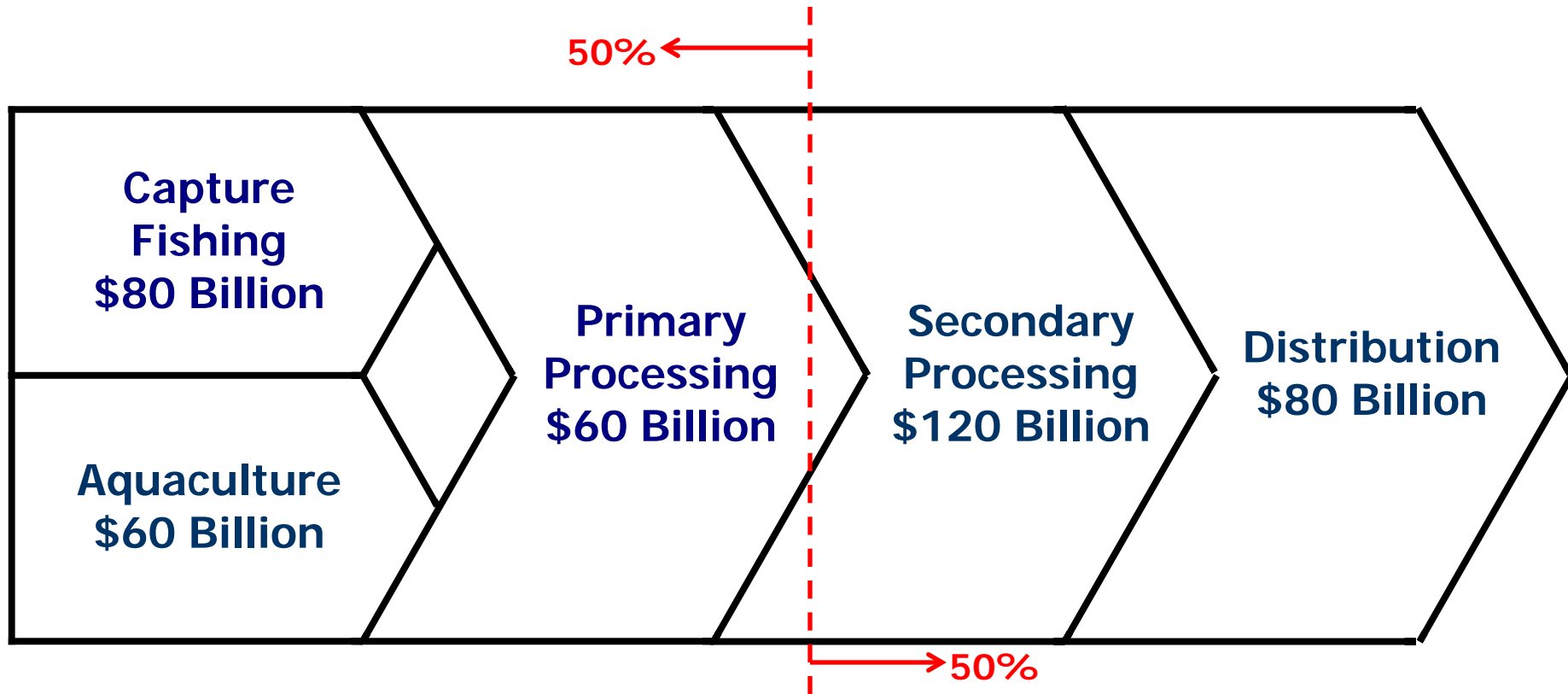


# Opportunities to Build a Better Future in NL's Capture Fishery

Robert Verge, P.Eng., MBA, CA, CMC  
Managing Director  
Canadian Centre for Fisheries Innovation  
February, 2013

# Global Seafood Value Chain, 2007

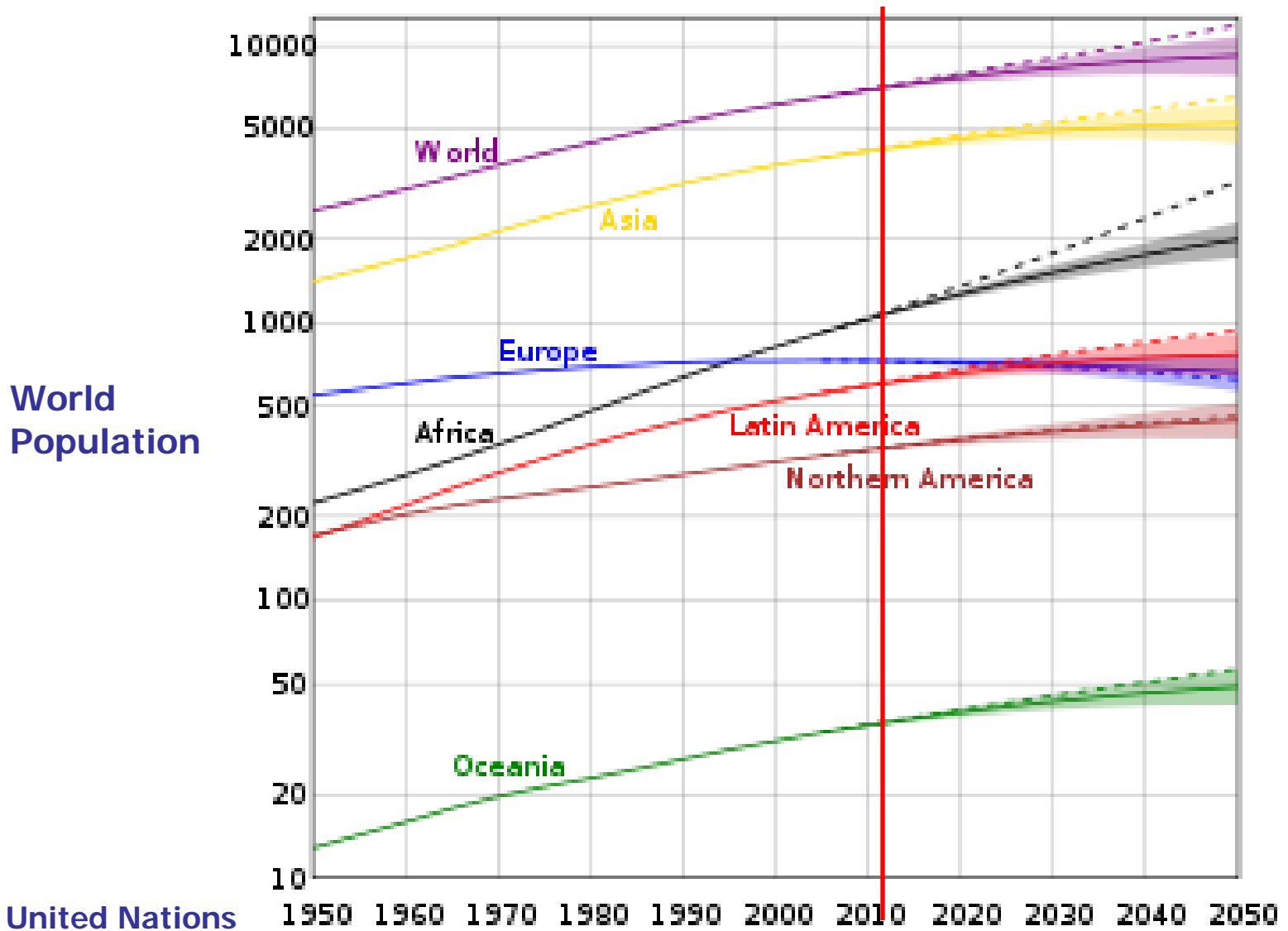


Estimated Total Value: \$400 Billion

SOURCE: Findus

→ Our industry represents < ¼% of the global seafood value chain

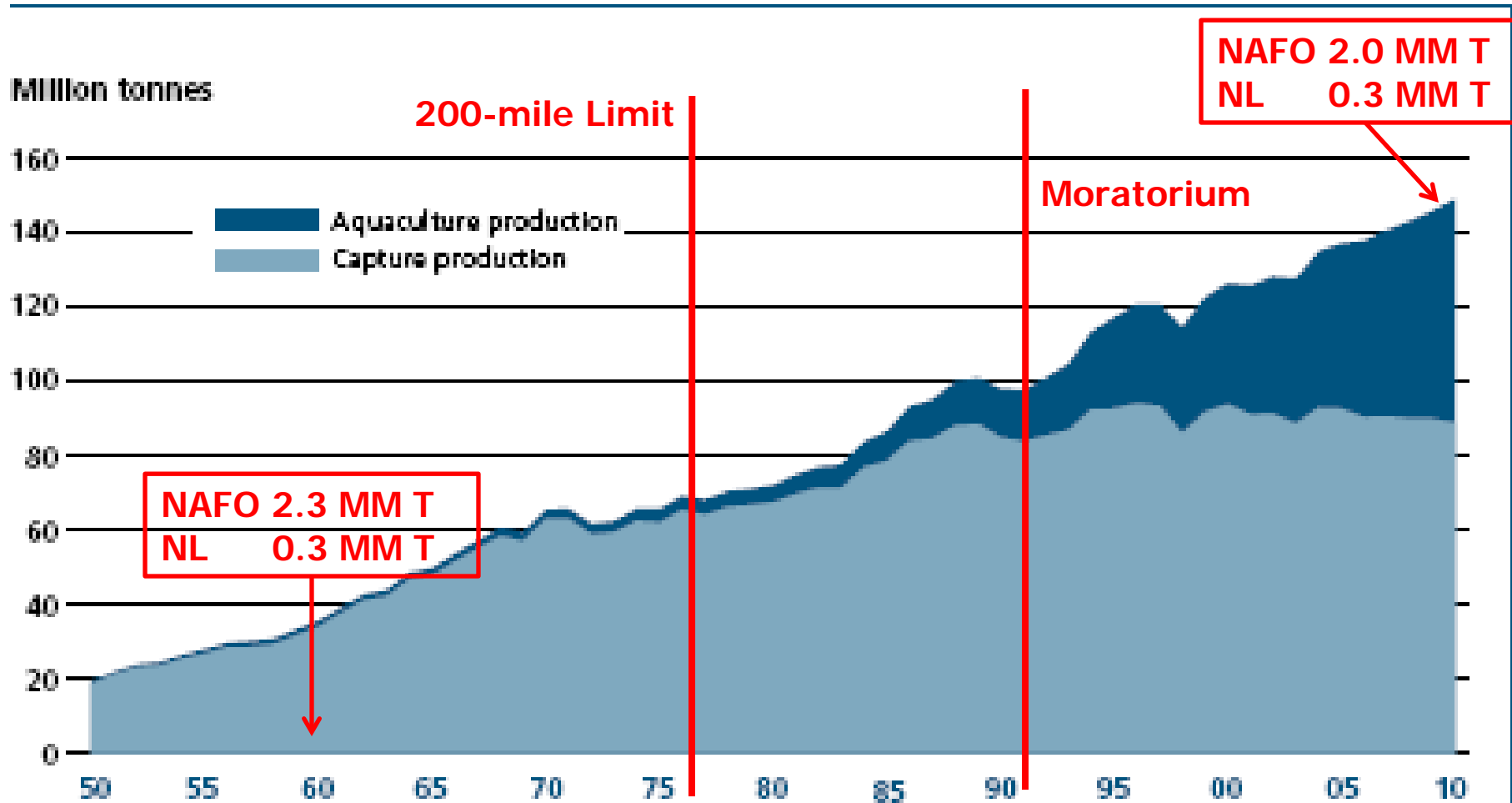
# Demand = Population + Lifestyle



Source: United Nations

# Global Fish Production

## World capture fisheries and aquaculture production



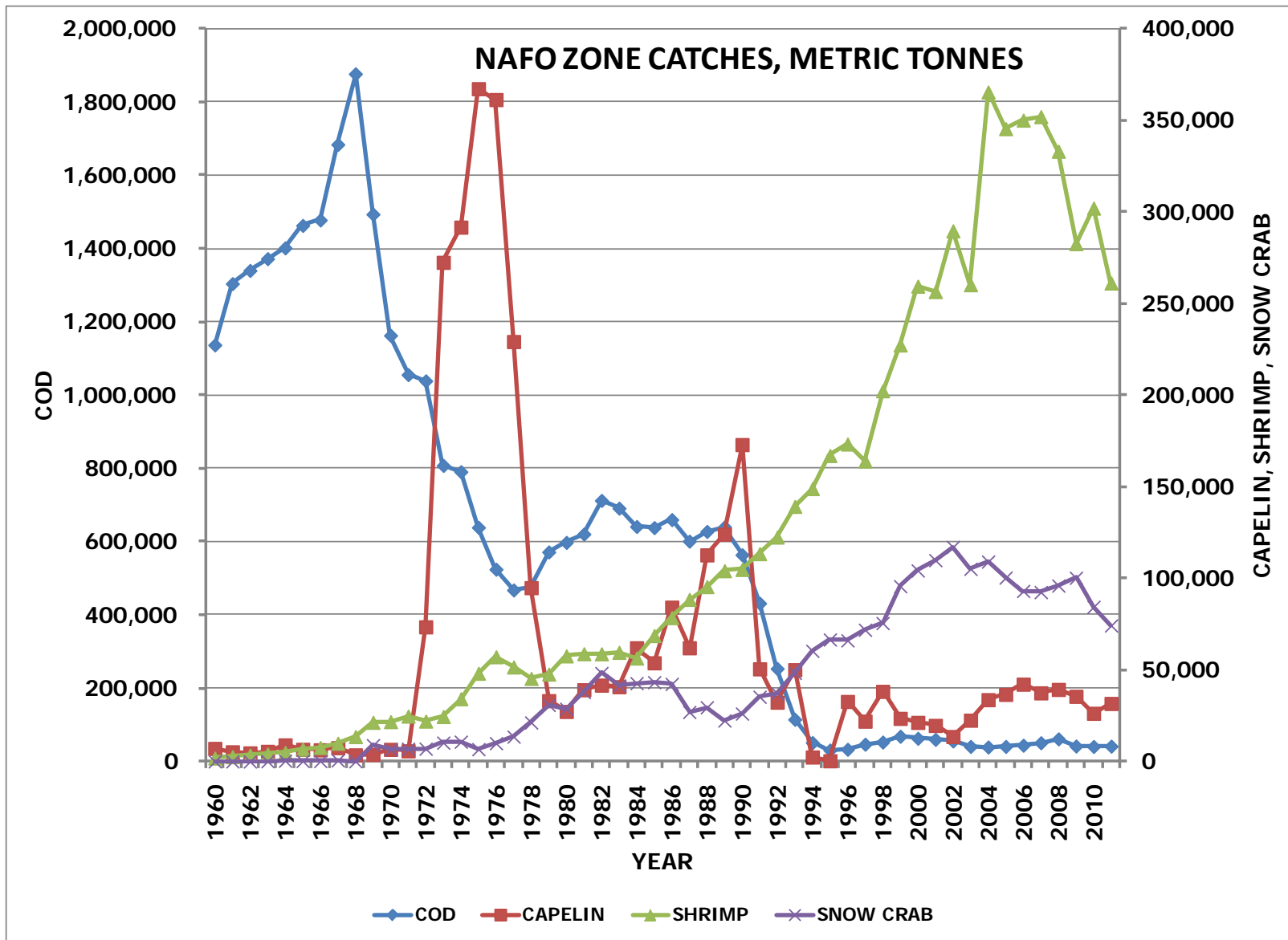
Source: FAO State of World Fisheries & Aquaculture 2012

# A Need for More

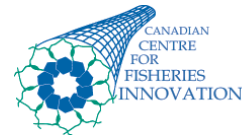


- ▶ An additional 40 million tons of aquatic food will be needed by 2030 just to maintain current per capita consumption – an increase of about 28% over 2010.

# NAFO Catches, Principal NL Species

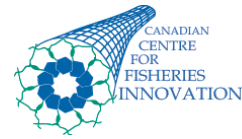


# Uncaught Quotas, NL



Species	2009				2010				2011			
	Quota	Catch	%	Remaining	Quota	Catch	%	Remaining	Quota	Catch	%	Remaining
Shrimp	205,096	94,467	46	110,629	180,904	104,919	58	75,985	164,470	95,462	58	69,008
Crab	54,110	53,464	99	646	56,087	52,218	93	3,869	55,559	52,938	95	2,621
Icelandic Scallop	1,000	265	27	735	1,000	260	26	740	1,000	447	45	553
Cod	15,435	14,226	92	1,209	12,535	11,708	93	827	11,146	9,104	82	2,041
Turbot/Greenland Halibut	14,285	10,557	74	3,728	7,821	11,681	149	-3,860	11,451	11,869	104	-418
Herring	30,990	27,870	90	3,120	31,827	26,026	82	5,801	30,873	24,853	81	6,020
Mackerel	0	34,260	0	-34,260	0	33,176	0	-33,176	0	7,341	0	-7,341
Capelin	41,691	33,313	80	8,378	41,691	24,246	58	17,445	35,591	30,066	84	5,525
Total	362,607	270,110	74	92,497	331,865	265,779	80	66,086	310,090	232,859	75	77,230

# Emerging Species



- ▶ Historically, we have focused intensely on narrow slices of the ecosystem – cod, crab, shrimp
  
  - ▶ NAFO reported catches, 1960-2011:
    - ◆ 67 different species in 3K
    - ◆ 87 different species in 3L
- We have focused on only a few
- ➔ Some of these species – and maybe others – have potential for development
  
  - ▶ Just because we haven't caught or eaten them in the past ourselves doesn't mean there is no market for them



# Emerging Species: Examples



Sea Cucumber



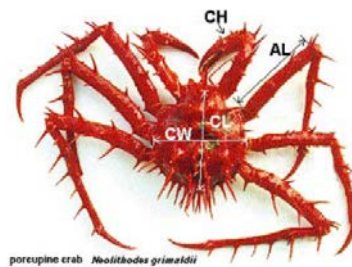
Sea Urchin



Hagfish/Slime Eel



Northern Stone Crab



Porcupine Crab



Periwinkle



Whelk



Sand Lance



Argentine



Saury

# Former Emerging Species

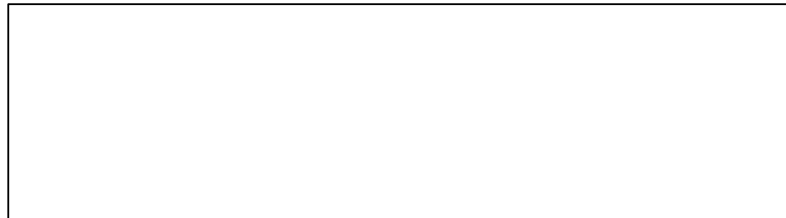
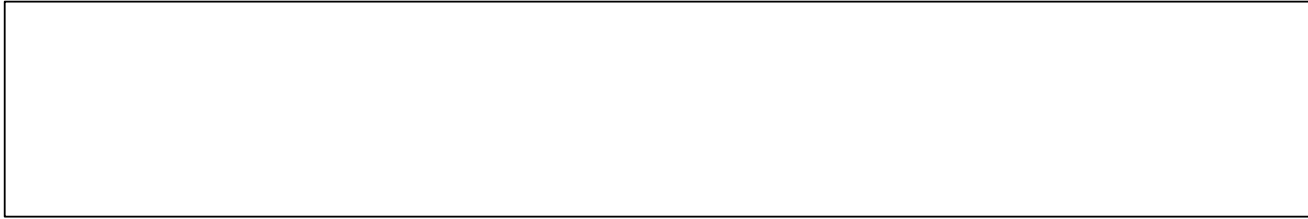
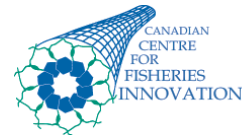


**Snow Crab**

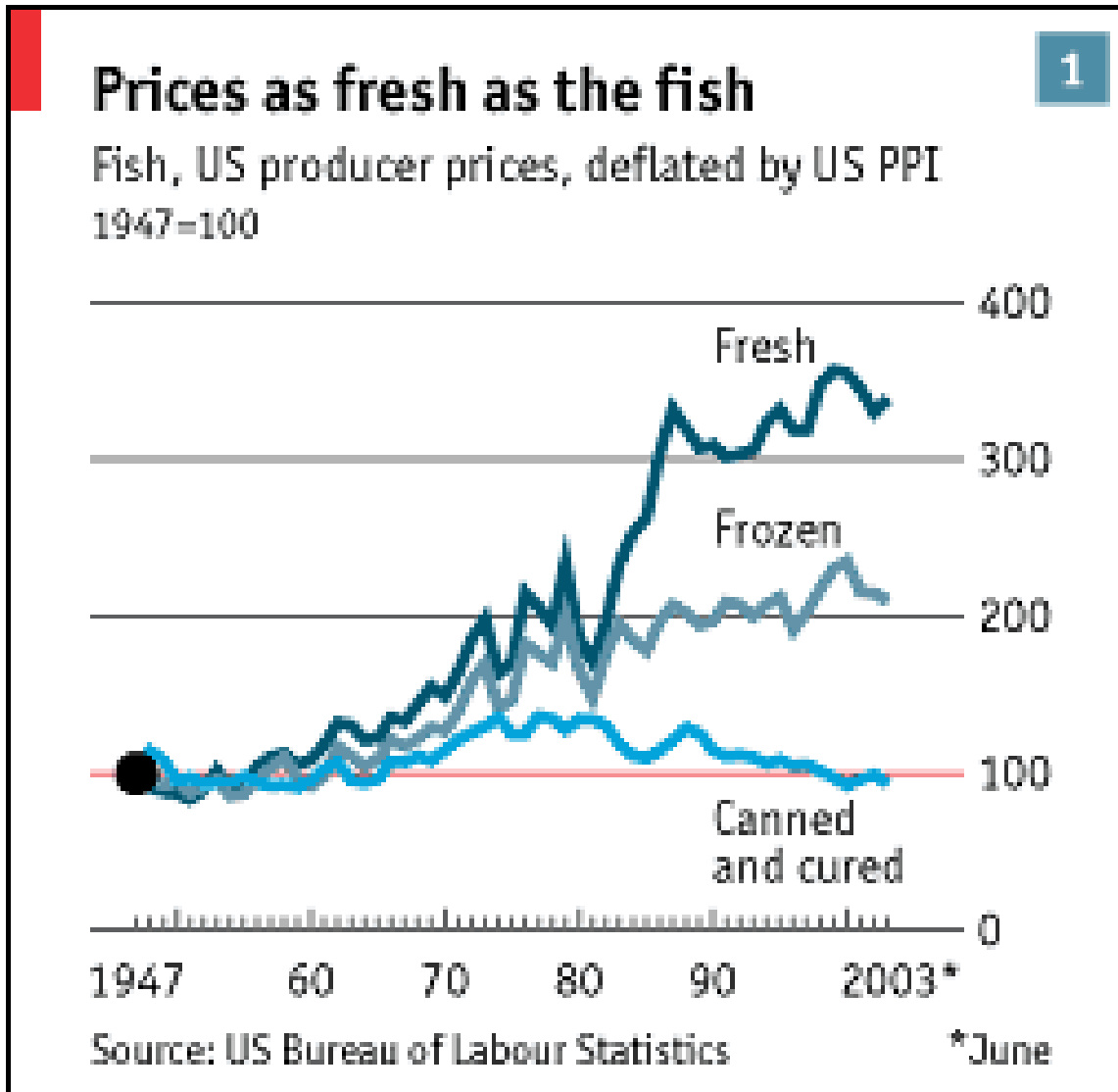


**Northern Shrimp**

# Diverse Fisheries → Niche Markets



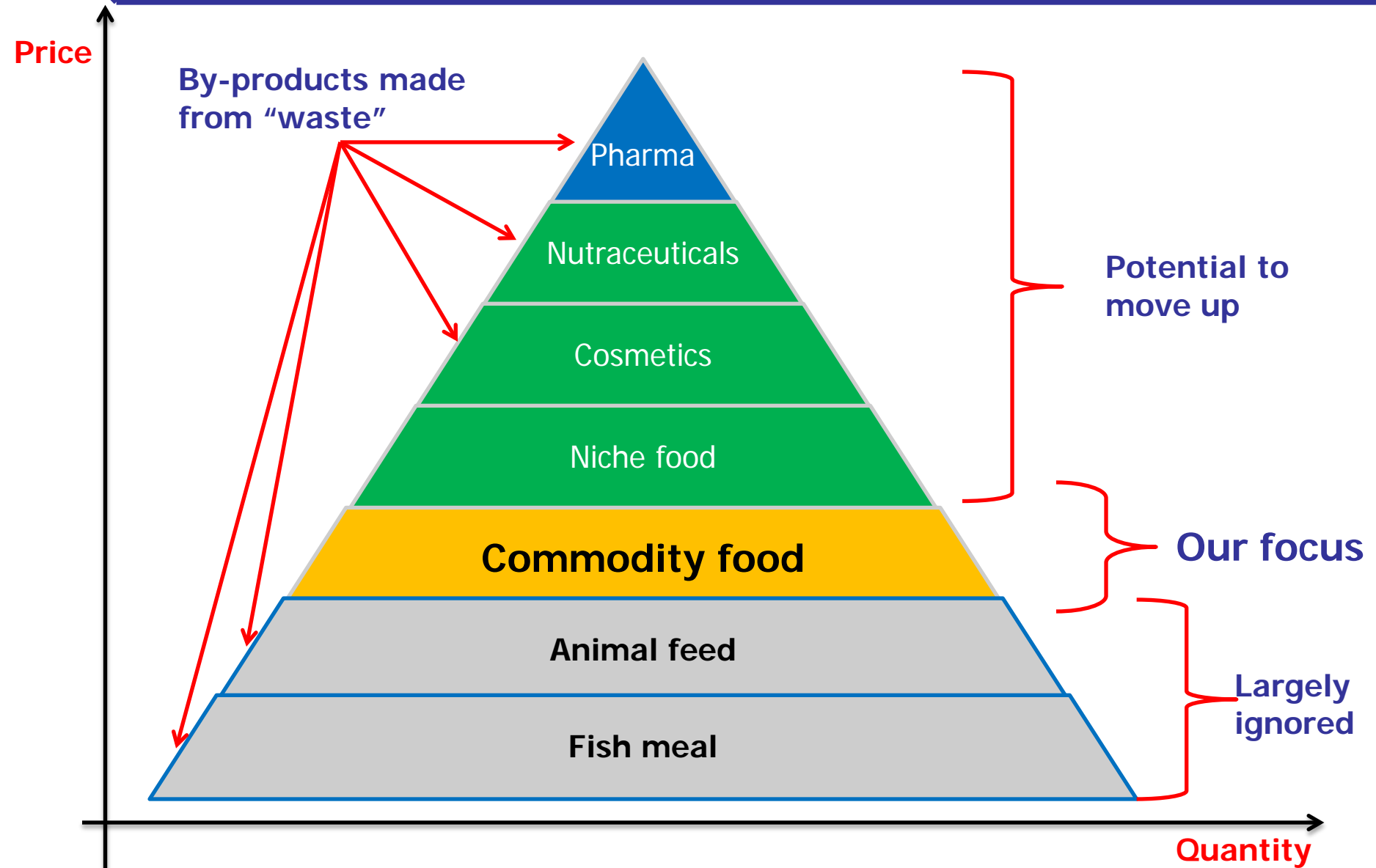
# Fresh = Added Value



Nearly all our output from capture fishing is frozen

Aquaculture focuses on selling fresh products

# The Value Pyramid



# By-Product Utilization

International Cod



Icelandic Cod



Full utilization



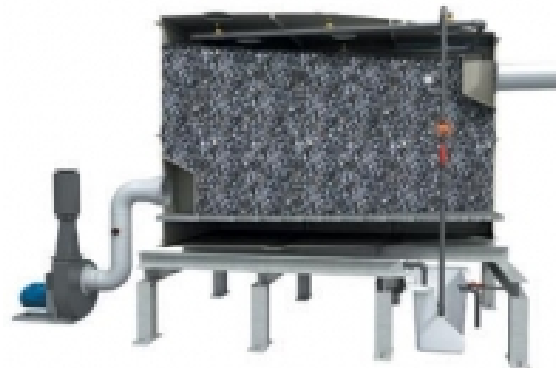
# By-Product Utilization



**Fish Sauce**

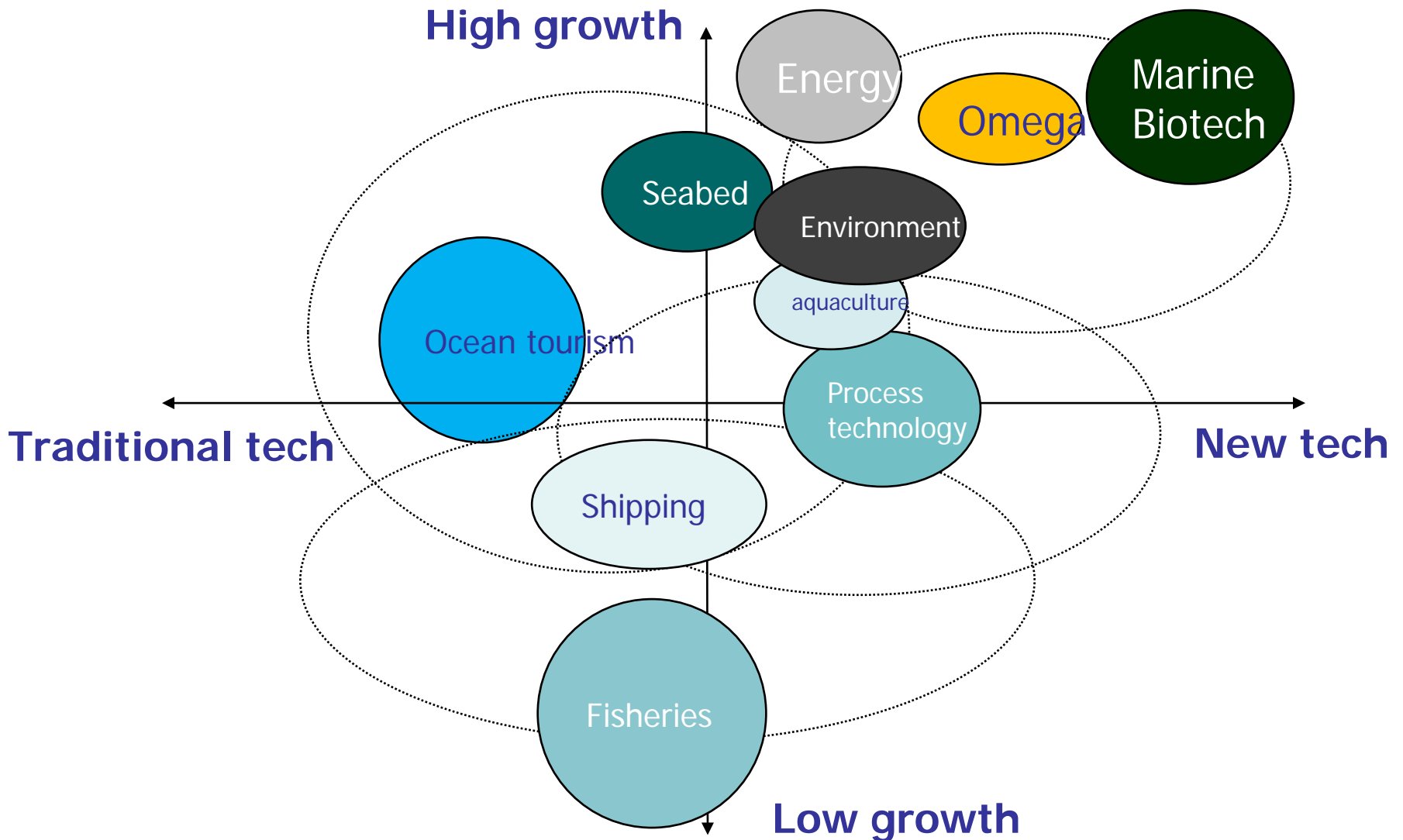


**Shellfish Coated Bananas Coming Soon**



**Biofiltration uses shellfish byproduct for odour control**

# "Cluster" Opportunities



Source: HotOrigin/ Gordon McConnell (preliminary analysis)



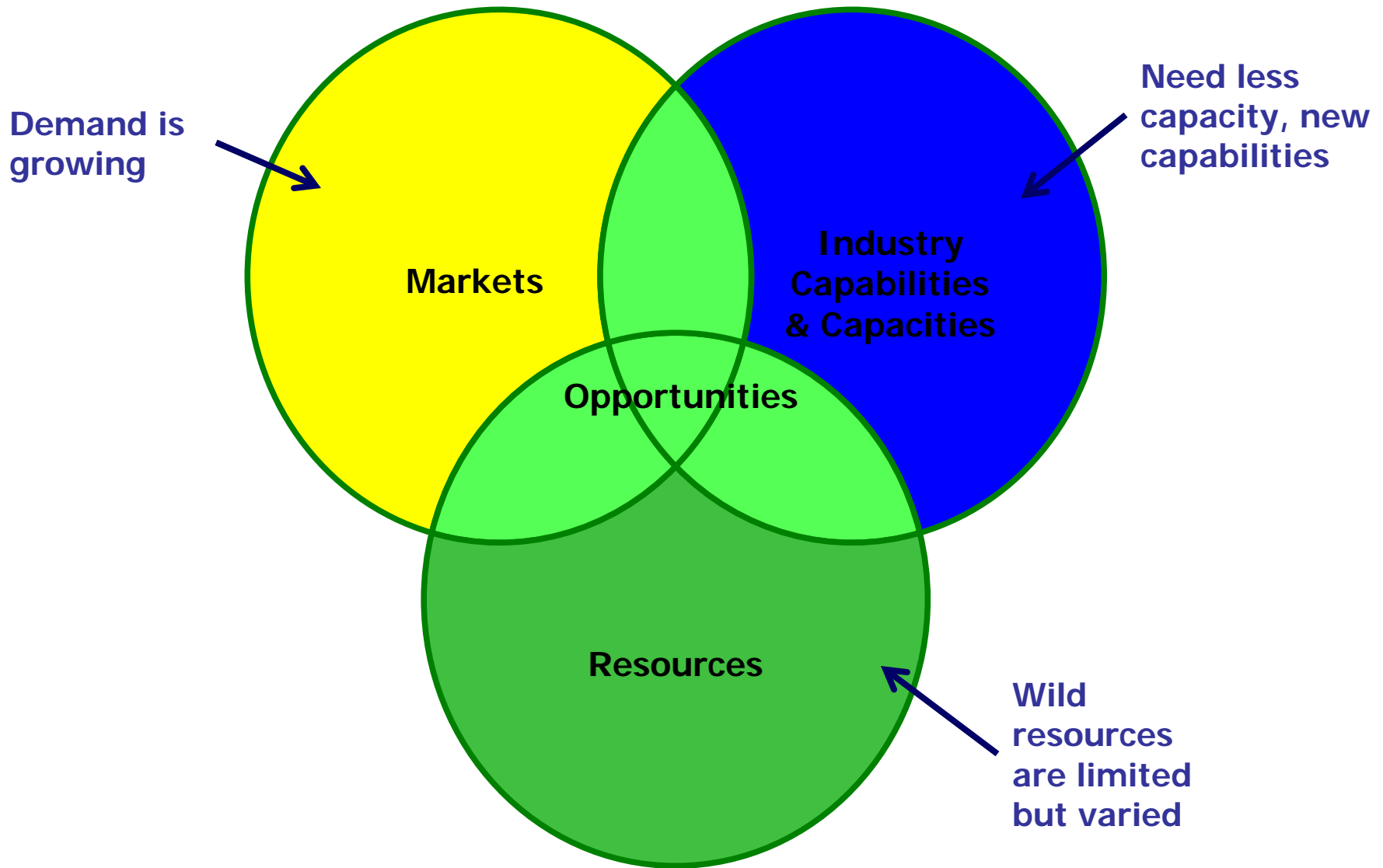
- ▶ SeafoodSource.com, September 17, 2012
  - ◆ “the report discusses Norway’s opportunities for value creation based on marine resources and paints a promising picture of the future prospects for Norway as a marine nation.”
  - ◆ “It estimates that marine value creation has the potential for a six-fold increase by 2050.”
  - ◆ **“All this makes a very pleasant change from the messages of doom and gloom emanating from other countries.”**

# No Shortage of Opportunities



CATEGORY	DESCRIPTION
<b>MARKET-BASED</b>	
<b>Human food</b>	
<ul style="list-style-type: none"> <li>Overall demand for seafood</li> </ul>	Growing but mostly in developing countries, due to population growth, changes in lifestyles; supply from capture fishery is limited
<ul style="list-style-type: none"> <li>High quality</li> </ul>	Markets are willing to pay more for <b>consistently</b> high quality
<ul style="list-style-type: none"> <li>Fresh products</li> </ul>	People perceive fresh = good quality; fresh products attract premium prices; aquaculture now sets the standard; China cannot compete with fresh
<ul style="list-style-type: none"> <li>Niche markets</li> </ul>	Competition is fragmenting former mass markets into niches, based on geography, use
<ul style="list-style-type: none"> <li>Reliability of supply</li> </ul>	Demand is year-round; supply of captured fish is often seasonal
<ul style="list-style-type: none"> <li>Prepared products</li> </ul>	People are uncertain about buying and preparing seafood, leave it to "professionals"
<ul style="list-style-type: none"> <li>Nutraceuticals</li> </ul>	People want health benefits of seafood without having to eat seafood
<ul style="list-style-type: none"> <li>Flavorants</li> </ul>	Flavorants can be extracted for use in soup stocks, other products
<b>Fish food</b>	The aquafeed market in Atlantic Canada is estimated at \$110 million; aquaculture expanding rapidly but potential limited by supply of fish meal, oil, pigments
<b>Animal food</b>	Fish meal and oil formerly fed to animals increasingly being diverted to aquaculture
<b>Business ecosystem</b>	Development of spin-off businesses – e.g. secondary processing, suppliers of industry-specific goods and services (c.f. Iceland, Norway, Alaska)
<b>RESOURCE-BASED</b>	
<b>Species now harvested</b>	
<ul style="list-style-type: none"> <li>Uncaught quotas</li> </ul>	We leave substantial quantities in the water every year
<ul style="list-style-type: none"> <li>Further processing</li> </ul>	We sell substantial quantities in semi-processed form, for processing elsewhere, because our costs are not competitive
<ul style="list-style-type: none"> <li>By-products</li> </ul>	Most now treated as waste; potential for substantial added value
<b>Underutilized species</b>	
<ul style="list-style-type: none"> <li>Human food</li> </ul>	E.g. mackerel, capelin, argentine, saury, hagfish, stone crab, whelks, periwinkles, sea cucumbers, Icelandic scallops
<ul style="list-style-type: none"> <li>Fish/animal food</li> </ul>	E.g. sand lance, argentine, saury

# Opportunities



# Resource-Based Opportunities



Species Group	Price	Volume	Processing
Shellfish	High	Low	Low
Groundfish	Medium	Medium	Medium-High
Pelagics	Low	High	Low-Medium

Different species = different opportunities (resources, markets, economics)

→ Need different strategies, cost structures, operating systems to be successful

# Quotas – The Law of Raspberry Jam



## Species Quota Report

### Newfoundland and Labrador Region Preliminary Data - Subject to revision

Quota Management Cycle beginning in Year: (2010)

Species: (705) Crab, Queen/Snow

(Numbers may not add due to rounding)

Run Date: Oct 28, 2011

Last Data Update: Oct 27, 2011 22:29

Landings as of : October 26, 2011

NAFO	Licence Category	Quota Definition	Quota (M.T.)	Catch (M.T.)	% Taken	Remaining (M.T.)	Closed
3Ps	S-Supplementary	CFA 10 Between 46'30"N to 45'35"N (10BCD)	3300	3171	96	129	JUL 14, 2010
		CFA 10 South of 45'35"N (10X)	590	437	74	153	JUL 14, 2010
		CFA 11 South of 46'30" N (11S)	230	105	46	125	JUL 14, 2010
		<b>Total Supplementary</b>	<b>4120</b>	<b>3713</b>	<b>90</b>	<b>407</b>	
I-Inshore		CFA 10 North of 46'30"N (10A)	560	467	83	93	JUL 14, 2010
		CFA 10 North of 46'30"N Outside 12 miles (10A)	1340	1408	105	-68	JUL 14, 2010
		CFA 11 East of Western Head < 35' (11E)	0	248	0	-248	JUL 08, 2010
		CFA 11 South of 46'30"N > 35' (11S)	55	44	79	11	JUL 14, 2010
		CFA 11 S. of 46'30N / W. of 56'30W >35 Exp (11SX)	130	117	90	13	JUL 14, 2010
		CFA 11 West of Western Head Hare Bay (11W)	0	37	0	-37	JUL 08, 2010
<b>Total Inshore</b>	<b>2085</b>	<b>2321</b>	<b>111</b>	<b>-236</b>			
		3PS - Scientific Survey	0	1	0	-1	DEC 31, 2010
<b>Total</b>			<b>0</b>	<b>1</b>	<b>0</b>	<b>-1</b>	
<b>Total 3Ps</b>			<b>6205</b>	<b>6035</b>	<b>97</b>	<b>170</b>	

# Licensing – Price vs. Quantity



	<b>LANDED</b>	<b>NO.</b>	<b>L. VALUE</b>
<b>SPECIES</b>	<b>VALUE, \$</b>	<b>LICENCES</b>	<b>\$/LIC</b>
Groundfish	81,415,061	4,306	18,907
Herring	6,522,975	2,350	2,776
Mackerel	7,232,387	2,618	2,763
Swordfish	95,865	2	47,933
Tuna	288,622	57	5,064
Capelin	5,386,596	1,920	2,806
Clam	36,634,261	2	18,317,131
Scallop	2,560,242	880	2,909
Squid	101,082	2,531	40
Lobster	16,894,669	2,866	5,895
Shrimp	219,156,956	461	475,395
Crab	251,041,733	3,445	72,871
<b>Total</b>	<b>627,330,449</b>	<b>21,438</b>	<b>29,263</b>

**Fishers collect licences to improve their income opportunities**

**More licences = higher infrastructure, buying, collection, admin costs**

NL 2011

Source: DFO

# Landed Value/Harvester, NL 2011



	VESSEL LENGTH				ALL
	0'-34'	35'-64'	65'-99'	> 100'	
<b>LANDED VALUE, \$</b>	81,192,893	327,380,189	16,411,993	224,982,814	649,967,889
% of Total	12.5	50.4	2.5	34.6	100.0
<b>NO. LICENCES</b>	6,780	1,067	14	23	7,884
% of Total	86.0	13.5	0.2	0.3	100.0
<b>L. VALUE, \$/LICENCE</b>	11,975	306,823	1,172,285	9,781,861	82,441
<b>NO. HARVESTERS</b>					10,800
<b>L. VALUE, \$/HARVESTER</b>					60,182

**Landed Value must cover enterprise operating and ownership costs, as well as provide income to harvesters**

# Processing Value Added, NL 2011



<b>PRODUCTION MARKET VALUE</b>	<b>\$</b>	<b>900,000,000</b>
<b>DEDUCT, LANDED VALUE</b>	<b>\$</b>	<b>650,000,000</b>
<b>PROCESSING VALUE ADDED</b>	<b>\$</b>	<b>250,000,000</b>
<b>NO. ACTIVE PROCESSING LICENCES</b>		<b>101</b>
<b>VALUE ADDED/LICENCE</b>	<b>\$</b>	<b>2,475,248</b>
<b>NO. PLANT WORKERS</b>		<b>9,902</b>
<b>VALUE ADDED PER WORKER</b>	<b>\$</b>	<b>25,247</b>

**Value Added must cover company operating and ownership costs, as well as provide income to plant workers**



# Processing, By Species, NL 2011

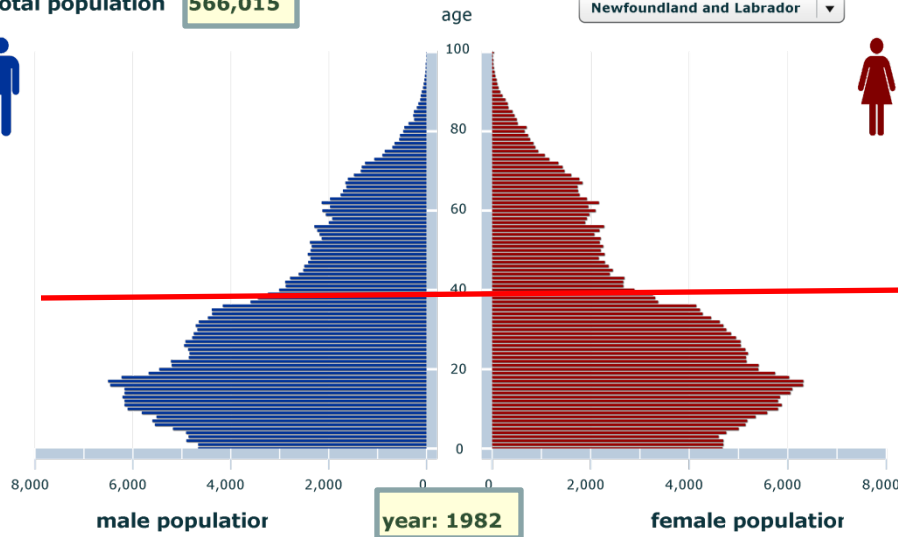


	<b>CRAB</b>	<b>INSHORE SHRIMP</b>
<b>EXPORT VALUE, \$million</b>	269.5	101.0
<b>LANDED VALUE, \$million</b>	155.4	72.0
<b>VALUE ADDED, \$million</b>	114.1	29.0
<b>NO. LICENCES</b>	36	13
<b>VALUE ADDED, \$million/licence</b>	3.2	2.2

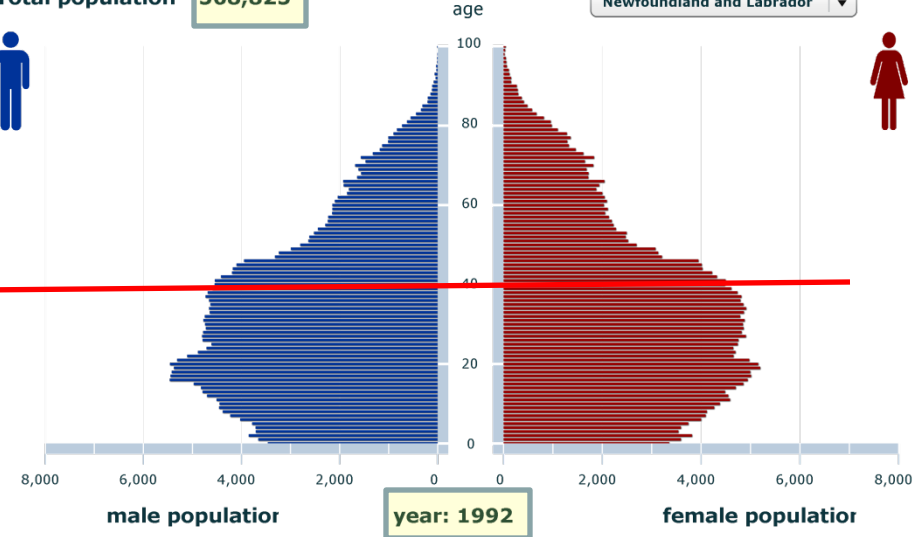
	<b>Groundfish</b>	<b>Pelagics</b>
No. Licensed Plants	68	72
Landings, Tonnes	31,710	62,544
Avg./Plant	466	869
Landed Value, \$000	81,415	19,880
Avg./Plant	1,197	276

# Problem/Opportunity?

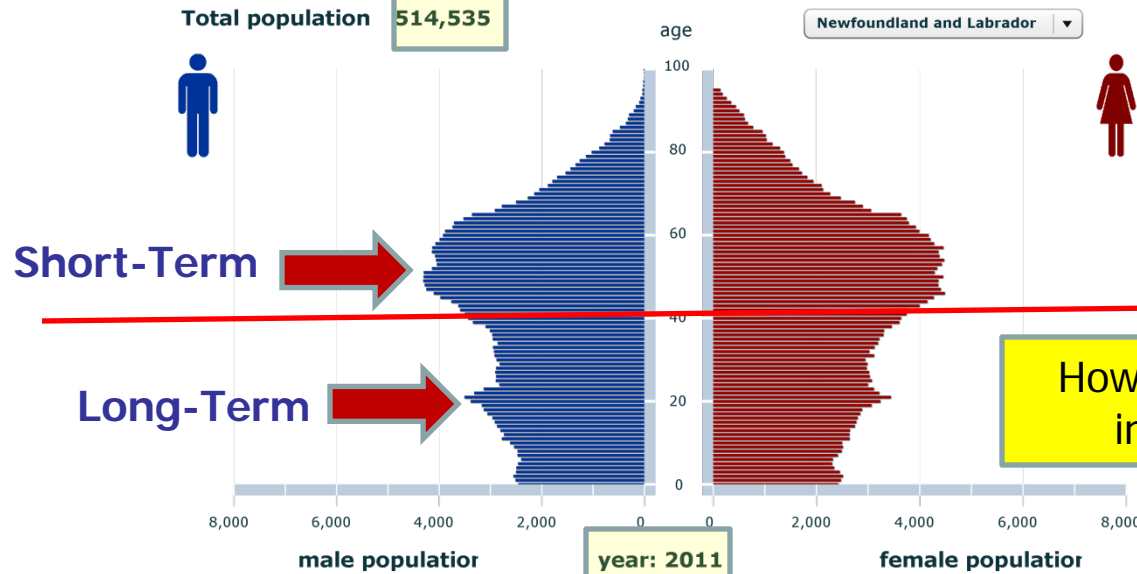
Total population **566,015**



Total population **568,825**

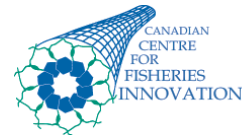


Total population **514,535**



How many want to go into the fishery?

# Observations



- ▶ NL's capture fishery is surrounded by “insurmountable opportunities”
- ▶ Some are limited by lack of information – e.g. resource abundance
- ▶ Many are uneconomical, due to resource management and licensing policies designed to maximize the number of people qualifying for EI
- ▶ There are differences between opportunities available and those the industry can take advantage of, because public policies
  - ◆ maximize the number of participants but limit opportunities available to them,
  - ◆ lead to excess capacity,
  - ◆ shorten the operating season,
  - ◆ prevent maximizing the value obtained from our resources, and
  - ◆ create intense pressure to maximize quotas and catches, leading to harvesting at unsustainable levels
- ▶ The EI-based model of the fishery is unsustainable, because of demographics and the industry's inability to attract young people to replace retiring baby boomers

# Some Words of Wisdom



The real difficulty in changing the course of any enterprise lies not in developing new ideas, but in escaping old ones.

John Maynard Keynes