



# Catch Monitoring Systems in British Columbia Groundfish Fisheries

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# Groundfish Fisheries in British Columbia, Canada

- ~ 60 different TAC managed groundfish stocks
- >120 fish species
- ~105,000 mt (~\$140m)
- ~300 vessels (4-40m LOA)
- 3,500 trips/ 20,000 fishing days
- Coast wide and year round





# Fishery Management ~1990

Limited entry created species specific fisheries with overlapping catches (and discards)

## Species

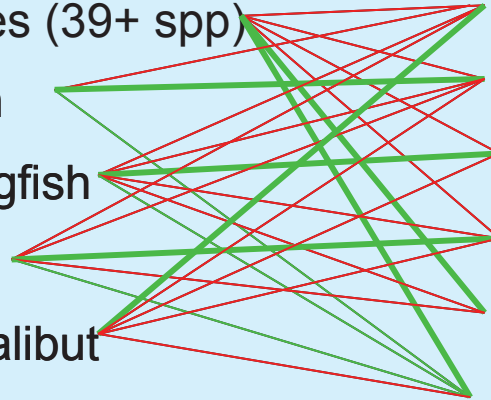
Rockfishes (39+ spp)

Sablefish

Spiny dogfish

Lingcod

Pacific halibut



## Fishery

Halibut

Sablefish

Dogfish

Lingcod -

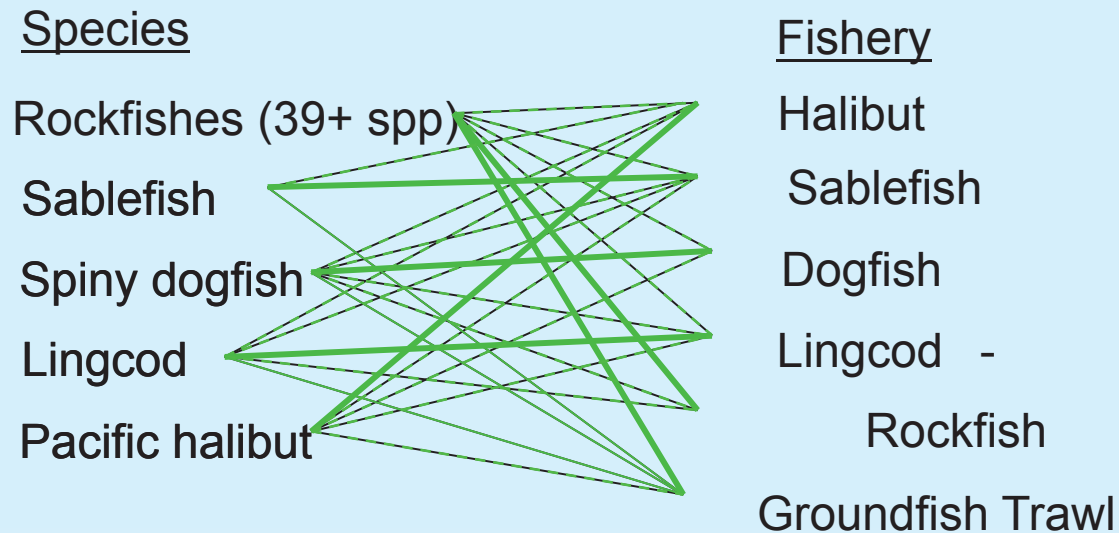
Rockfish

Groundfish Trawl



# Fishery Management Today

- Phased in catch shares (IVQ's) by fishery
- Migration of the five fisheries into one 'Integrated' management plan
- Enable trading between fisheries to cover bycatch



# Key Management Principles

- Account for all catch, including discards
- Stock specific management
- Require fishers to be individually accountable for their catch
- Establish new monitoring standards to ensure above principles are met



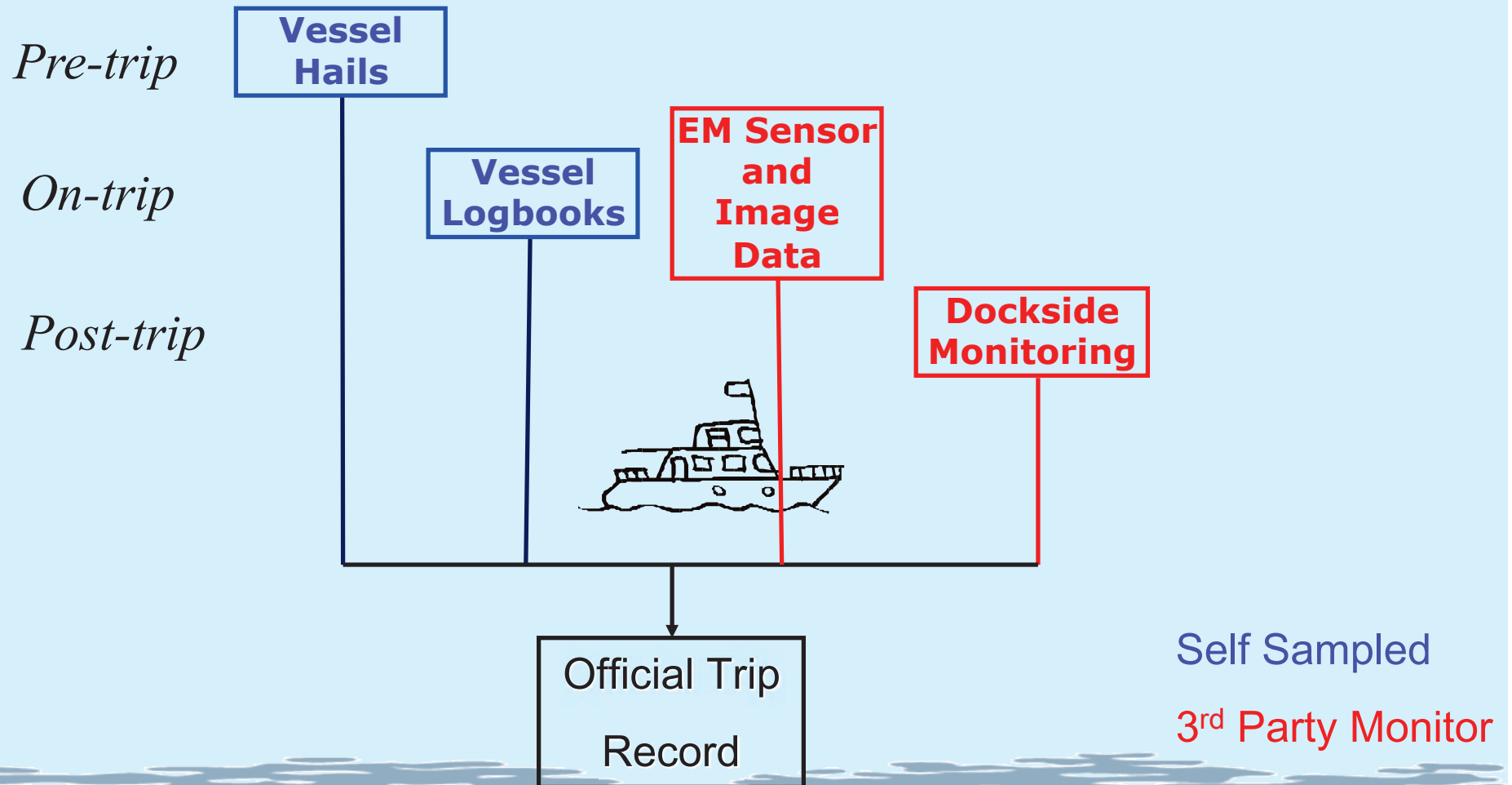


# New Monitoring Standards

- 'Self Reported' Data - Logbooks, sales slips, and hails
- 100% Dockside Monitoring – Independent verification of all fish offload events (species, weights)
- 100% At-sea Monitoring – Independent verification of fishing operations (location, catch)
  - At-sea Observers (trawl fishery)
  - Electronic Monitoring (hook and line and trap fisheries)
- Data Compilation – Timely consolidation and reporting of data

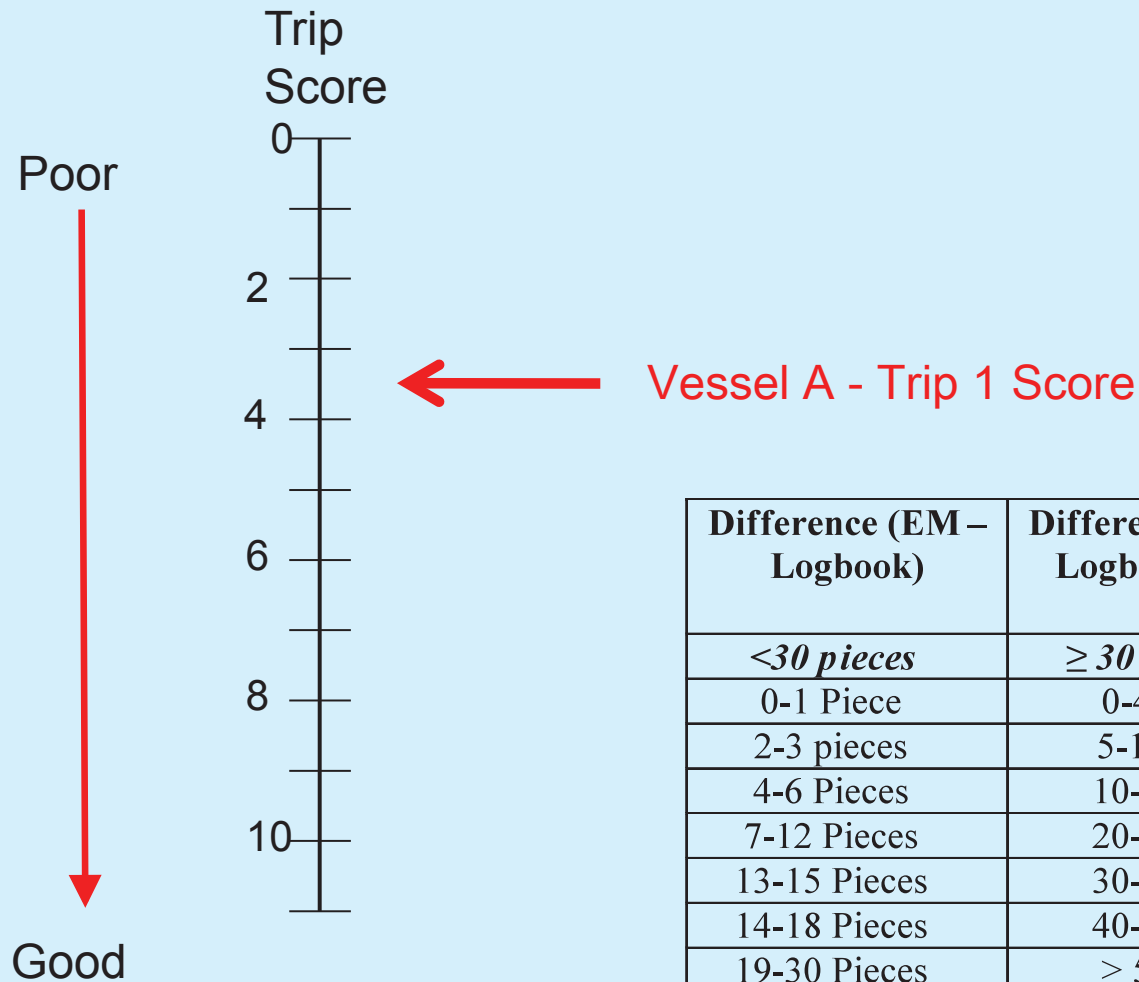


# Fishery Data Streams





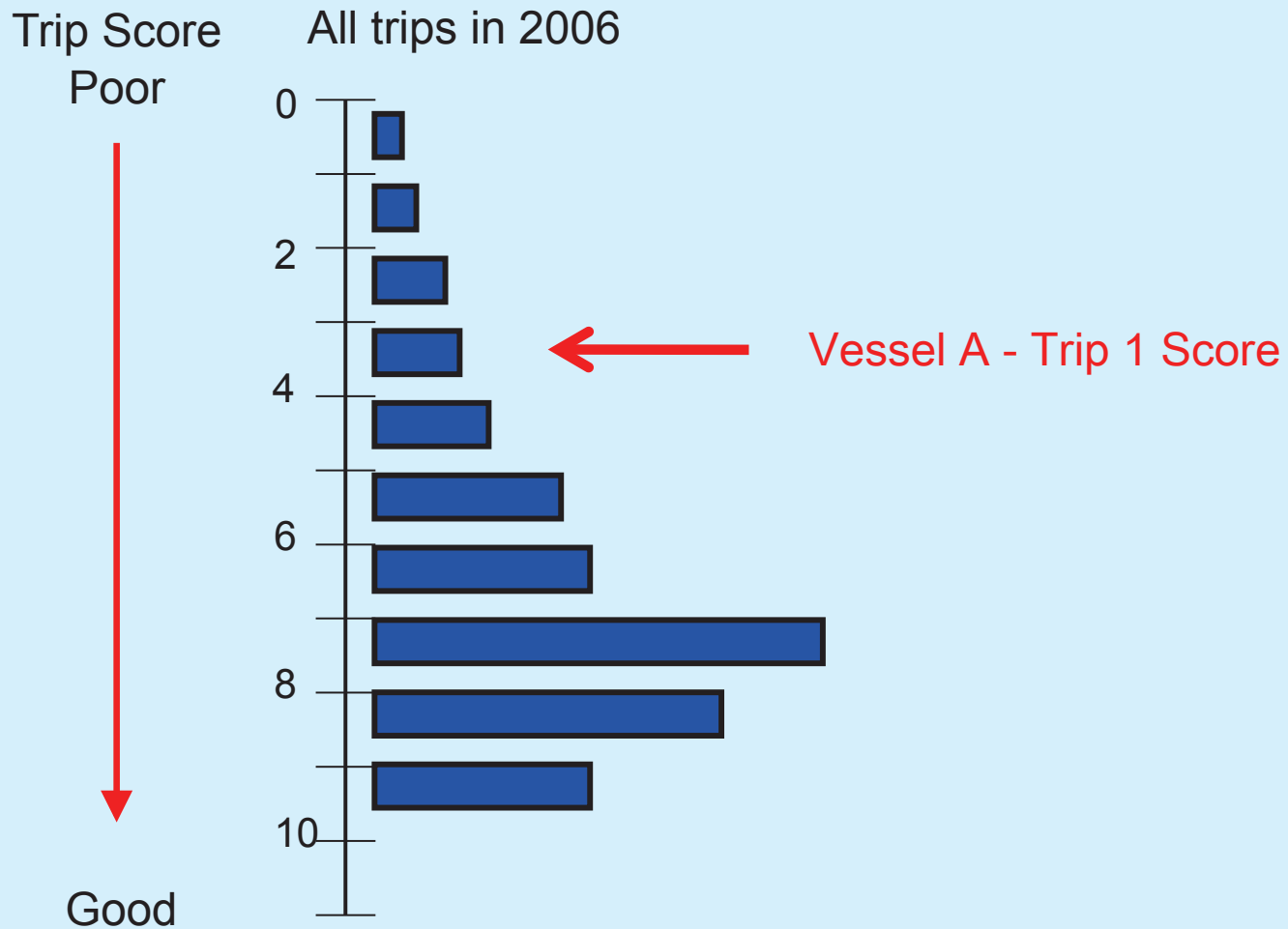
# Year 1 – Scores, Trip Scores but No Context



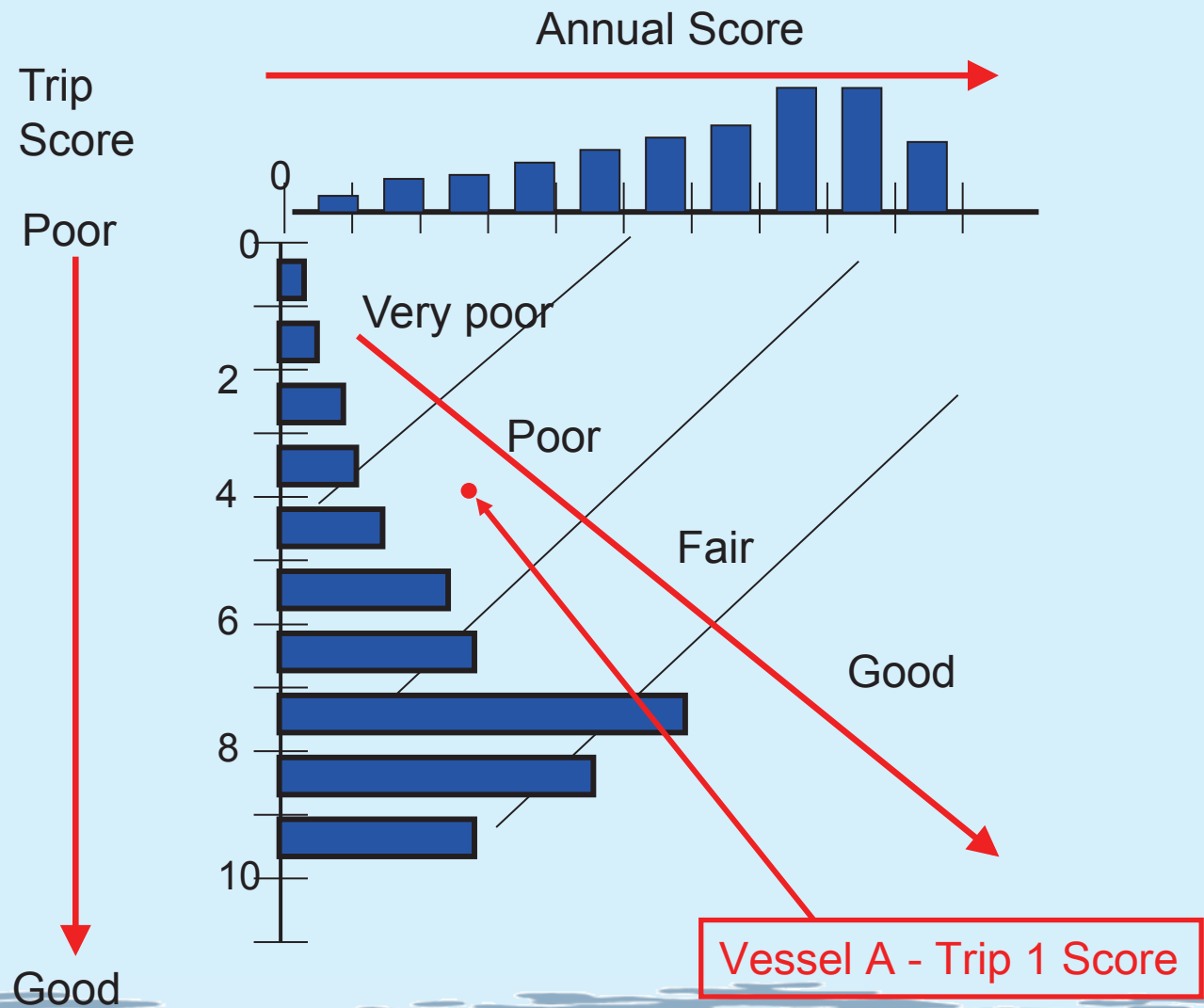
Difference (EM – Logbook)	Difference (EM – Logbook/EM)	Score
<i>&lt;30 pieces</i>	<i>≥ 30 pieces</i>	
0-1 Piece	0-4*%	10
2-3 pieces	5-10 %	9
4-6 Pieces	10-20%	8
7-12 Pieces	20-30%	<b>7</b>
13-15 Pieces	30-40%	<b>5</b>
14-18 Pieces	40-50%	<b>3</b>
19-30 Pieces	> 50%	<b>0</b>



# Year 2 – Score Distribution and Trip Scores



# Year 3 – Distributions for Trip and Annual Scores



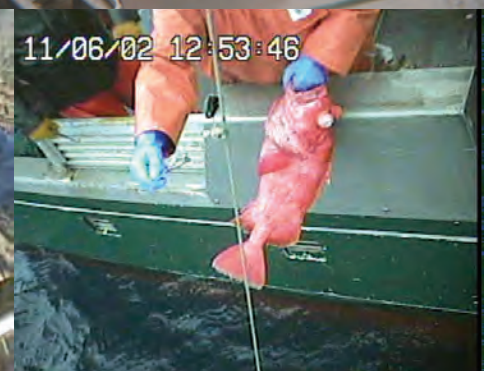
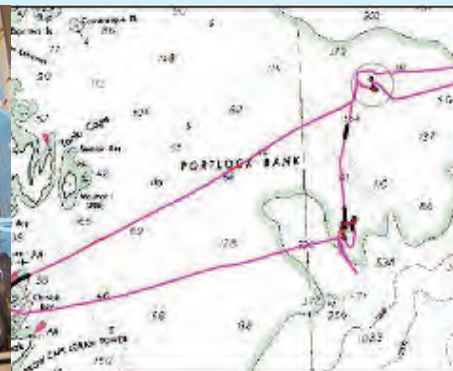
# Year 3 – The ‘Matrix’

		Annual Scores										Total	Percent
		0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
Trip Scores	0-1	0	1	0	2	3	4	5	7	4	1	27	1.8%
	1-2	0	0	0	2	2	6	5	2	2	1	20	1.3%
	2-3	0	1	0	1	5	2	6	4	9	0	28	1.8%
	3-4	0	0	1	2	5	3	4	7	9	2	33	2.2%
	4-5	0	0	0	2	5	6	6	6	5	3	33	2.2%
	5-6	0	0	2	2	5	7	14	16	13	6	65	4.3%
	6-7	0	0	1	0	6	7	14	24	32	8	92	6.0%
	7-8	0	0	1	4	8	20	25	51	78	26	213	13.9%
	8-9	0	1	2	5	15	18	39	88	264	16	595	39.0%
	9-10	0	1	0	1	3	3	24	47	179	163	421	27.6%
Total	0	4	7	21	57	76	142	252	595	373	1,527	100.0%	
	0.0%	0.3%	0.5%	1.4%	3.7%	5.0%	9.3%	16.5%	39.0%	24.4%	100.0%		



# Primary Outcomes

- Full catch accounting
- Individual accountability
- Stock specific management
- Fishers became motivated to reduce bycatch, fish selectively, and report accurately
- Cost efficient monitoring system (~5% GFV)



# Other Outcomes

- Industry became more involved in data collection, problem solving, and science (surveys and assessments)
- Levelled the playing field
- Trusted data rich fishery information system
- Improved economics and safety



# Key Success Factors

- Industry leadership
  - ‘Owning the Problem’
  - Co-funding with government
  - More industry say in the program
- Recognized need for ‘level playing field’
- Privatized monitoring service
- Stakeholders felt the program was credible
- Administrative/legal penalties





*Thanks!*