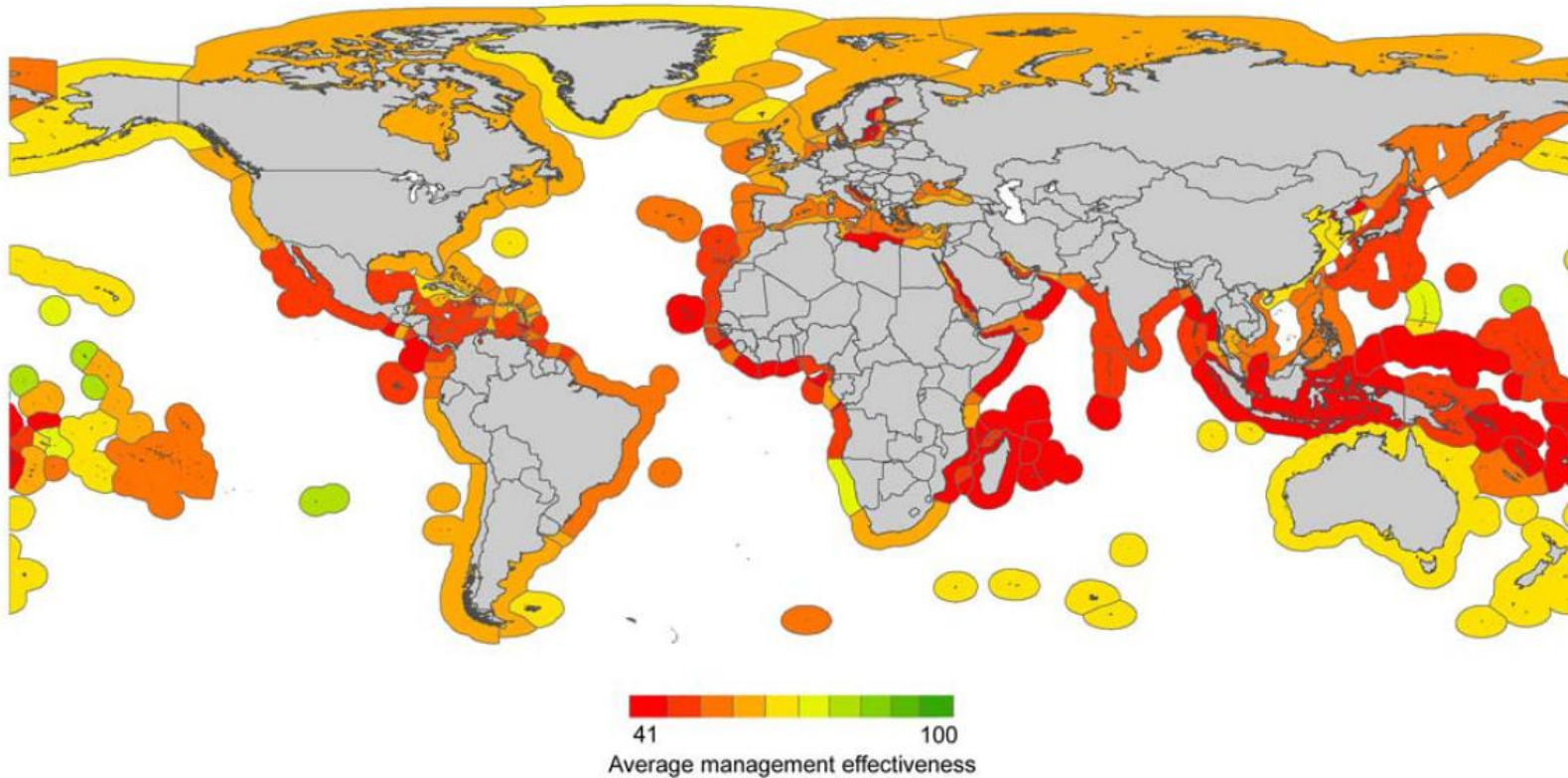
Over the past 30 years there has been a marked shift in the distribution of fishing landings, with a huge rise in lower-middle income countries

Catch trends by income level of fishing country



- Asian nations account for over 85% of the catch of lower-middle income countries.
- Six countries (China, Indonesia, India, Philippines, Thailand, and Vietnam) account for 80% of the landings of lower-middle income countries.
- From 1988 to 1996, landings of lower-middle income countries increased almost 60%, but have since leveled off substantially.

These lower-middle income countries self-report weak fisheries management effectiveness

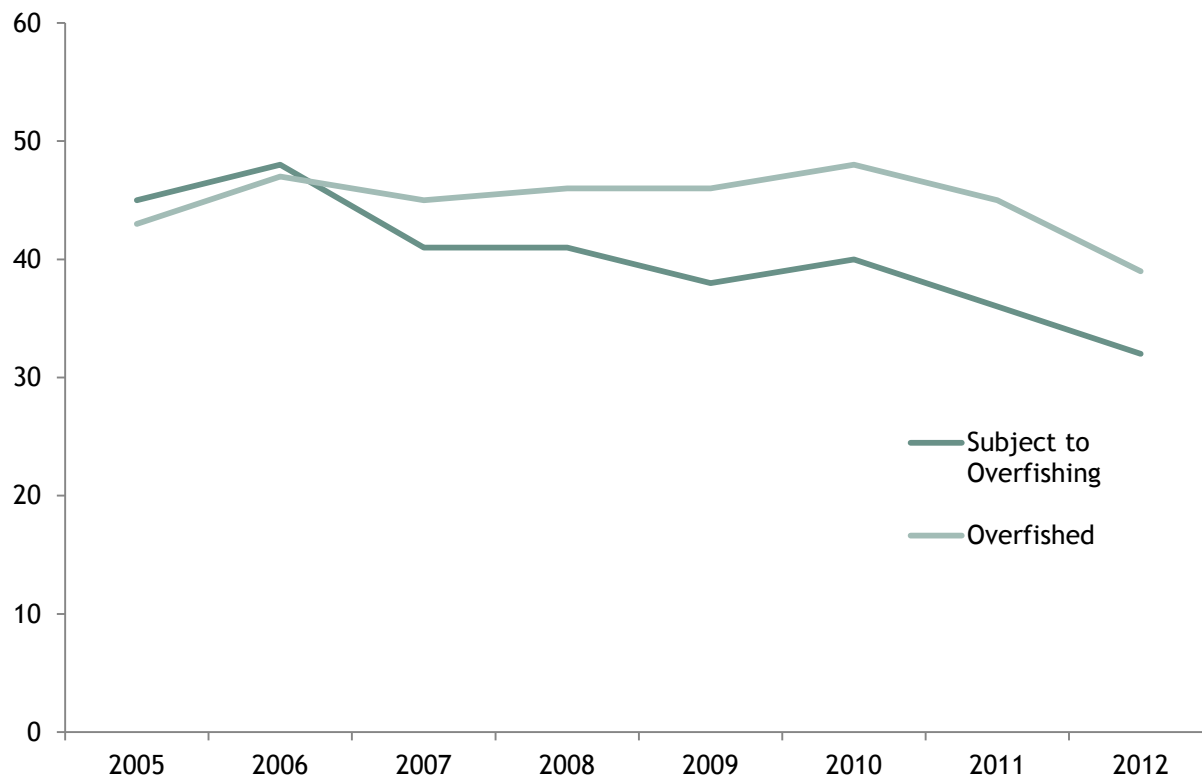


- ~7% of coastal states use rigorous scientific assessments
- ~1% have “robust mechanisms to ensure the compliance with fishing regulations”

IMPACT ON THE WATER

With the Magnusson Stevens Act and subsequent amendments, the U.S. has made substantial progress in reducing overfishing in Federal waters

Number of Fisheries That Are Overfished or Subject to Overfishing in the U.S.



Of the federally managed fisheries that have been assessed, 16.5% are subject to overfishing (down from 20% in 2010) and 22% are overfished (down from 25%), as of January, 2013.

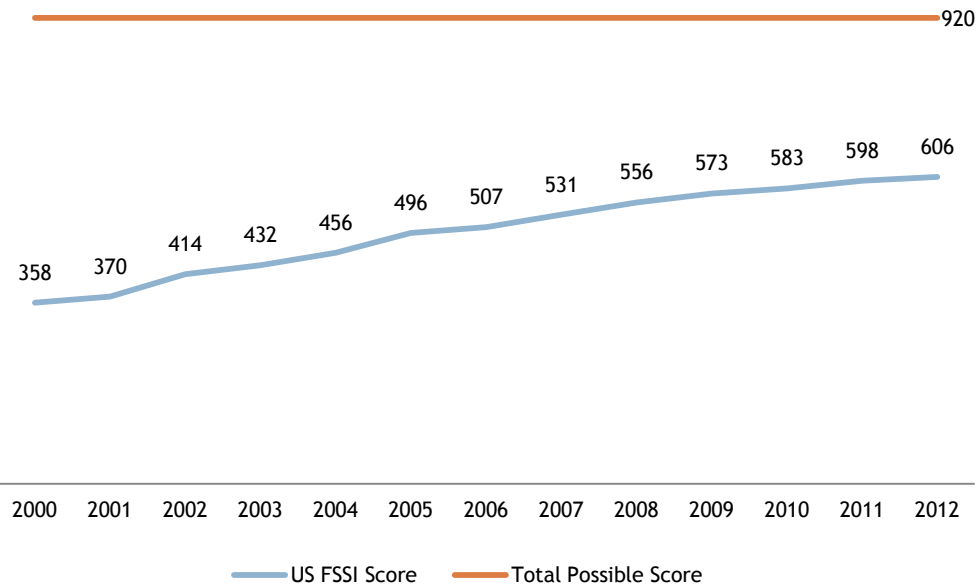
194 stocks or stock complexes are known with respect to their overfishing status and 178 stocks or stock complexes are known with respect to their overfished status, as of January 2013.

NOTE: This information is based only on federally managed fisheries for which an assessment has been done.

IMPACT ON THE WATER

NMFS' "Sustainability Index" of key US fish stocks has improved over the last decade. However, this has been largely due to additional fishery assessments

NMFS's Fish Stock Sustainability Index (FSSI)



- The Fish Stock Sustainability Index measures the performance of 230 key U.S. fish stocks, whose value increases as:
 1. Additional assessments are conducted
 2. Overfishing is ended and stocks rebuild to the level that provides maximum sustainable yield.
- FSSI is calculated by assigning a score for each fish stock based on the following criteria and point allocation:
 - "Overfished" status is known (0.5)
 - "Overfishing" status is known (0.5)
 - Overfishing is not occurring (for stocks with known "overfishing" status) (1.0).
 - Stock biomass is above "overfished" level defined for the stock (1.0).
 - Stock biomass is at or above 80% of the biomass that produces maximum sustainable yield (B_{MSY}) (1.0).
- The maximum score that each stock may receive is 4. The maximum total FSSI score is 920 (achieved if all 230 stocks each receive a score of 4).
- **The 70% increase in the FSSI in 11 years is primarily due to progress in conducting additional fishery assessments.**

OVERVIEW

US trends in fishery exploitation

IMPACT ON THE WATER

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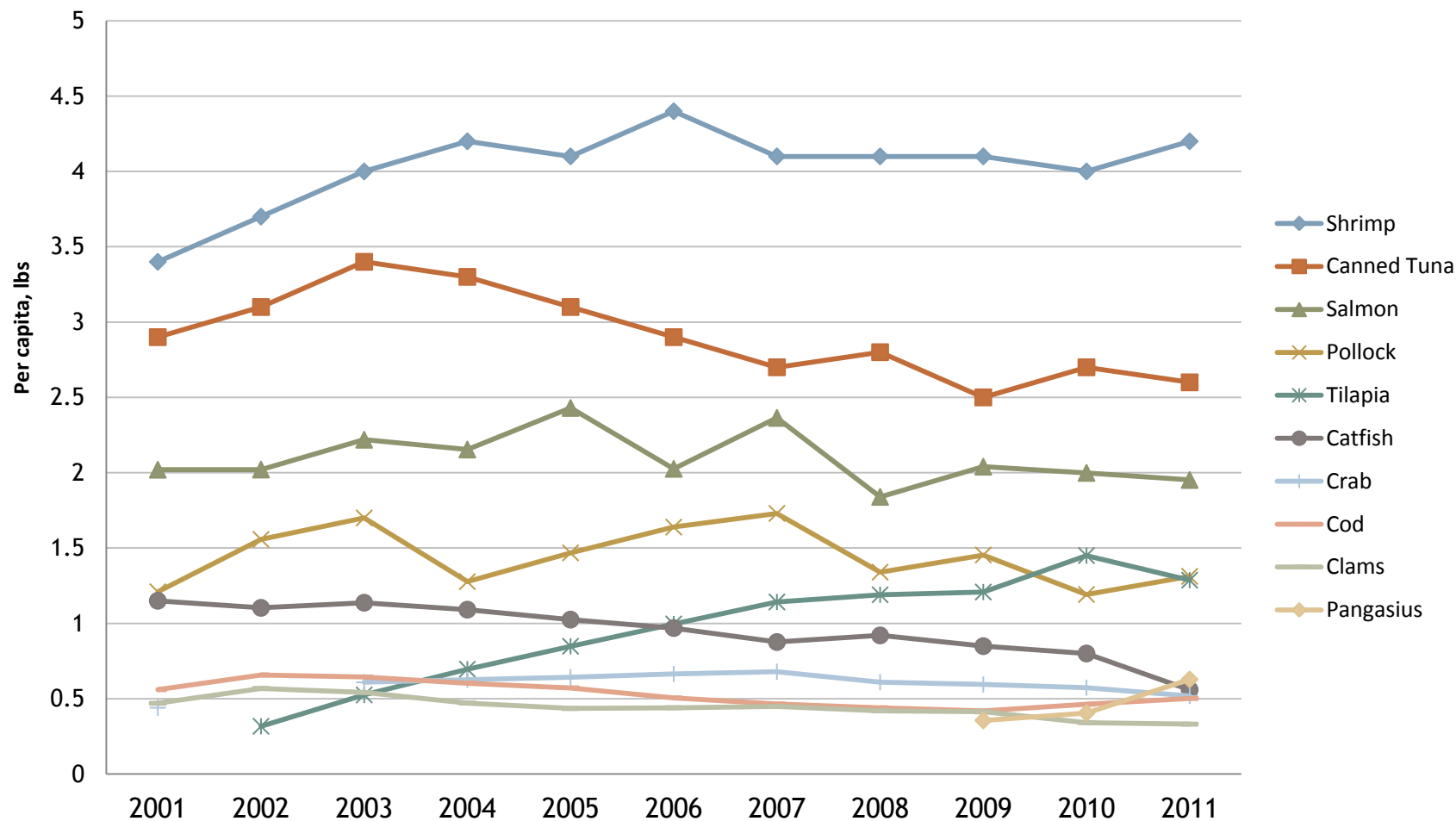
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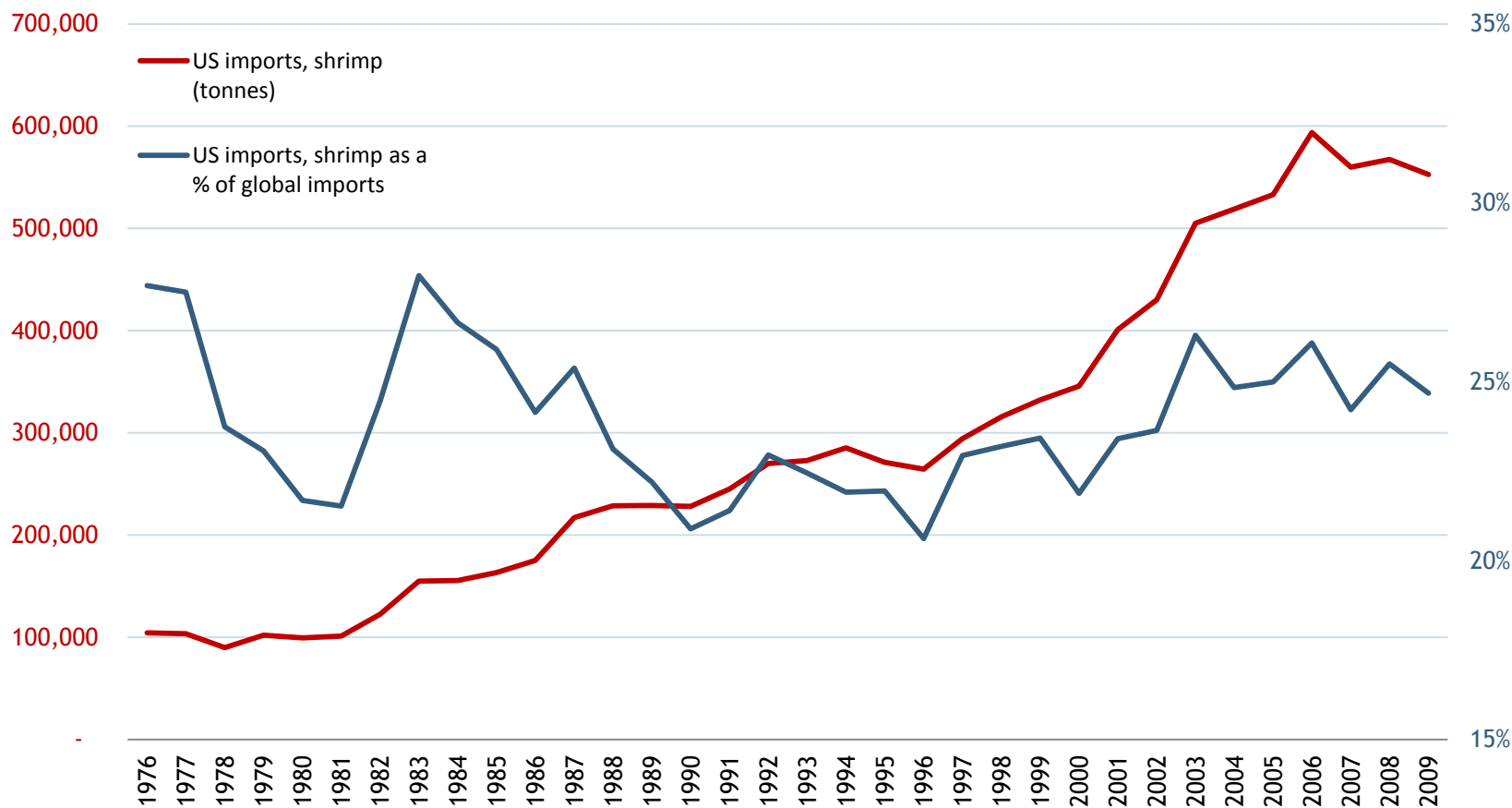
Changes in per capita consumption of top species – United States

Per capita consumption of most species has remained stable over the last decade. Growth in shrimp appears to have leveled off, pangasius and tilapia are on the rise, and catfish and canned tuna appear to be on the decline.



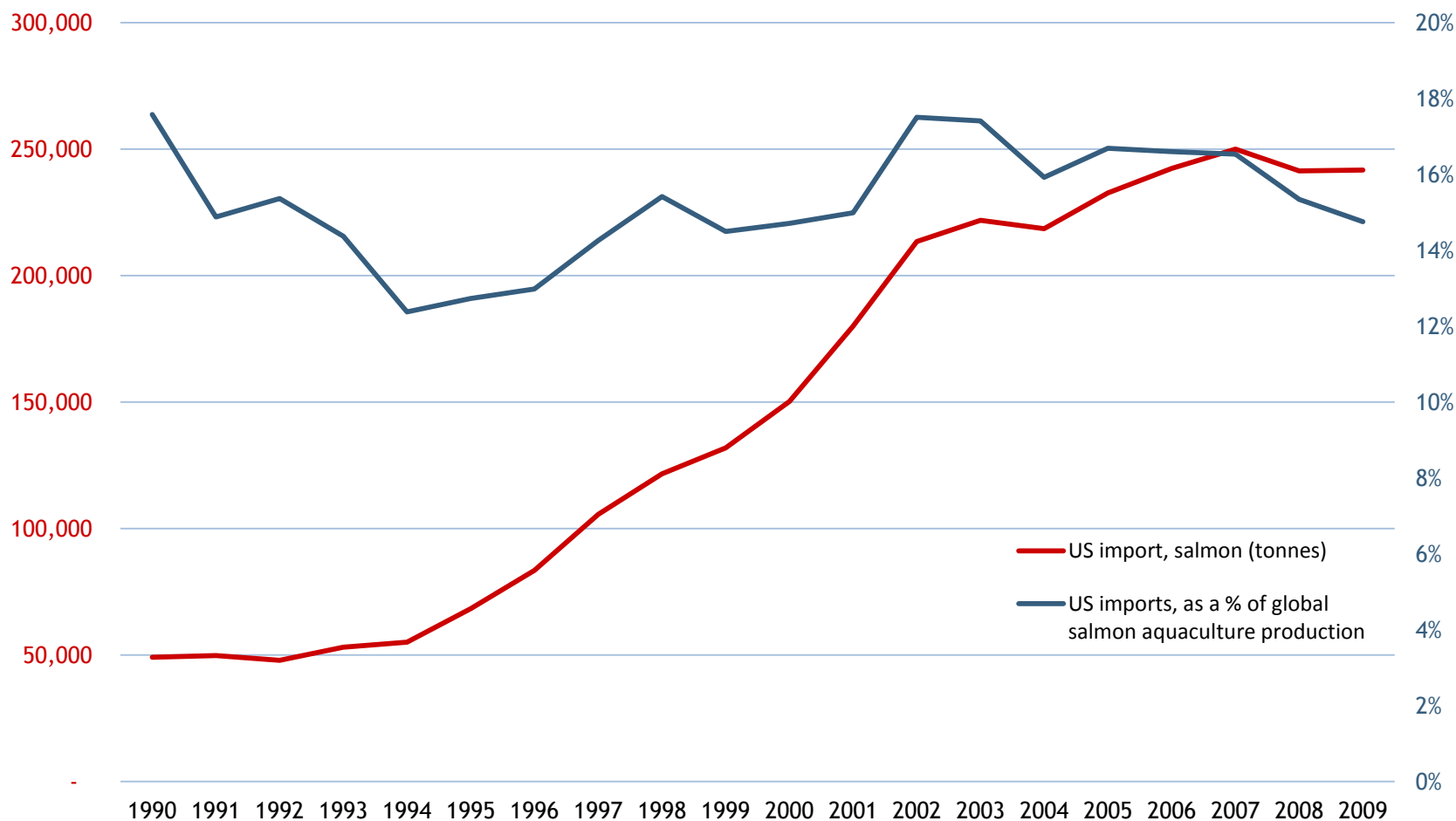
Species of particular interest – imported shrimp

US shrimp imports have continued to decline slightly after their all-time high in 2006. As a share of global shrimp imports, US shrimp imports have remained fairly stable since the early 2000s.



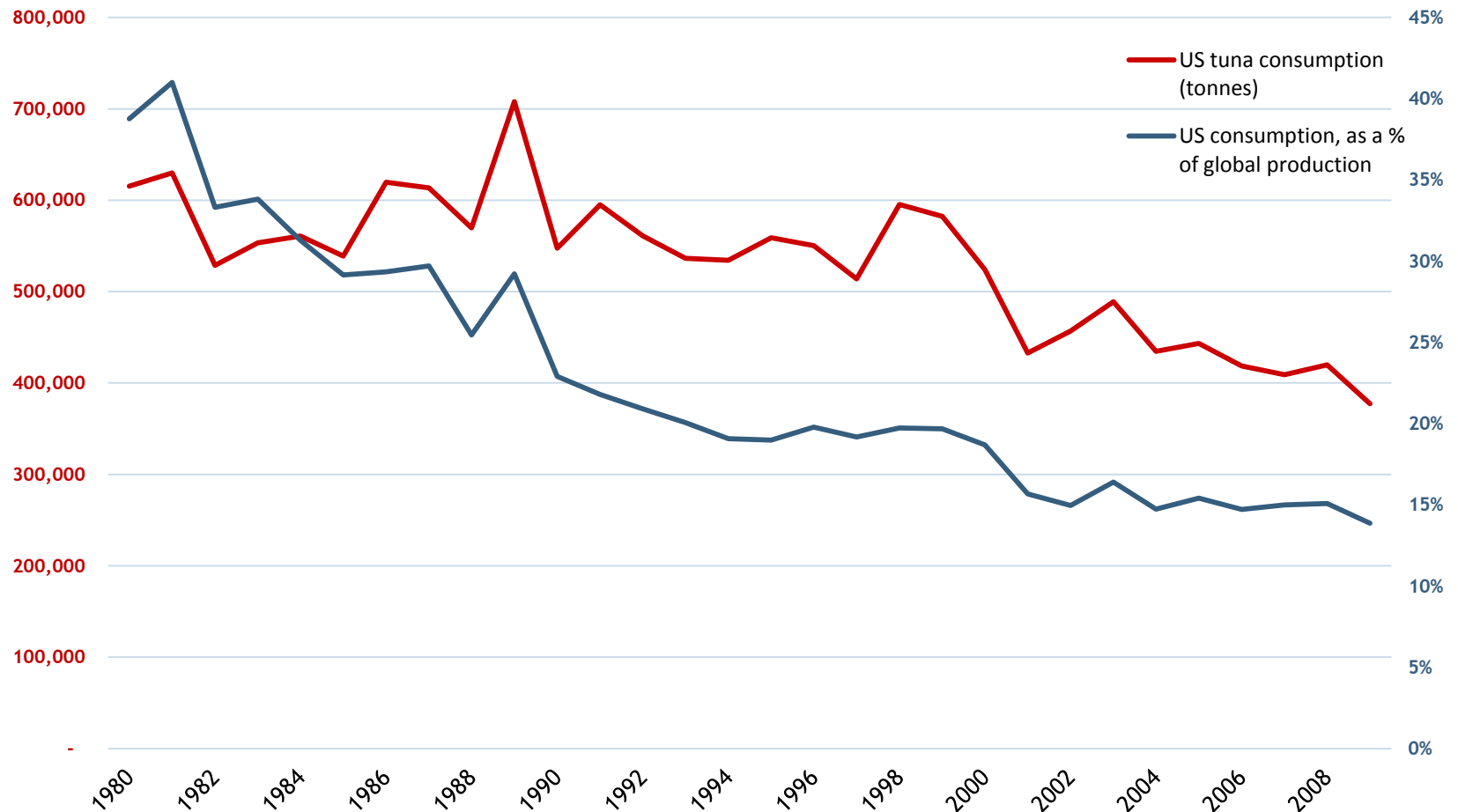
Species of particular interest – farmed salmon

US imports of farmed salmon appear to have leveled off in the past five years.
As a percentage of global salmon aquaculture production, US salmon imports have been relatively stable.



Species of particular interest – tuna

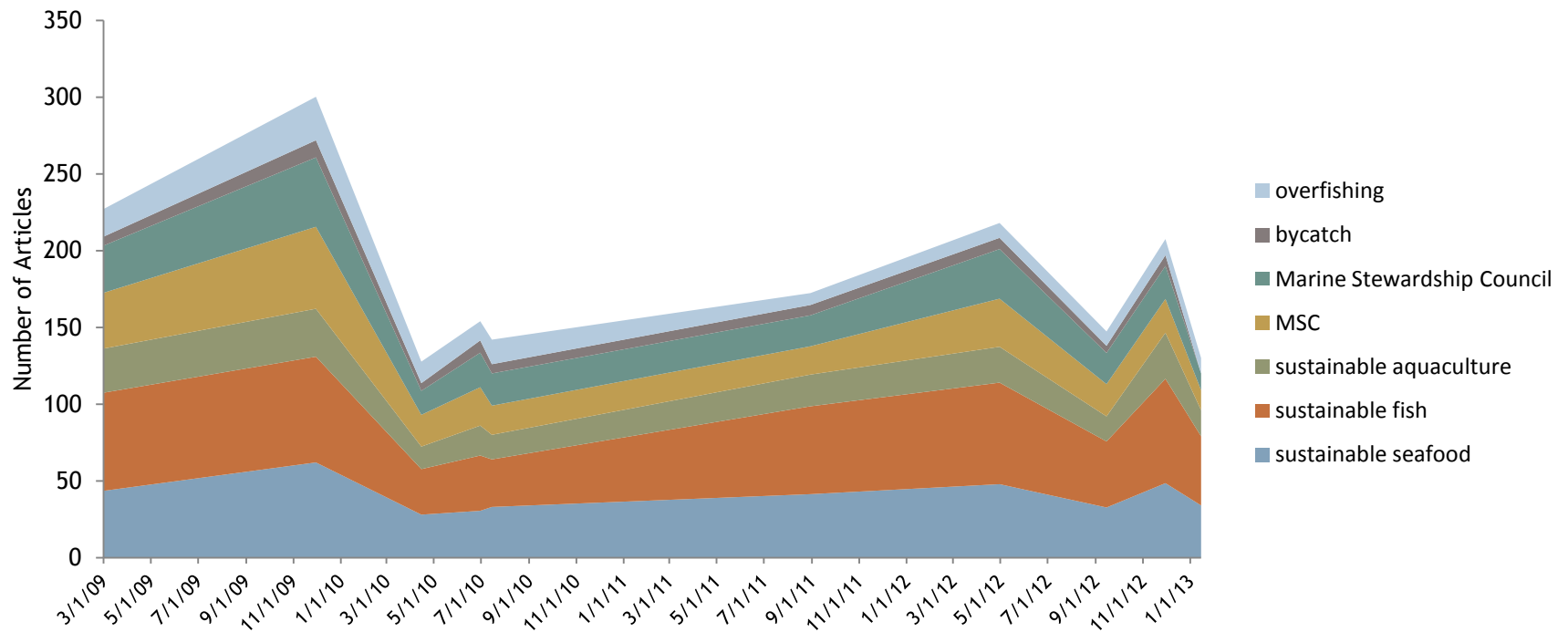
US tuna consumption has fallen gradually over the past thirty years to roughly 15% of global production



INDUSTRY MOVEMENT

Dialogue on sustainable seafood is prevalent in industry publications (e.g., IntraFish.com), but has not shown substantial growth in the last three years

Number of articles per month published by www.IntraFish.com (total number shows no trend)

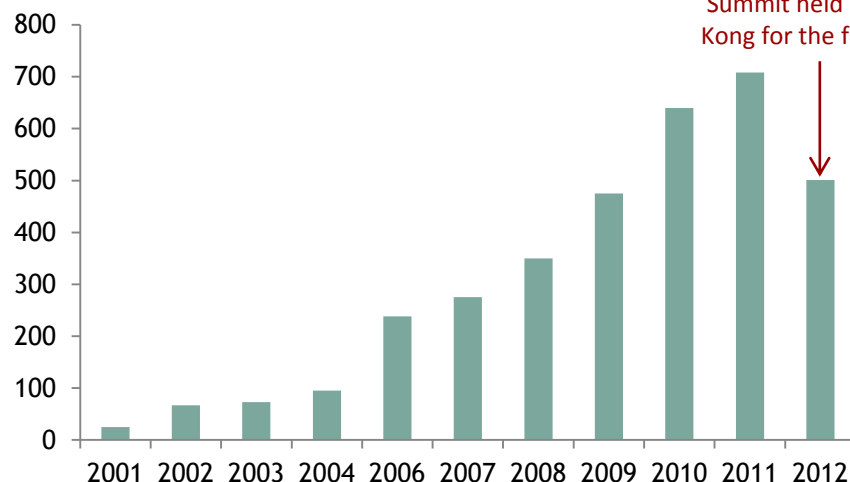


- Article volume sampled at 12-, 6-, 3-, or 1-month intervals
- Data displayed at date in the middle of each sample interval

INDUSTRY MOVEMENT

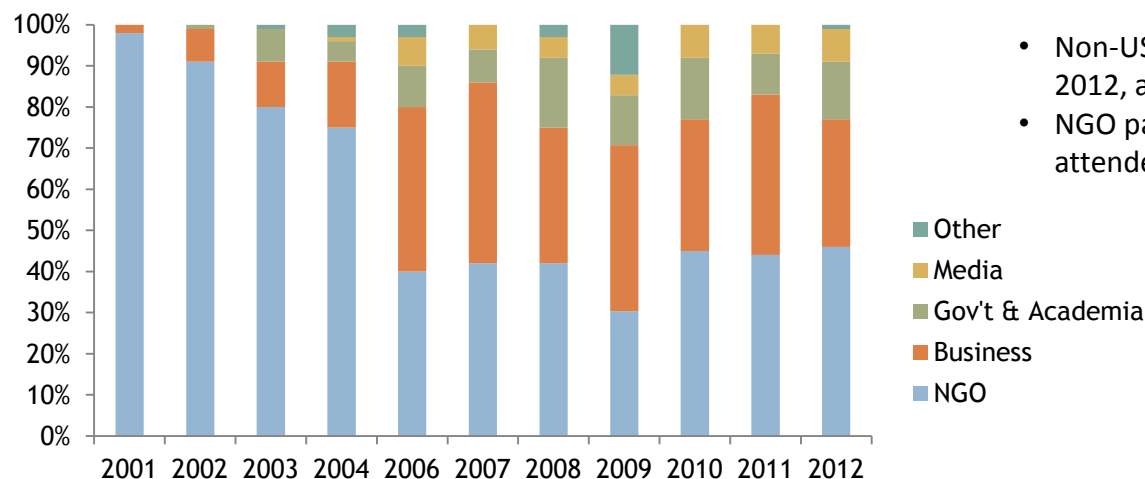
Seafood Summit attendance has almost doubled in the last five years, with strong representation from groups outside the NGO community

Number of Seafood Summit Attendees



- Seafood Summit attendance had increased steadily since the event's inception in 2001, until it experienced a 30% drop in 2012 when the summit was held in Hong Kong for the first time.
- Attendance has increased an average of 45% per year since the inaugural summit.

Seafood Summit Attendees, by sector



- Non-US participants made up 70% of all attendees in 2012, an all-time high.
- NGO participation is stable, comprising around 40% of attendees.

OVERVIEW

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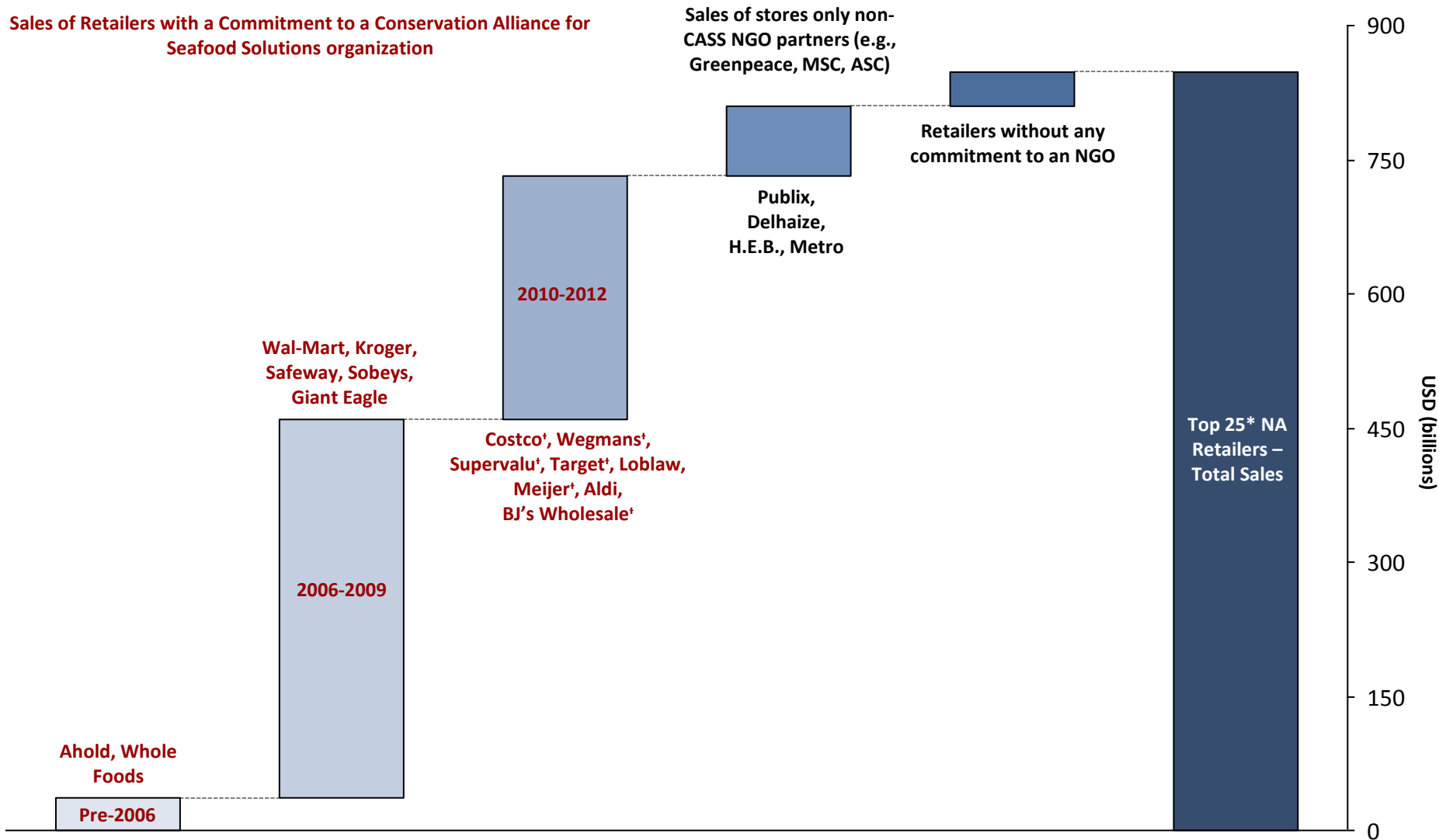
CREATING CONDITIONS FOR BUSINESS CHANGE

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BUSINESS RELATIONSHIPS

Top 25* North American retailers' commitments to sustainable seafood continue to grow substantially



† Commitments made since the previous metrics report

* 7-Eleven and Dollar General were removed due to lack of seafood sales

Source: Supermarket News and Sustainable Fisheries Partnership data

BUSINESS RELATIONSHIPS

Top 25* North American retailers' commitments to sustainable seafood (by seafood sales)

Sales of Retailers with a Commitment to a Conservation Alliance for Seafood Solutions organization

Sales of stores only non-CASS NGO partners (e.g., Greenpeace, MSC, ASC)

Retailers without any commitment to an NGO

Costco†, Wegmans†, Supervalu†, Target†, Loblaw, Meijer†, Aldi, BJ's Wholesale†

Publix, Delhaize, H.E.B., Metro

Wal-Mart, Kroger, Safeway, Sobeys, Giant Eagle

Ahold, Whole Foods

Pre-2006

2006-2009

2010-2012

Top 25* NA Retailers – Total Seafood Sales

USD (billions)

11

10

9

8

7

6

5

4

3

2

1

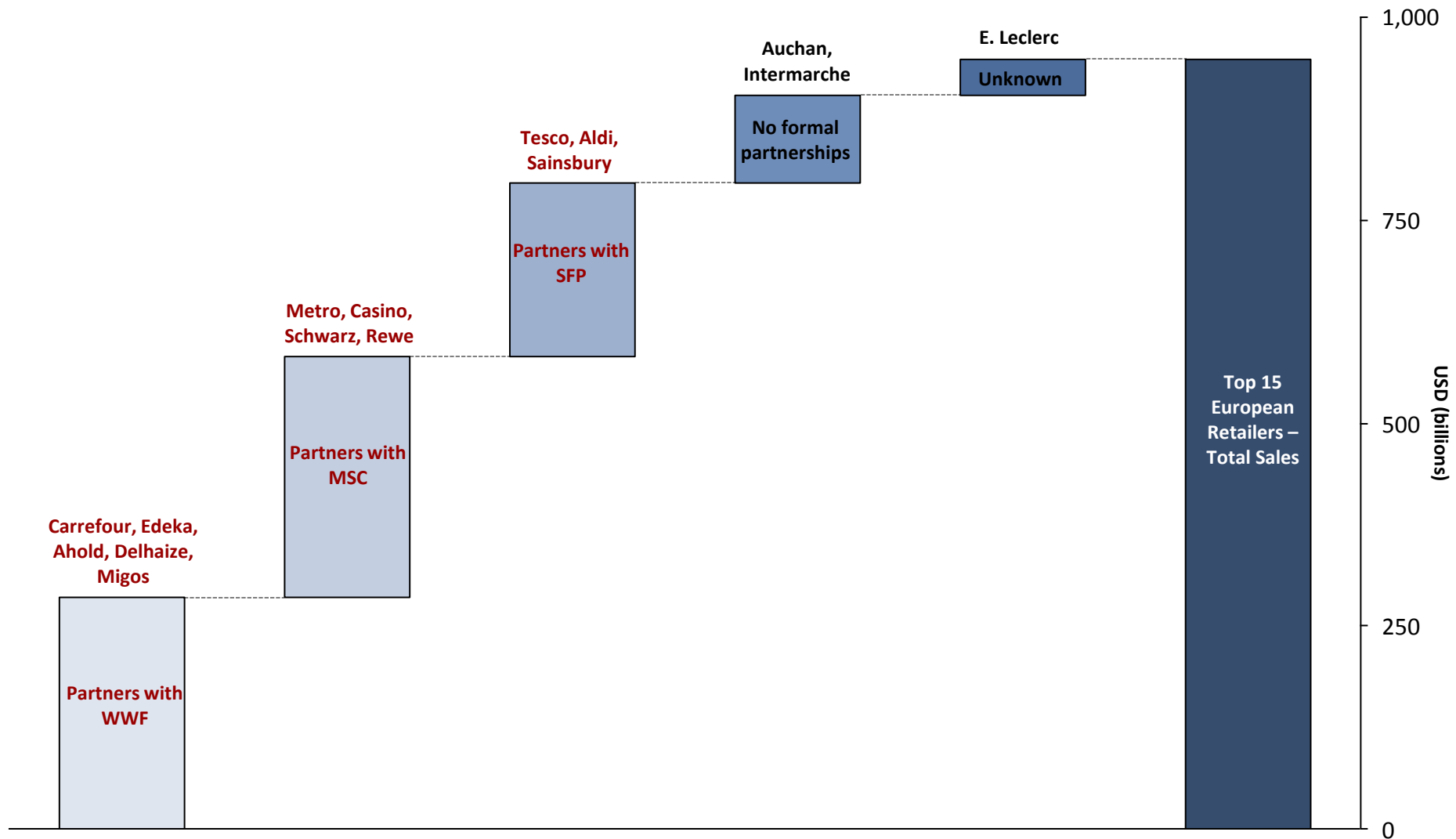
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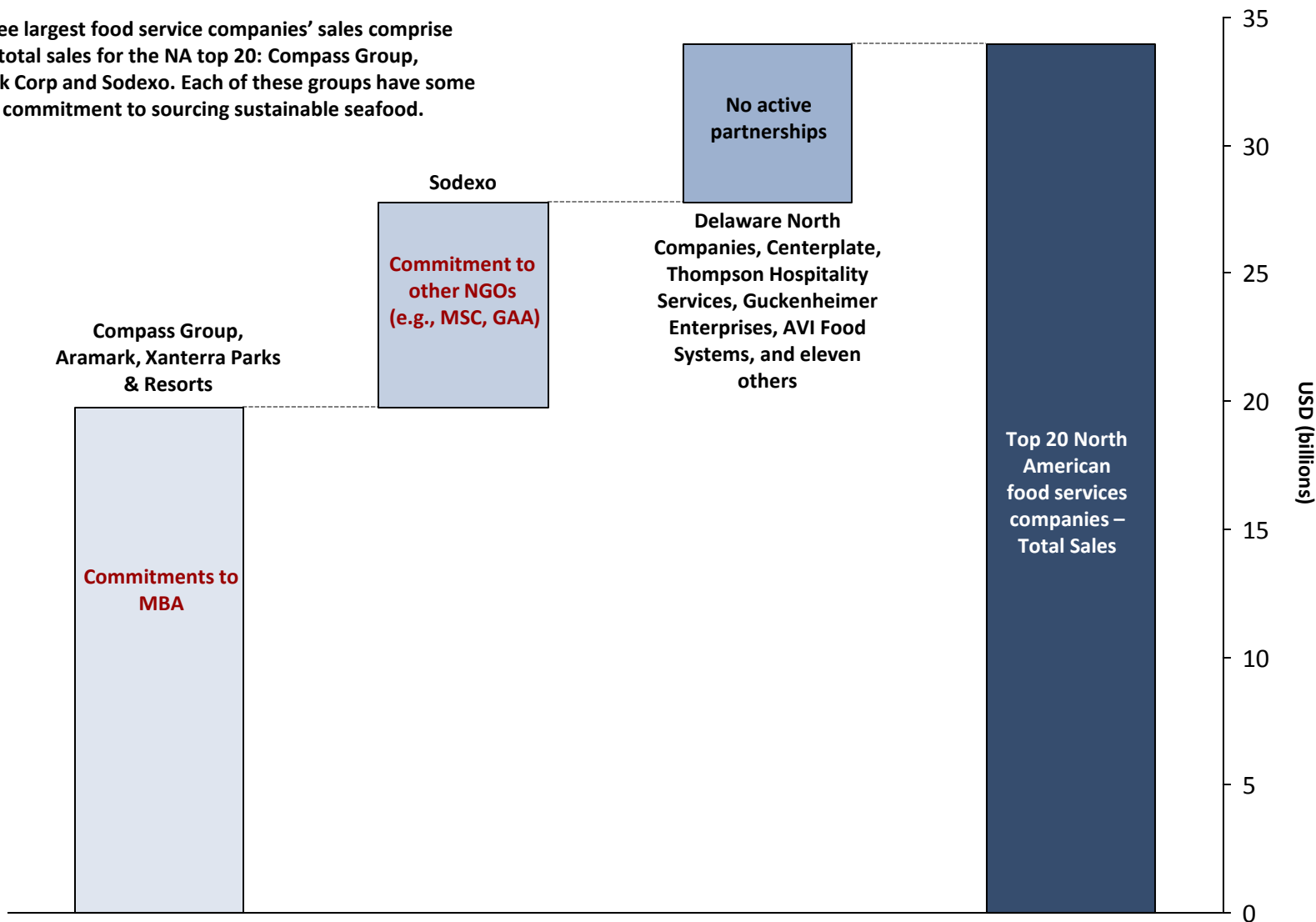
Source: Supermarket News and Sustainable Fisheries Partnership data

Top 15 European retailer commitments to sustainable seafood (by total sales)



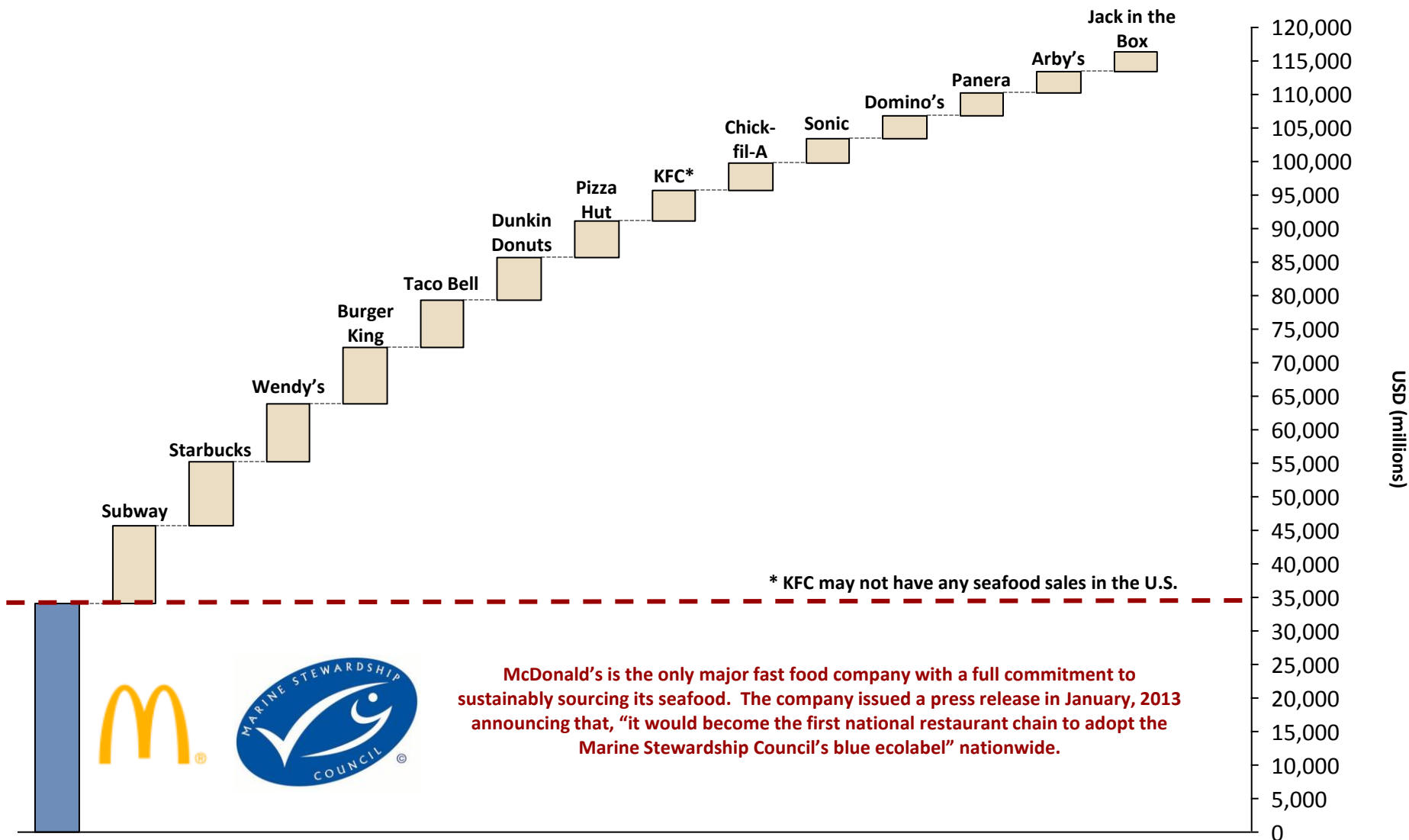
Top 20 North American food service commitments to sustainable seafood

The three largest food service companies' sales comprise 81% of total sales for the NA top 20: Compass Group, Aramark Corp and Sodexo. Each of these groups have some level of commitment to sourcing sustainable seafood.



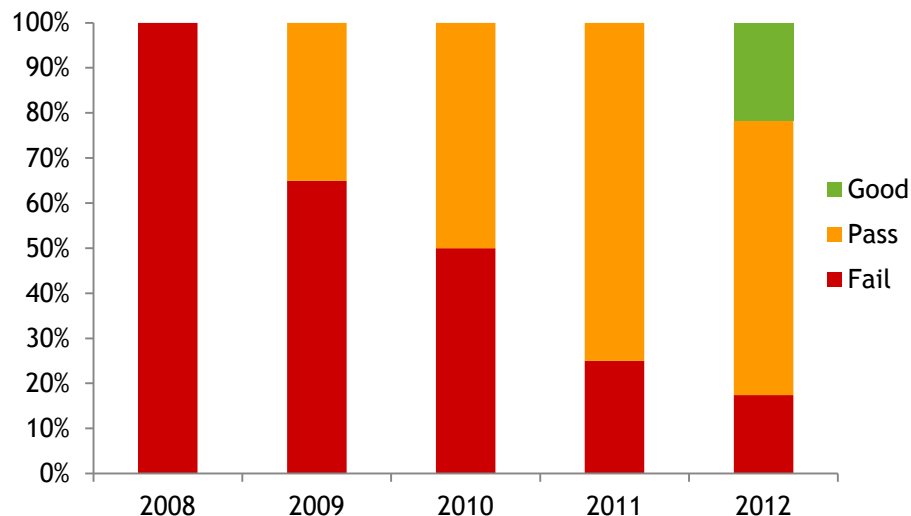
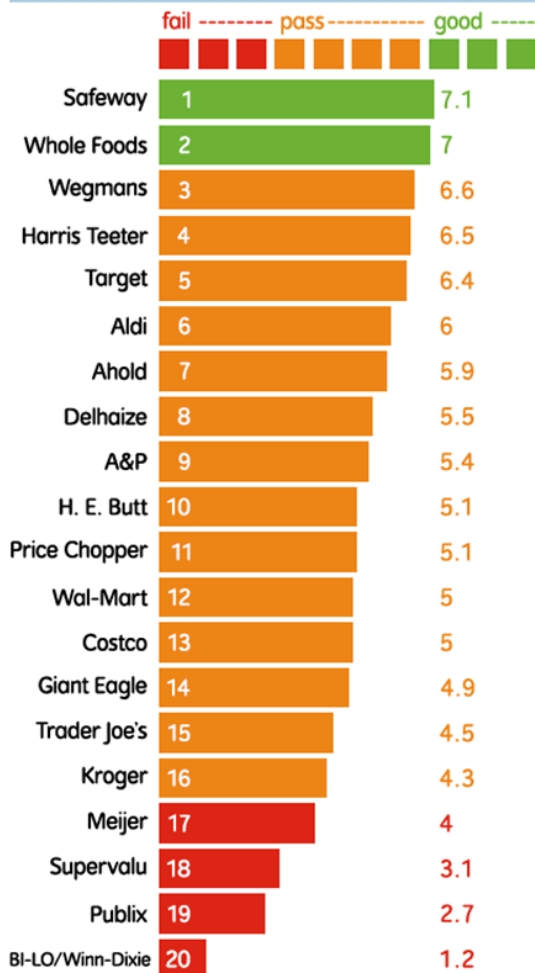
BUSINESS RELATIONSHIPS

Top-15 U.S. fast food restaurants by sales; only McDonald's commits to sourcing sustainably



Greenpeace's retailer sustainability scores have improved significantly

2012 Seafood Retailer Scorecard



- The Greenpeace Supermarket Seafood Sustainability Scorecard rates seafood retailers on whether they have a sustainable seafood sourcing policy, sustainability initiatives, labeling and transparency, and/or sales of "red list" seafood.
- Cumulative scores have improved significantly since 2008.
- For the first time, two stores were scored as "good." However, four stores still had a failing score of 4 or less in 2012.

The Food Marketing Institute continues to move towards supporting sustainable seafood

2007 – 22 Food Marketing Institute (FMI) member companies formed a “sustainable seafood working group” with this mission: To identify priorities and issues, find ways to cut through the confusing, complicated and complex subject and develop industry guidelines, tools and resources to help retailers, suppliers, consumers and NGOs work together for solutions.

2008

- FMI announced that it is developing guidelines, best practices, case studies and other resources to help the supermarket industry address seafood sustainability issues.
- FMI board members approved an Industry Position on Sustainable Seafood.

2009 – 2010 — In the past two years, FMI has developed the following tools to help the supermarket industry address seafood sustainability:

- Developed “Seafood Sustainability 101” – a resource for buyers and category managers on sustainable seafood for use in purchasing, training, and educating customers and staff.
- FMI’s Sustainable Seafood Working Group has developed and published four case studies that showcase successful partnerships between retailers and NGOs.
- Published a directory of resources that retailers can use to develop their sustainable seafood programs. Resources include business associations, certification programs, and environmental organizations. This resource list is posted at: <http://www.fmi.org/sustainability/?fuseaction=seafood>
- Developed a Supplier Advisory Group and an NGO Advisory Group that are working together to develop sustainable seafood tracing and tracking systems.

2011-2012

- FMI developed the Sustainable Seafood Toolkit, a document seeking to assist food retailers who want to implement sustainable seafood procurement policies and procedures.

BUSINESS RELATIONSHIPS

Initial evidence suggests Australian retailers are positioned to make significant gains in their seafood sourcing practices

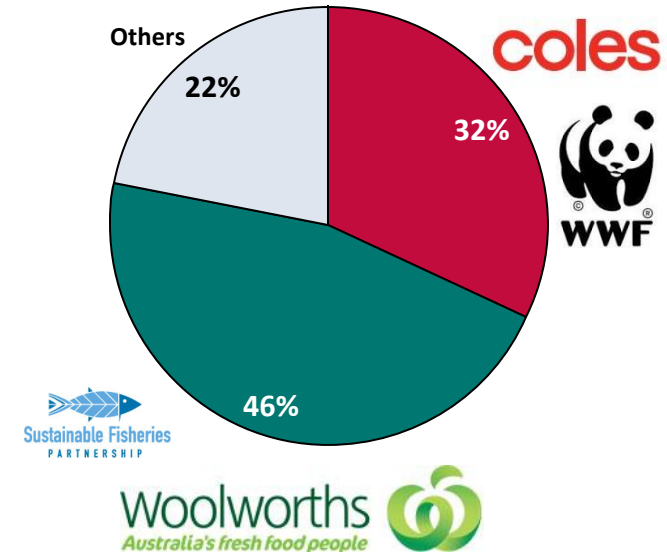
The Australian retail market is well suited for sustainable seafood penetration.

- The retail market is dominated by two major players, Woolworths and Coles, who collectively capture almost 80% of the national supermarket retail market share.
- Both Woolworth (SFP) and Coles (WWF) have formal NGO partnerships and commitments to sourcing sustainable seafood.
- The top three food service companies – Compass, Sodexo, and Bidvest – all have some level of commitment to sourcing sustainable seafood.
- WWF has partnerships with companies throughout the supply chain, including John West (packaged products), Tassal (Tasmanian farmed Salmon), Blackmores (fish oil), etc.

The partnership between Coles and WWF is a good case study in NGO-retailer partnerships.

- WWF/Coles have commissioned third party reviews of all seafood products offered (>500) to evaluate sustainability, including fresh, frozen, and canned products.
- For the products identified as having the highest risk (least sustainable), WWF/Coles endeavors to engage with the respective fisheries to improve their environmental performance.
- Coles, along with all WWF-Aus partners, contributes annually to fund conservation and improvement projects to help enable changes they demand throughout the supply chain.
- Coles engages with governments, having influenced legislation to fund both Western Australian fisheries' MSC pre-assessments and gear reform in Queensland.
- WWF provides a wide range of services for Coles, including assistance with their marketing, communications, advertising, etc. in addition to their evaluation and sustainability consulting.

Coles and Woolworths enjoy a duopoly on Australian retail supermarkets



Anecdotal evidence suggests that Coles may be realizing direct benefits from the partnership.

- Coles enjoyed drastic reductions in seafood sustainability related complaints within 12 months of announcing its partnership with WWF, as well as increased seafood-related revenues.

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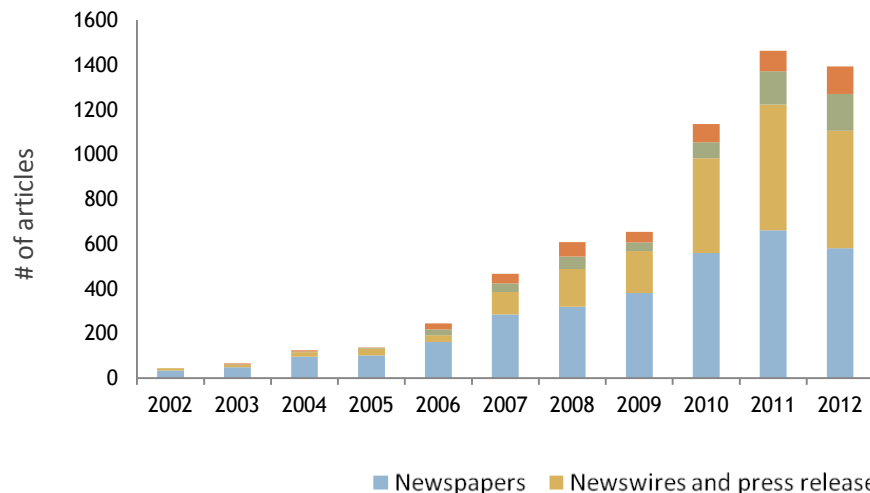
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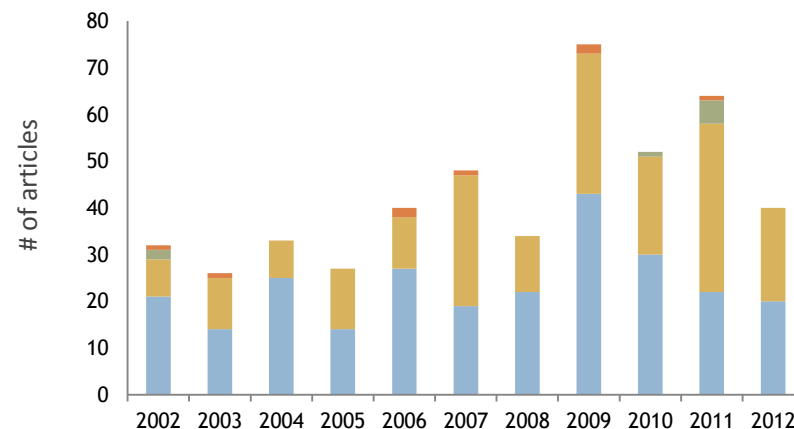
CREATING CONDITIONS FOR BUSINESS CHANGE

Media coverage of sustainable seafood has stabilized or continued to increase

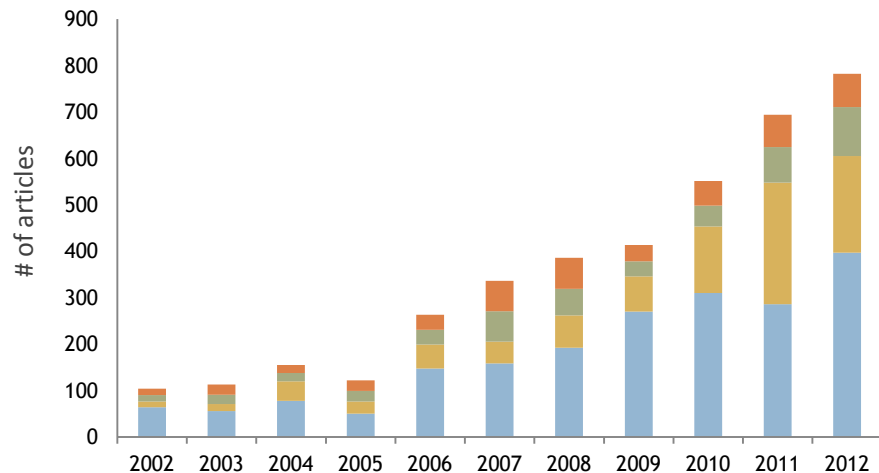
“Sustainable seafood” anywhere in document



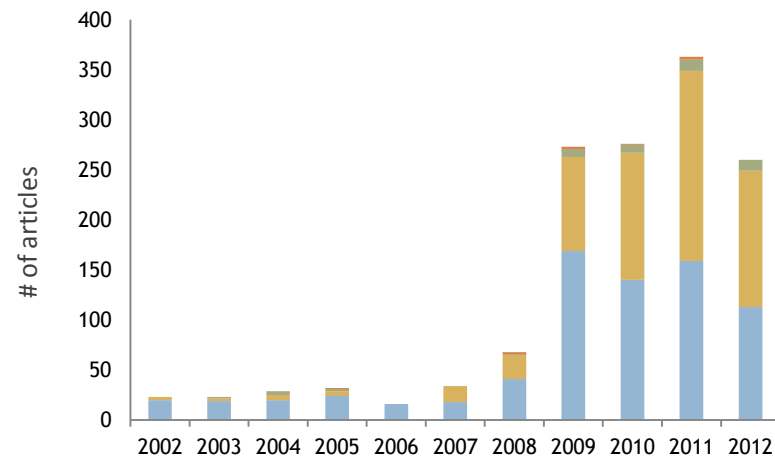
“environment” and “fish” in headline



“Marine Stewardship Council” anywhere in document

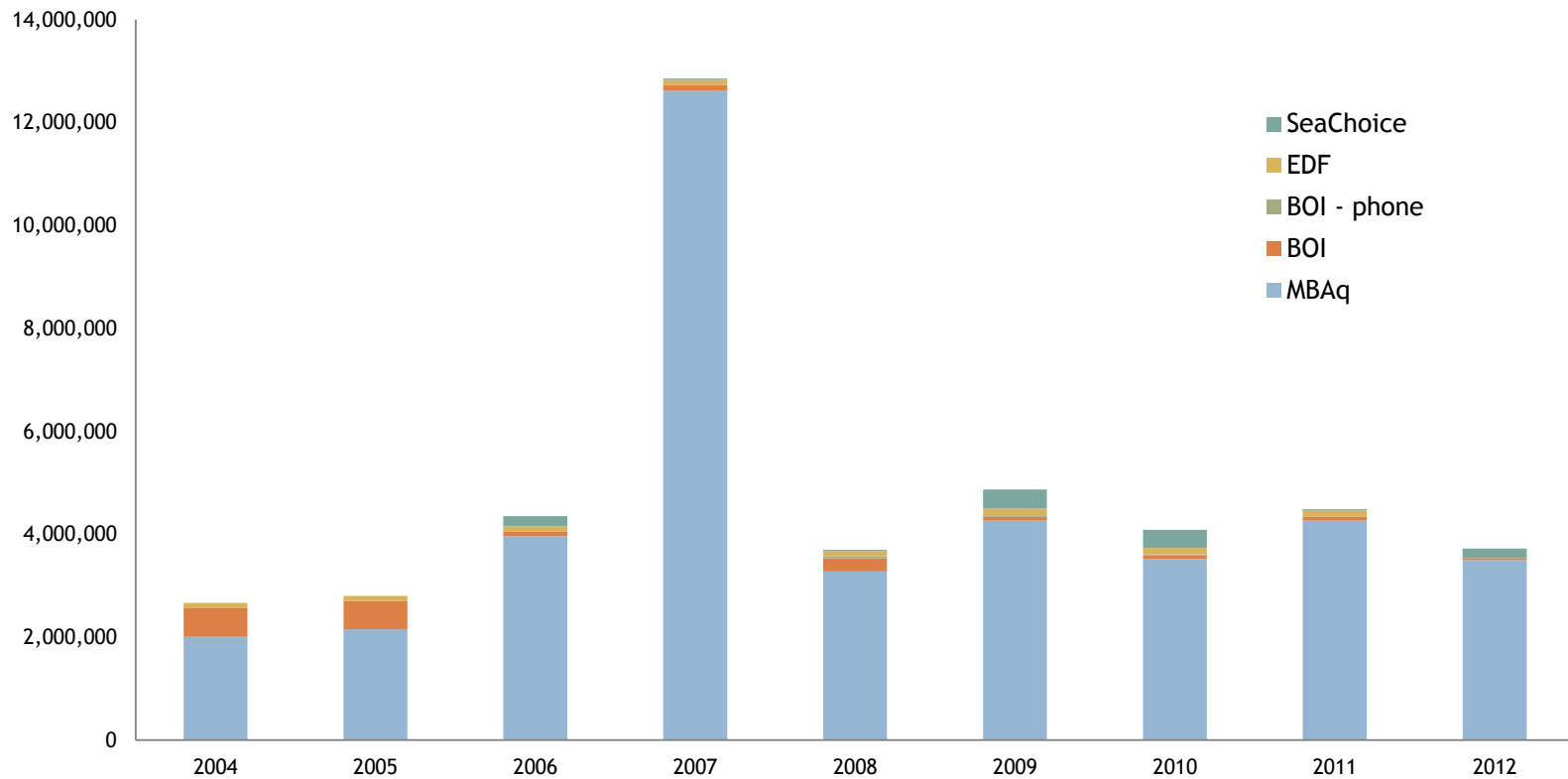


“catch shares” and “fish” anywhere in document



Seafood Card Distribution

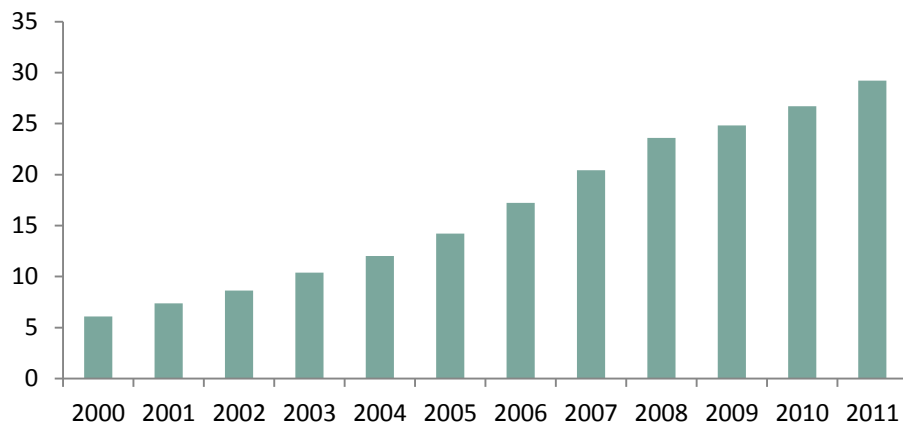
Monterey Bay Aquarium is the primary source of North American seafood card distribution. Distribution has been relatively steady since 2007 (an outlier year due to Happy Feet DVD sales). EDF and Blue Ocean Institute (BOI) ceased seafood card printing and distribution in 2012.



Note: MBAq distributed an estimated 9,200,000 national pocket guides in Happy Feet DVD sales in 2007. Without Happy Feet distribution, 2007 would have been in line with 2006 & 2008.

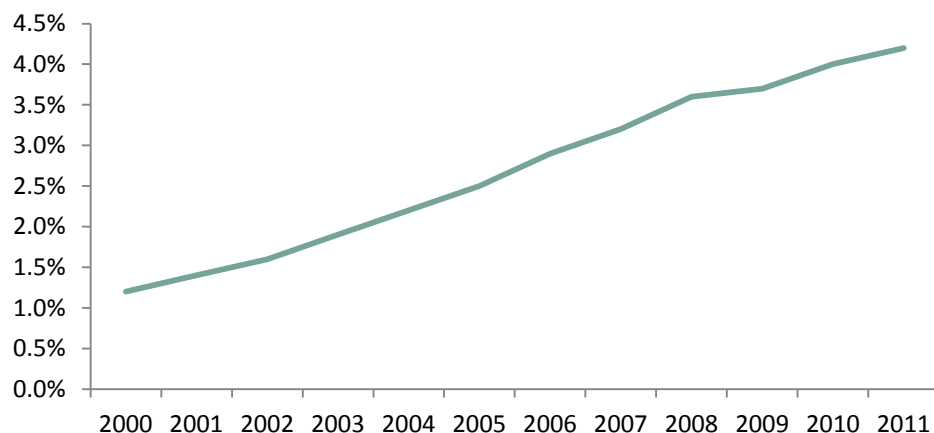
Organic Sales and Market Share Continue to Increase in the U.S.

Growth in Organic Food and Beverage Sales (in \$ billions)



- The organic industry's pace of growth increased by 7.8% in 2010 and 9.5% in 2011, reaching \$31.5 billion in sales in 2011.
- The growth of organic product sales (9.5% in 2011) continued to outpace the growth in sales of comparable conventionally produced items, which experienced only 4.7 % growth in 2011.

Growth in Market Penetration of Organic Food Sales

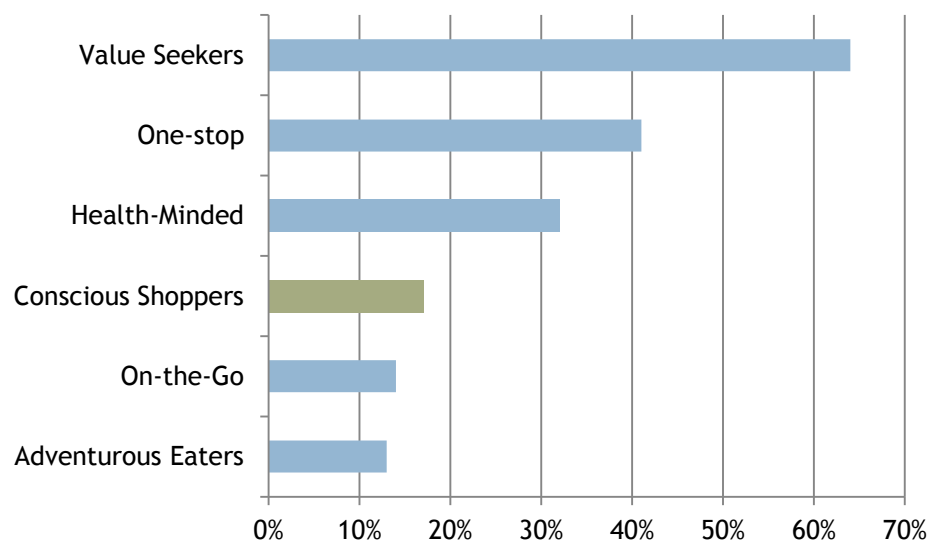


- The penetration of organics has increased 3.5 times from 2000 to 2011.
- Organics represented 4.2% of the U.S. market in 2011, up from less than 3% five years earlier (2006).

CREATING CONDITIONS FOR BUSINESS CHANGE

Overall, sustainability is a less important factor for shoppers than health, value, and convenience

How Americans describe their grocery shopping style*



*Adds to more than 100 percent because multiple responses were allowed

- 17% of survey respondents self-identified as “Conscious Shoppers” seeking out organic, sustainable, Fair Trade and local farmers and growers.

- 64% self-identified as “Value Seekers” and 32% described themselves as “Health-Minded.”

Value Seekers

Very aware of prices, bargains and coupons

One-Stop

Want all their shopping needs met by one store

Health-Minded

Seek out healthy foods

Conscious Shoppers

Seek out organic, sustainable, Fair Trade, local foods and growers

On-the-Go

Shop at the closest store, seeks out convenience and prepared foods

Adventurous Eater

Looking for specialty products

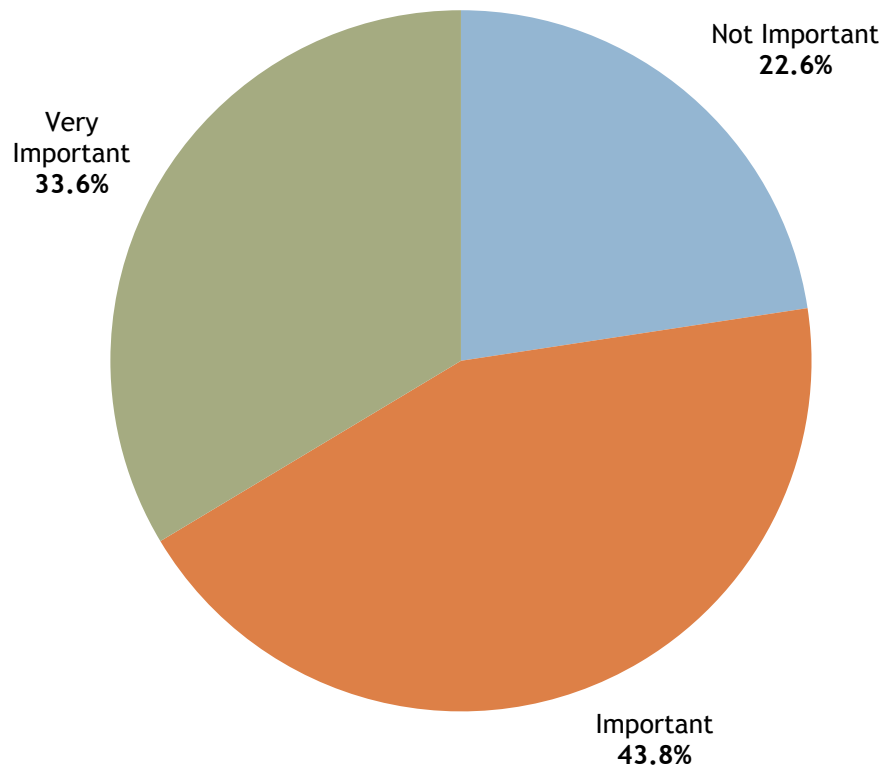
Consumer Survey Data

Findings from online survey conducted by the Perishables Group, which polled more than 1,000 consumers:

1. Sustainability awareness over-shadowed by seafood safety
2. Un-aided preference for “sustainability” is relatively low and falls significantly below other purchase drivers (safety, price, type)
3. For a majority of consumers, “sustainability” is most easily linked to long term species viability
4. Awareness of “eco-labels” is relative low and, at least as a concept, not powerfully persuasive
5. Aided awareness of sustainability groups themselves is low.
6. Farmed raised products generally receive higher sustainability ratings than similar wild products. U.S. generally ranks higher than imports
7. Self-described “knowledgeable” buyers and consumers under age 35 are much more likely be aware of sustainability, use available seafood guides and note signage/menu information
8. Heavier seafood users rank sustainability higher
9. The best, most consistent supermarket seafood consumers are likely to have the most interest in sustainability issues and are on the lookout for retail messaging

But Most Americans still think it's important that they buy sustainable fish

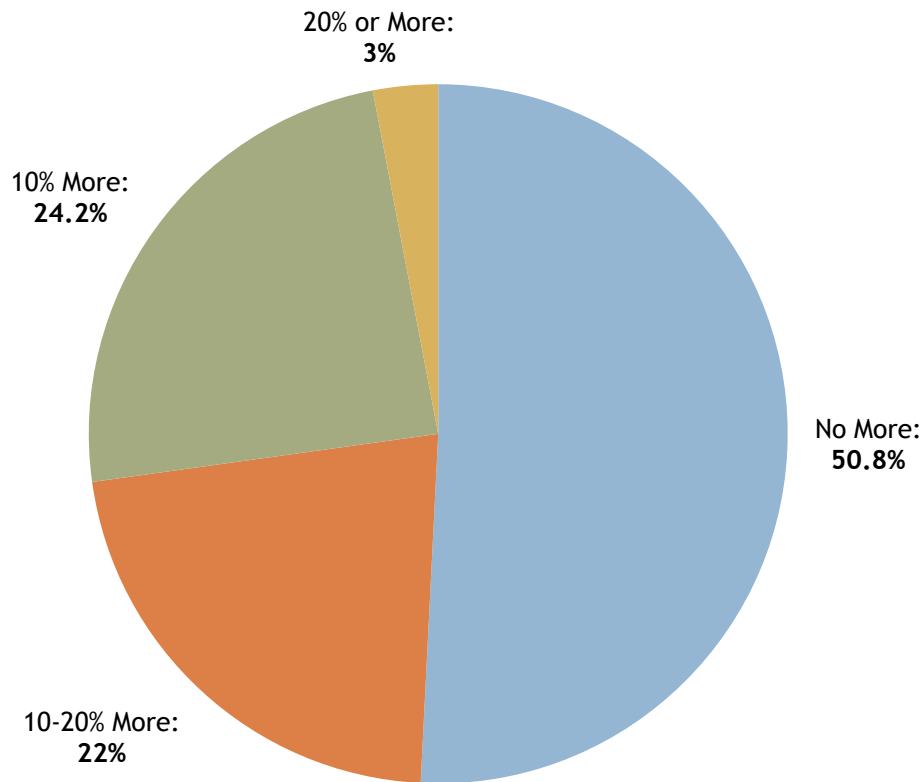
Importance that fish be “sustainably caught”



- 77% of Americans say it is 'important' or 'very important' that the seafood they buy is caught using sustainable methods. That number jumps to 80% among Americans who regularly consume fish.
- “Over half of respondents (52%) believe wild caught fish and seafood has more health benefits than other types of fish/seafood.”
- 24% of respondents said they rarely or never eat seafood.

And nearly 50% of Americans are willing to pay more for “sustainably caught” fish

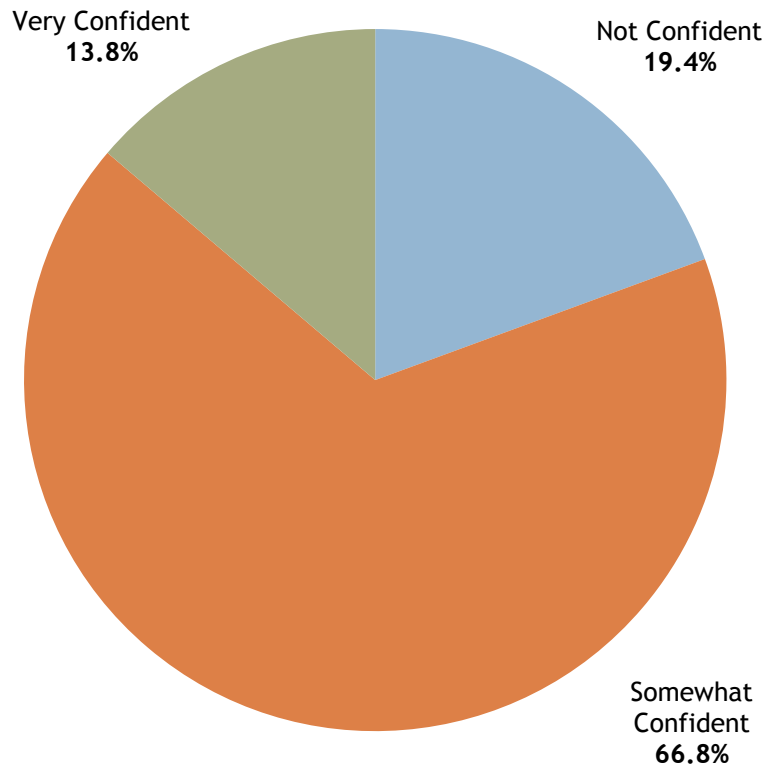
How much more Americans would pay
for “sustainably caught” fish



- 49% of Americans are willing to pay at least 10% more for sustainably caught seafood.
- Just over 50% of respondents are not willing to pay more for sustainable seafood.
- 53.8% of respondents with at least some college education were willing to pay at least 10% more for sustainably caught fish. That number drops to 32.9% for respondents with an education of high school or less.

Most Americans are confident that labeling is accurate

Confidence that label means fish was “sustainably caught”



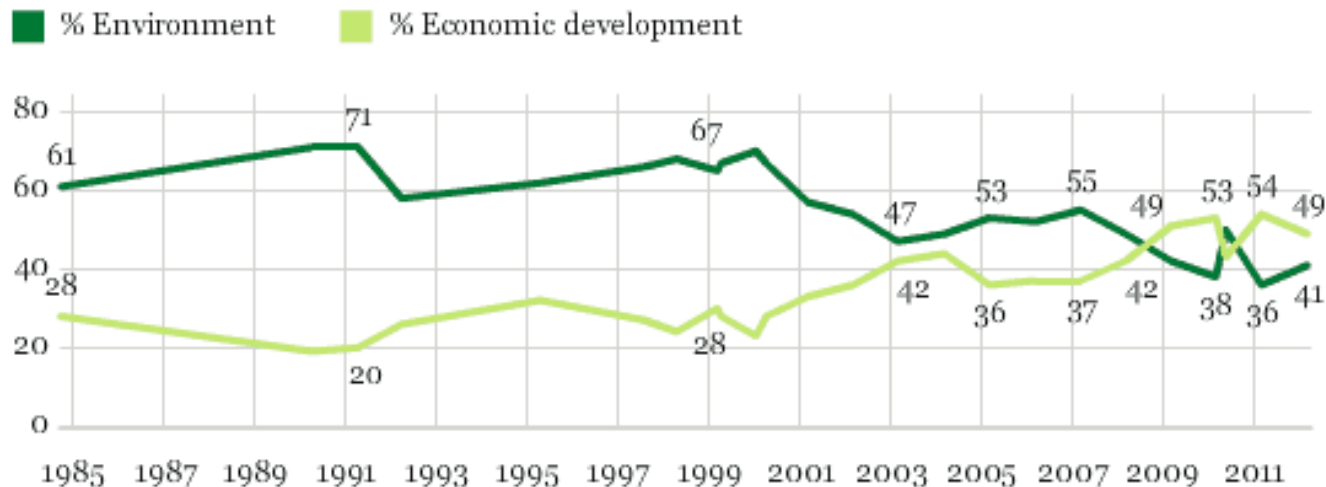
- Over 80% of Americans are at least somewhat confident in labels that call seafood “sustainable.”
- The youngest consumers (under age 35) are more confident in seafood labeling, with only 11.4% reporting that they were not at all confident in it. This number jumps to around 20% for the over 35 age groups.

Americans say economic growth should take precedence over environment

In the last few years, American consumers have switched their preference – for the first time in recent history – from environmental protection over economic growth to economic growth over environmental protection.

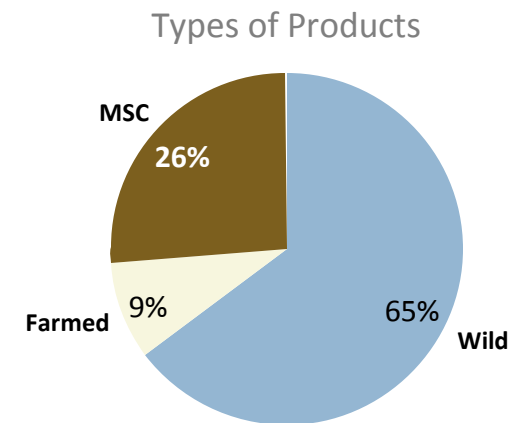
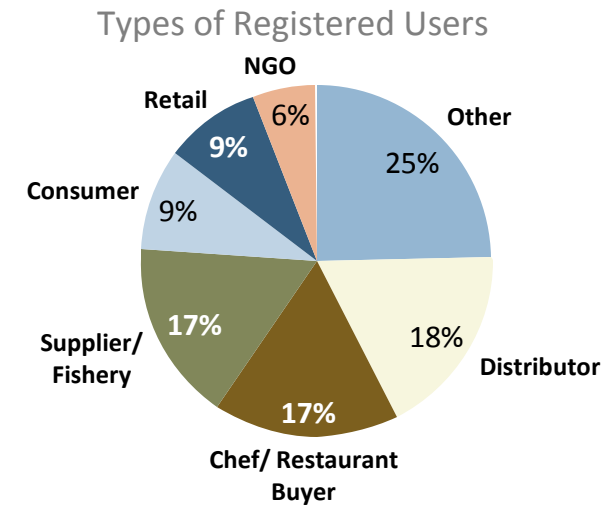
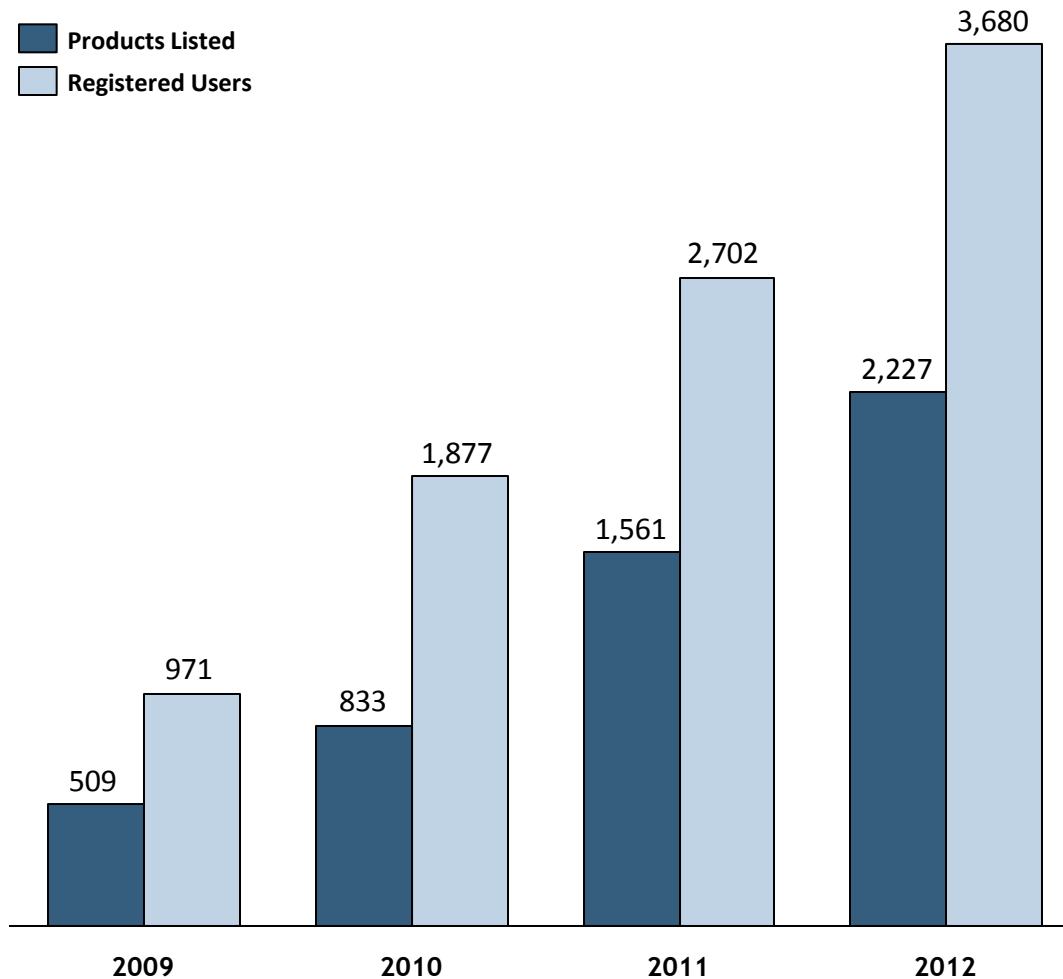
Higher Priority for Economic Growth or Environmental Protection

With which one of these statements about the environment and the economy do you most agree -- [ROTATED: protection of the environment should be given priority, even at the risk of curbing economic growth (or) economic growth should be given priority, even if the environment suffers to some extent]?



FishChoice continues to see a rapid growth in registered users and products listed

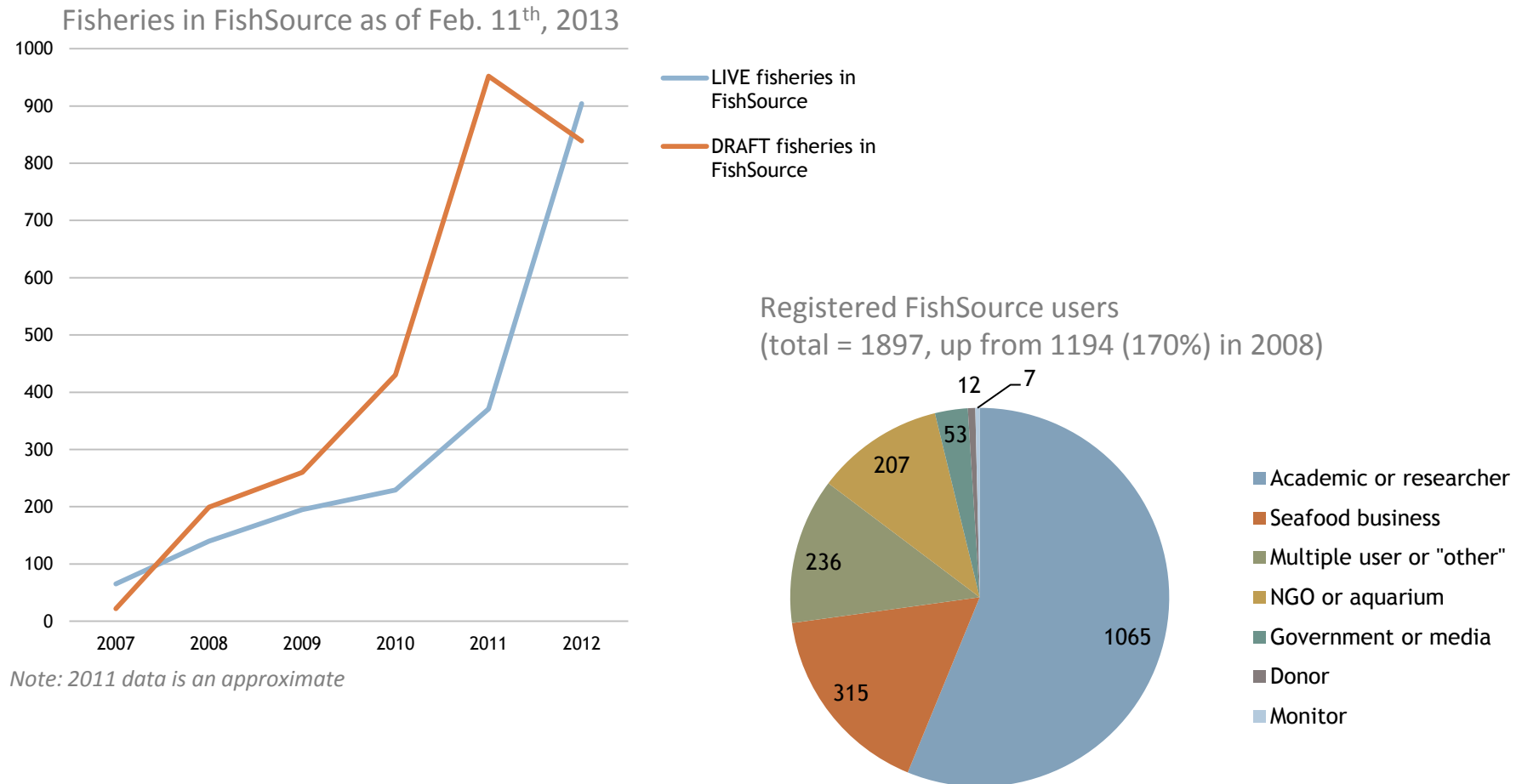
FishChoice Users, Listed Products and Newsletter Recipients



CREATING CONDITIONS FOR BUSINESS CHANGE

FishSource, a database monitoring the status and environmental performance of fisheries, continues to grow its user-base and fishery coverage

FishSource is growing as an information source. Users from the seafood industry have nearly doubled since 2010.



OVERVIEW

US trends in fishery exploitation

IMPACT ON THE WATER

Global trends in fishery exploitation

US seafood consumption
FMI's Sustainable Seafood Group
Industry Media
Industry Event Attendance

INDUSTRY
MOVEMENT

PROGRESS ON
POLICY CHANGE

Policy progress

Retail/Food Service - NGO Partnerships
Greenpeace's scorecard data

BUSINESS
RELATIONSHIPS

WORKING
THROUGH THE
SUPPLY CHAIN

Supplier/Distributor - NGO Partnerships
Traceability data

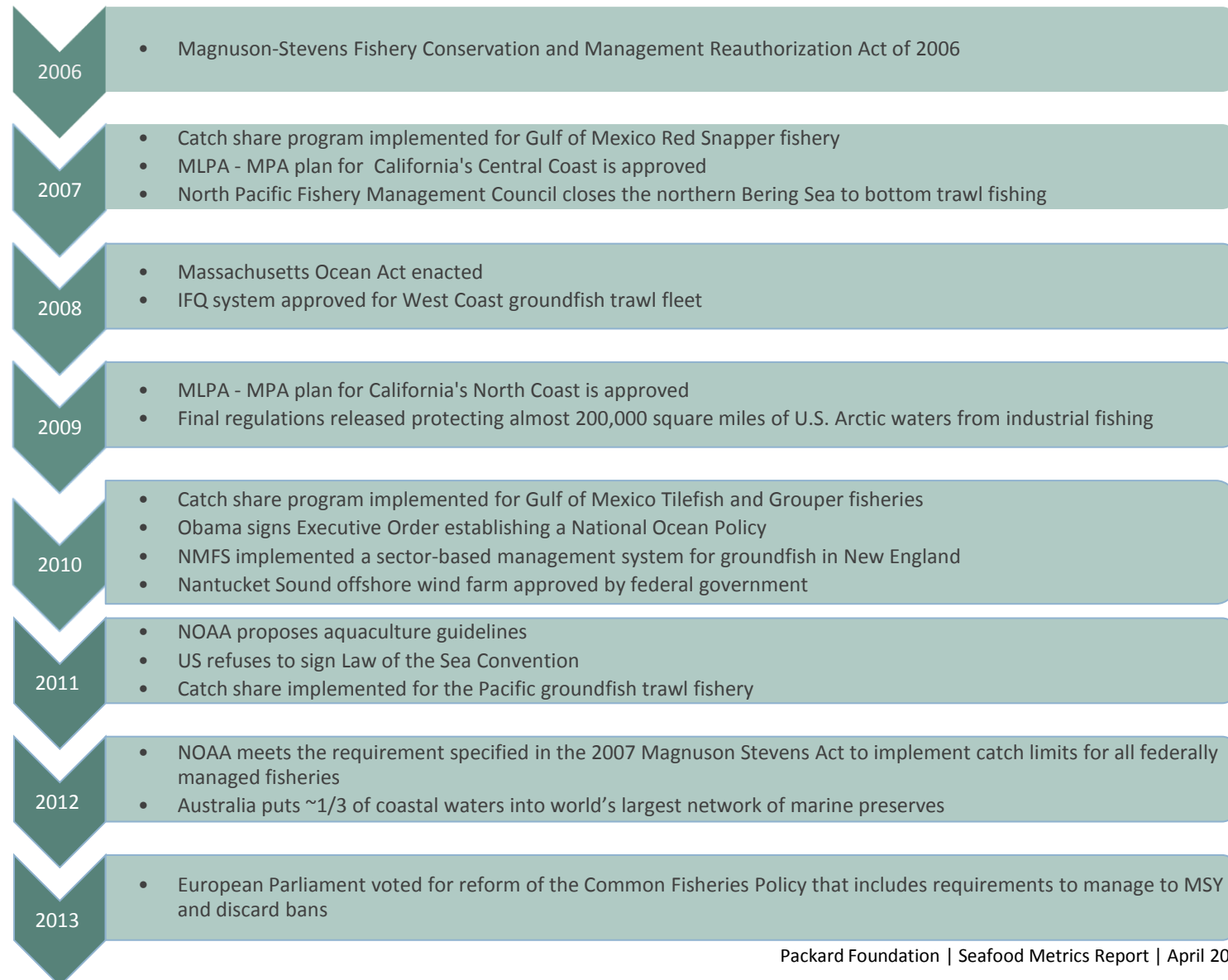
Media and Literature Penetration
Seafood Card Distribution
Organic sales and market share data
Consumer survey data
LOHAS data
FishChoice data
FishSource data

CREATING
CONDITIONS FOR
BUSINESS CHANGE

PRODUCER
PERSPECTIVES

Certification Data
Fishery Improvement Partnerships

Timeline of major marine policy legislation



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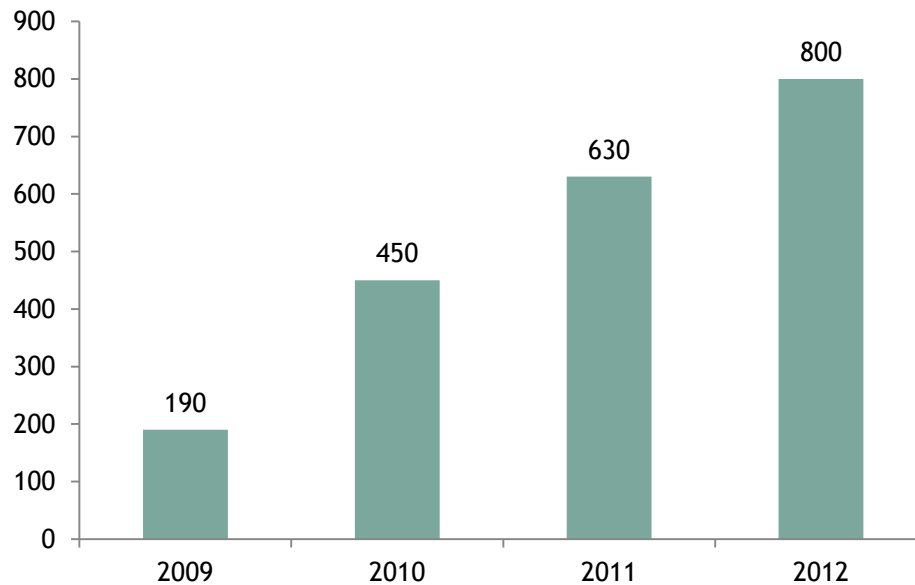
CREATING
CONDITIONS FOR
BUSINESS CHANGE

PRODUCER
PERSPECTIVES

Certification Data
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Interest in traceability is expanding

Number of companies using the TraceRegister System is increasing



- From 2009 to 2012 there was a 420% increase in companies using the TraceRegister system.
- TraceRegister's current customer base includes a high percentage of leading retailers in the U.S. and a good number of the leading seafood suppliers.

Continued efforts to improve access to traceability data:

- The National Fisheries Institute and GS1 US are developing Guidelines for Seafood Traceability in an effort to enhance product tracing and support food safety.
- The final guidelines should be available by September or October, 2010.
- The guidelines will cover traceability from "vessel to retailer," including raw materials, ingredients, food contact packaging, and finished goods.

Mislabeling of fish is a persistent and pervasive problem emphasizing the need for improved traceability

Oceana Study Reveals Seafood Fraud Nationwide

February 2013

Authors: Kimberly Warner, Ph.D., Walker Timme, Beth Lowell and Michael Hirshfield, Ph.D.

Executive Summary

Americans are routinely urged to include more seafood in their diets as part of a healthy lifestyle. Yet consumers are often given inadequate, confusing or misleading information about the seafood they purchase. The dishonest and illegal practice of substituting one seafood species for another, or seafood fraud, has been uncovered both in the United States and abroad at levels ranging from 25 to more than 70 percent for commonly swapped species such as red snapper, wild salmon and Atlantic cod.

From 2010 to 2012, Oceana conducted one of the largest seafood fraud investigations in the world to date, collecting more than 1,200 seafood samples from 674 retail outlets in 21 states to determine if they were honestly labeled. DNA testing found that one-third (33 percent) of the 1,215 samples analyzed nationwide were mislabeled, according to U.S. Food and Drug Administration (FDA) guidelines.

Of the most commonly collected fish types, samples sold as snapper and tuna had the highest mislabeling rates (87 and 59 percent, respectively), with the majority of the samples identified by DNA analysis as something other than what was found on the label. In fact, only seven of the 120 samples of red snapper purchased nationwide were actually red snapper. The other 113 samples were another fish. Halibut, grouper, cod and Chilean seabass were also mislabeled between 19 and 38 percent of the time, while salmon was mislabeled 7 percent of the time.

Forty-four percent of all the retail outlets visited sold mislabeled fish. Restaurants, grocery stores and sushi venues all sold mislabeled fish and chances of being swindled varied greatly depending on where the seafood was purchased. Our study identified strong national trends in seafood mislabeling levels among retail types, with sushi venues ranking the highest (74 percent), followed by restaurants (38 percent) and then grocery stores (18 percent). These same trends among retail outlets were generally observed at the regional level.

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INDUSTRY MOVEMENT

PROGRESS ON POLICY CHANGE

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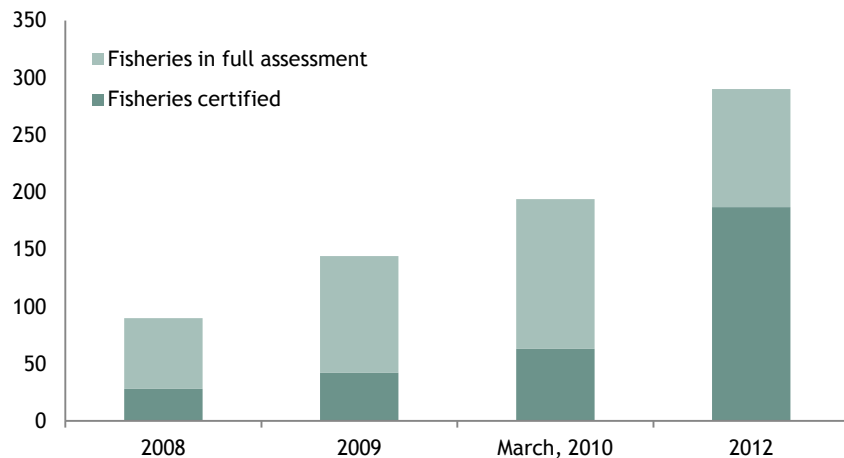
CREATING CONDITIONS FOR BUSINESS CHANGE

PRODUCER PERSPECTIVES

Certification Data
Fishery Improvement Partnerships

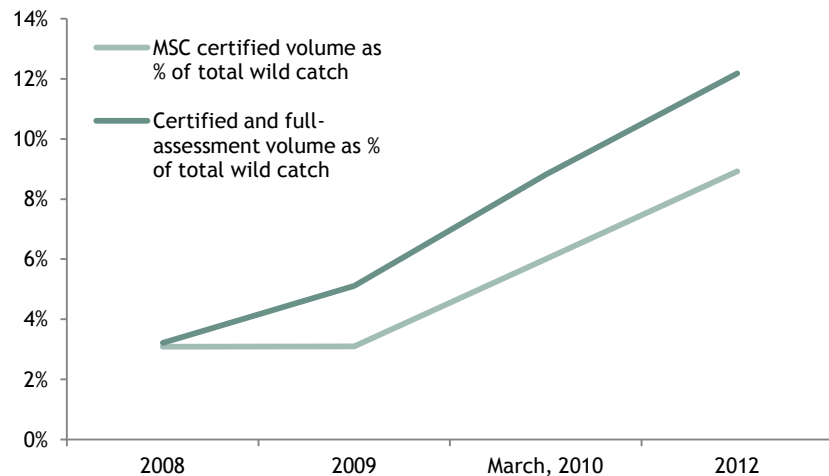
The Number of MSC Certified Fisheries Continues to Increase

MSC Certified Fisheries and Fisheries in Full Assessment



- The number of certified fisheries and fisheries in full assessment has more than tripled since 2008.

MSC Certified Fisheries as a Percentage of Total Wild Catch

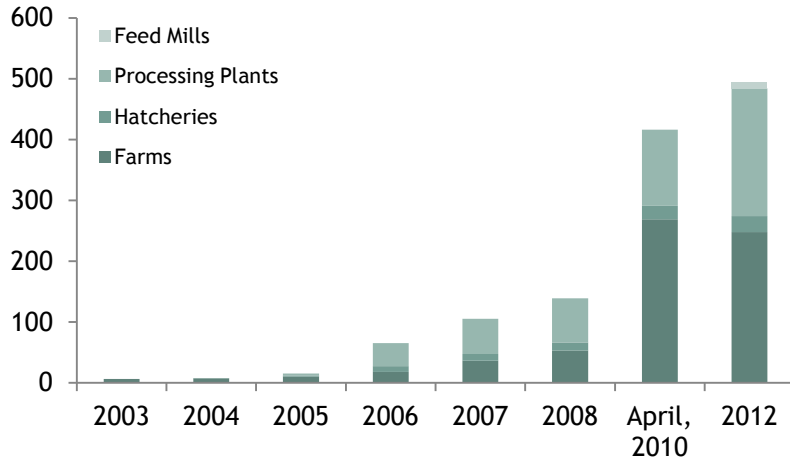


- MSC Certified Fisheries' landings have increased by ~50% since 2010.

PRODUCER PERSPECTIVES

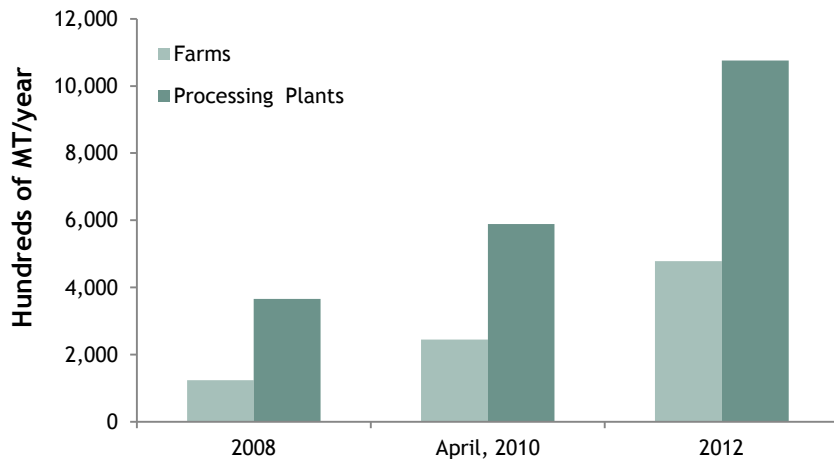
The Number of Global Aquaculture Alliance certified farms continues to increase

GAA Certified Farms, Hatcheries, Feed Mills and Processing Plants



- The number of GAA certified farms has increased by five times since 2008.
- GAA Certified seafood has increased its market share of total global farmed seafood, however it still remains at less than 1%.
- GAA has developed standards for:
 - Shrimp
 - Catfish
 - Tilapia
 - Pangasius
 - Salmon
- GAA is developing standards for:
 - Mussels

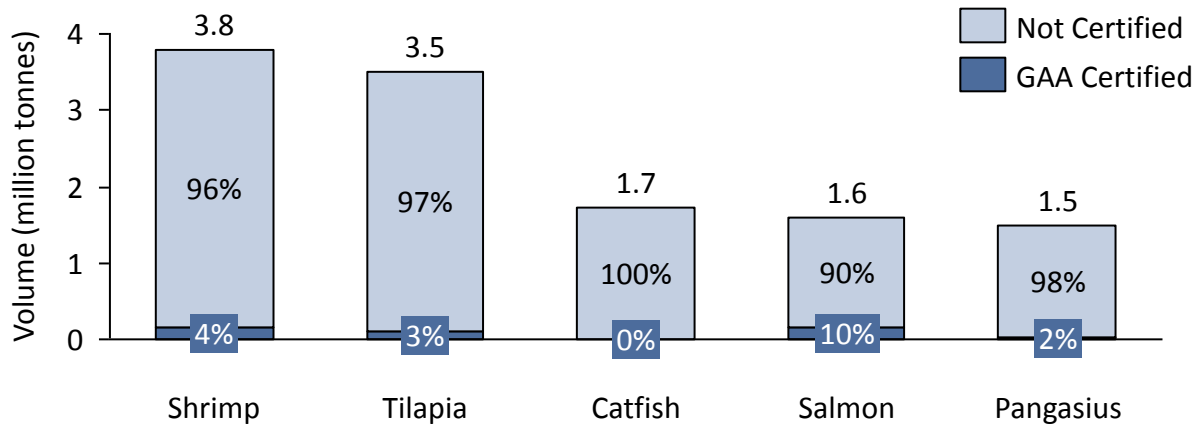
GAA Certified Volume



PRODUCER PERSPECTIVES

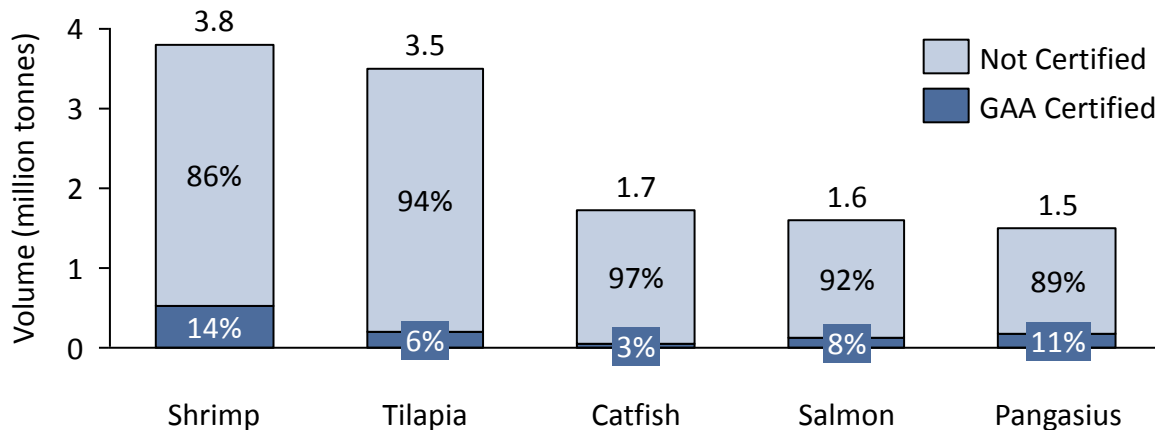
GAA certification covers less than 10% of the farm production of key species; certification of processing facilities is higher

Global aquaculture production with GAA certification



- Approximately 1% of global aquaculture production (excluding aquatic plants) has been certified to the Best Aquaculture Practices standard.

Global processing volume with GAA certification

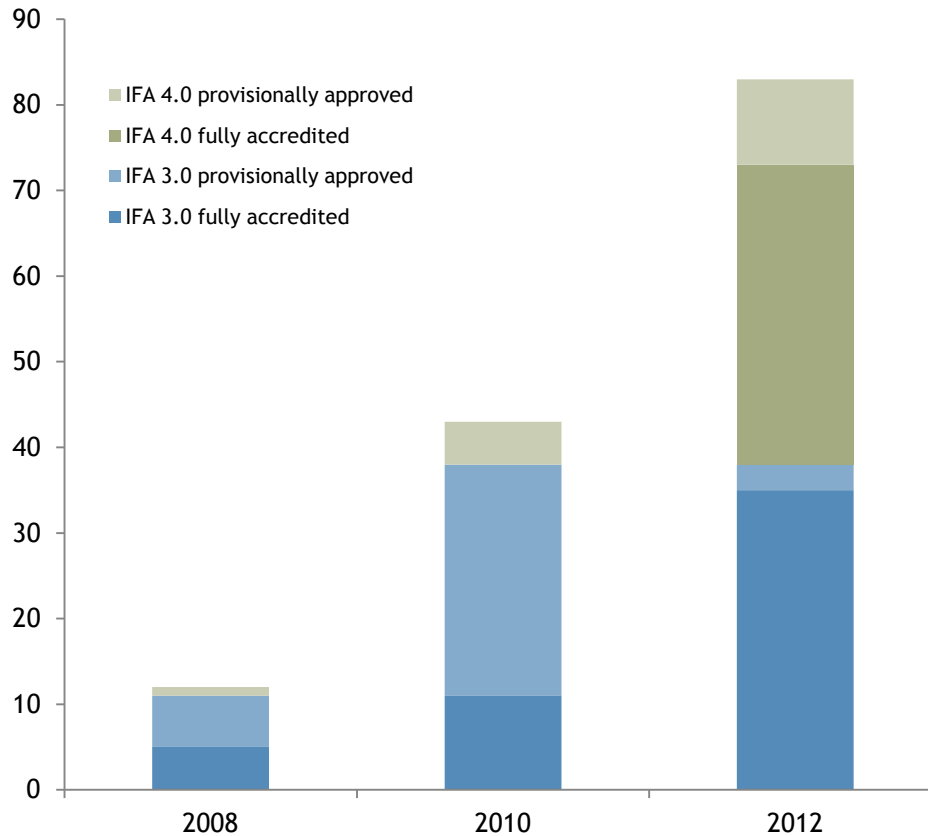


- Facilities that account for 2% of global aquaculture processing (excluding aquatic plants) have been certified to the Best Aquaculture Practices standard.

PRODUCER PERSPECTIVES

Global Good Agricultural Practice (GlobalG.A.P.) has developed standards for key species and increased the number of approved certification bodies

GlobalG.A.P. accredited and provisionally approved certification bodies



- GlobalG.A.P. has developed standards for:

- IFA 3.0
 - Salmonids
 - Shrimp
 - Tilapia
 - Pangasius
- IFA 4.0
 - Finfish
 - Mollusks
 - Crustaceans

PRODUCER PERSPECTIVES

ASC is beginning to enter the seafood marketplace; the first farms have achieved ASC certification and standard development is progressing

Standards Development

Active Standards

- Pangasius
- Tilapia

Expected in 2013

- Salmon
- Abalone
- Bivalves
- Trout

In development

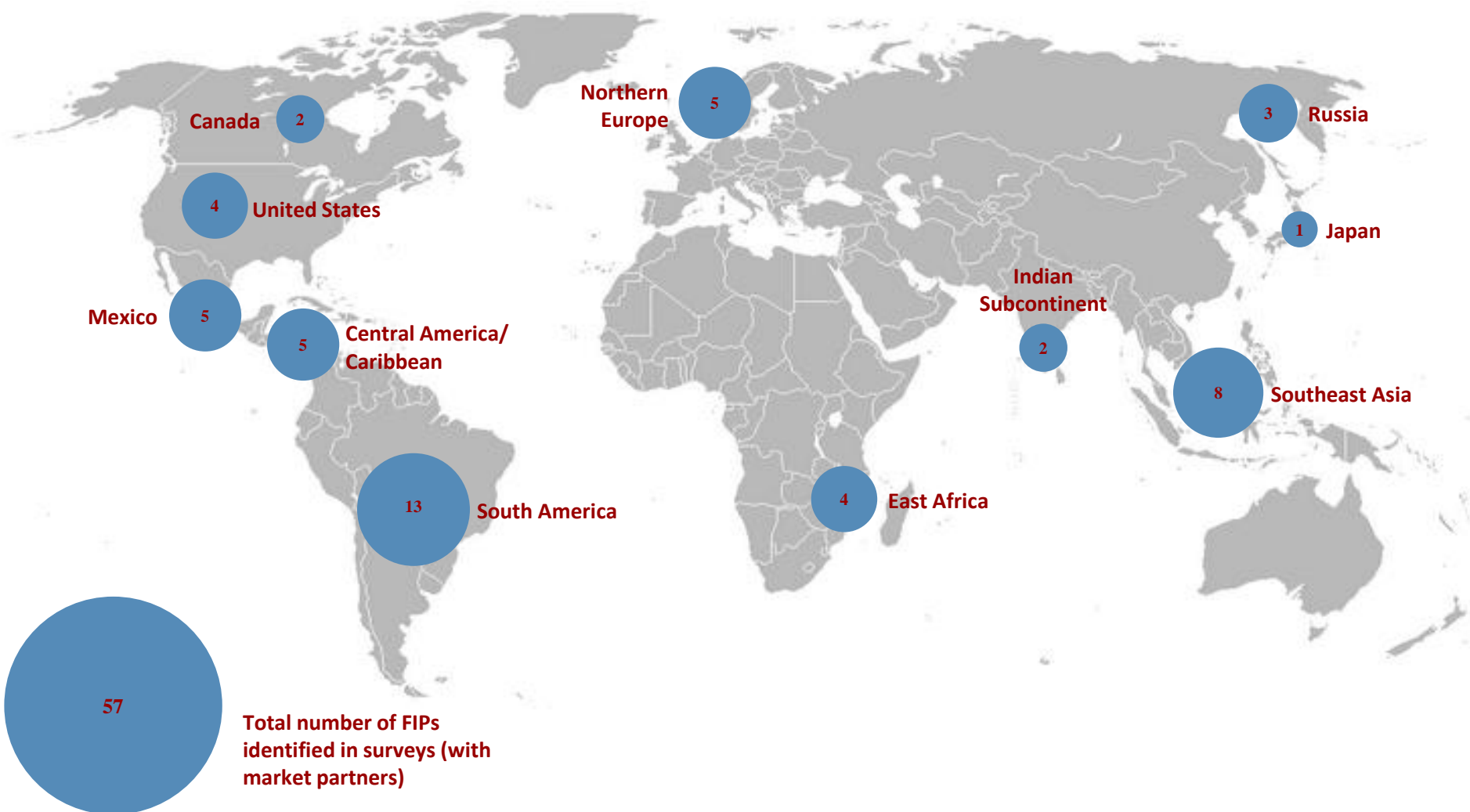
- Shrimp
- Seriola/Cobia

ASC by the numbers

Number of certified farms	26
Number of supplier countries	6
Number of countries with sales of ASC products	10
Number of chain of custody certifications	134
Number of accredited certifiers	19

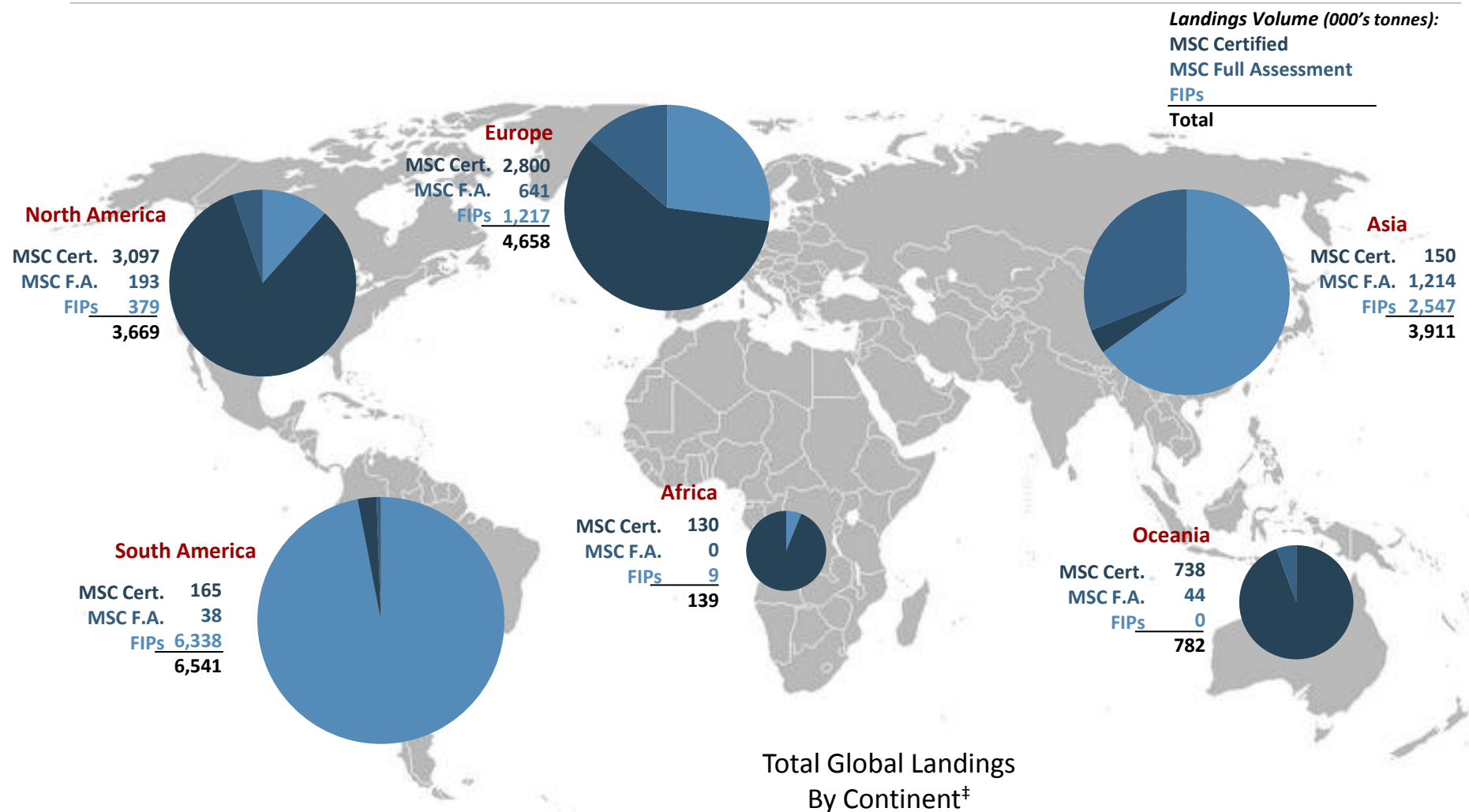
FISHERY IMPROVEMENT PARTNERSHIPS

FIPs are growing in popularity worldwide, and show promise as a new tool for increasing buyer engagement and pressure



FISHERY IMPROVEMENT PARTNERSHIPS

While developed nations have more certified landings, developing nations have larger total landings in Fishery Improvement Projects



[‡] - There was some overlap between reported FIP landings and MSC certified landings (in the case of Stage 6 FIPs). In each instance, the tonnage was counted towards MSC landings.

Total FIP and MSC program landings by species group and ocean basin

	# of FIP Fisheries ¹		# of MSC Certified Fisheries		# of MSC Full Assessment Fisheries		# of FIP & MSC Fisheries	
	52		170		105		327	
All Species	FIPS Only		MSC Certified		MSC Full Assessment		Total	
Total Landings in FIPS	000s Tons ¹	Percent of Total Landings	000s Tons	Percent of Total Landings	000s Tons	Percent of Total Landings	000s Tons	Percent of Total Landings
Miscellaneous fish	118	0.3%	49	0.1%	32	0.1%	199	0.5%
Small pelagics	7,305	35.6%	1,509	7.4%	148	0.7%	8,962	43.7%
Whitefish	1,728	20.0%	3,703	42.8%	980	11.3%	6,411	74.1%
Major tuna species*	1,065	23.5%	591	13.0%	5	0.1%	1,661	36.6%
Other tunas, bonitos, billfishes	6	0.3%	4	0.2%	4	0.2%	13	0.6%
Squid	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Shrimp	42	1.3%	350	11.0%	192	6.1%	584	18.4%
Mollusks	0	0.0%	204	6.6%	663	21.3%	867	27.9%
Crabs, lobsters, and crustaceans	91	3.4%	276	10.2%	45	1.7%	413	15.2%
Salmon and diadromous fish	135	10.3%	390	29.7%	59	4.5%	585	44.5%
Carps	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Sharks	0	0.0%	4	0.6%	1	0.2%	6	0.8%
Total	10,490	11.8%	7,080	8.0%	2,130	2.4%	19,700	22.2%

	FIPS Only		MSC Certified		MSC Full Assessment		Total	
Total Landings in FIPS by Ocean Basin	000s Tons ¹	Percent of Total Landings	000s Tons	Percent of Total Landings	000s Tons	Percent of Total Landings	000s Tons	Percent of Total Landings
Atlantic, Central	40	0.6%	32	0.5%	4	0.1%	76	1.2%
Atlantic, Northern	1,450	13.8%	3,088	29.5%	717	6.8%	5,254	50.2%
Atlantic, Southern	441	13.7%	505	15.7%	2	0.0%	948	29.4%
Indian Ocean	826	7.7%	10	0.1%	11	0.1%	847	7.9%
Pacific, Central	642	4.9%	737	5.6%	97	0.7%	1,476	11.2%
Pacific, Northern	1,194	5.4%	2,524	11.4%	1,231	5.5%	4,949	22.3%
Pacific, Southern	5,897	49.5%	166	1.4%	69	0.6%	6,131	51.4%
Others	0	0.0%	18	0.2%	0	0.0%	18	0.2%
Total	10,490	11.9%	7,080	8.0%	2,130	2.4%	19,700	22.3%

1 - Landings exclude landings associated with Stage 0, Stage 1, and Stage 6 (MSC Certified) FIPS

* Major tuna species include: Albacore, Bigeye, Bluefin, Little Tunny (Black Skipjack), Skipjack, and Yellowfin Tuna

Notes:

Estimating landed tonnage of FIPs is problematic, as 100% of fisheries' total landings are counted in the reported landed tonnage for a FIP, as long as some fraction of the fishery's boats are participating in the FIP. I.e., 100% of the landings for a 100-boat fleet would be counted as FIP tonnage if a handful of boats are participating in a FIP.

There is some overlap between reported FIP landings and MSC certified landings (in the case of Stage 6 FIPs). In each instance, the tonnage was counted towards MSC landings.