



Leiðandi  
vettvangur í tíu ár

# Evolution of a Commercial Fishery

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SJÁVARÚTVEGS  
RÁÐSTEFNAN



HAMPIÐJAN

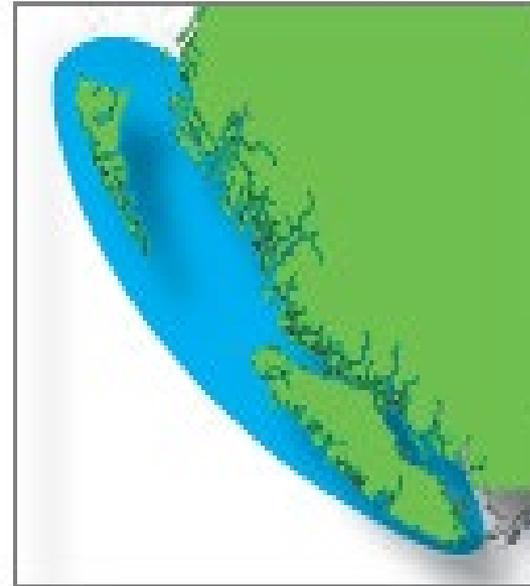
*Þvífa Öskur*

2006 marked the implementation of 100% monitoring on all vessels in the British Columbia groundfish fishery.



# WHY ARE WE HERE?

- The groundfish fishery has evolved over the last 40 years. This is the story of what it was like, what happened, and what it's like now.



*BC's groundfish fisheries extend  
from Juan de Fuca Strait to  
Dixon Entrance*

Fishermen are nomadic hunter gatherers.  
Every fishery thinks they are unique. We  
are *freedom seeking individuals*

Independent, determined, fiercely defiant

Above average instinct and imagination

I grew up commercial fishing



I became captain of my first fishing vessel at the age of 16. In 1987, at the age of 20, I had saved enough money to put a down payment on my own vessel, licensed for salmon and halibut.



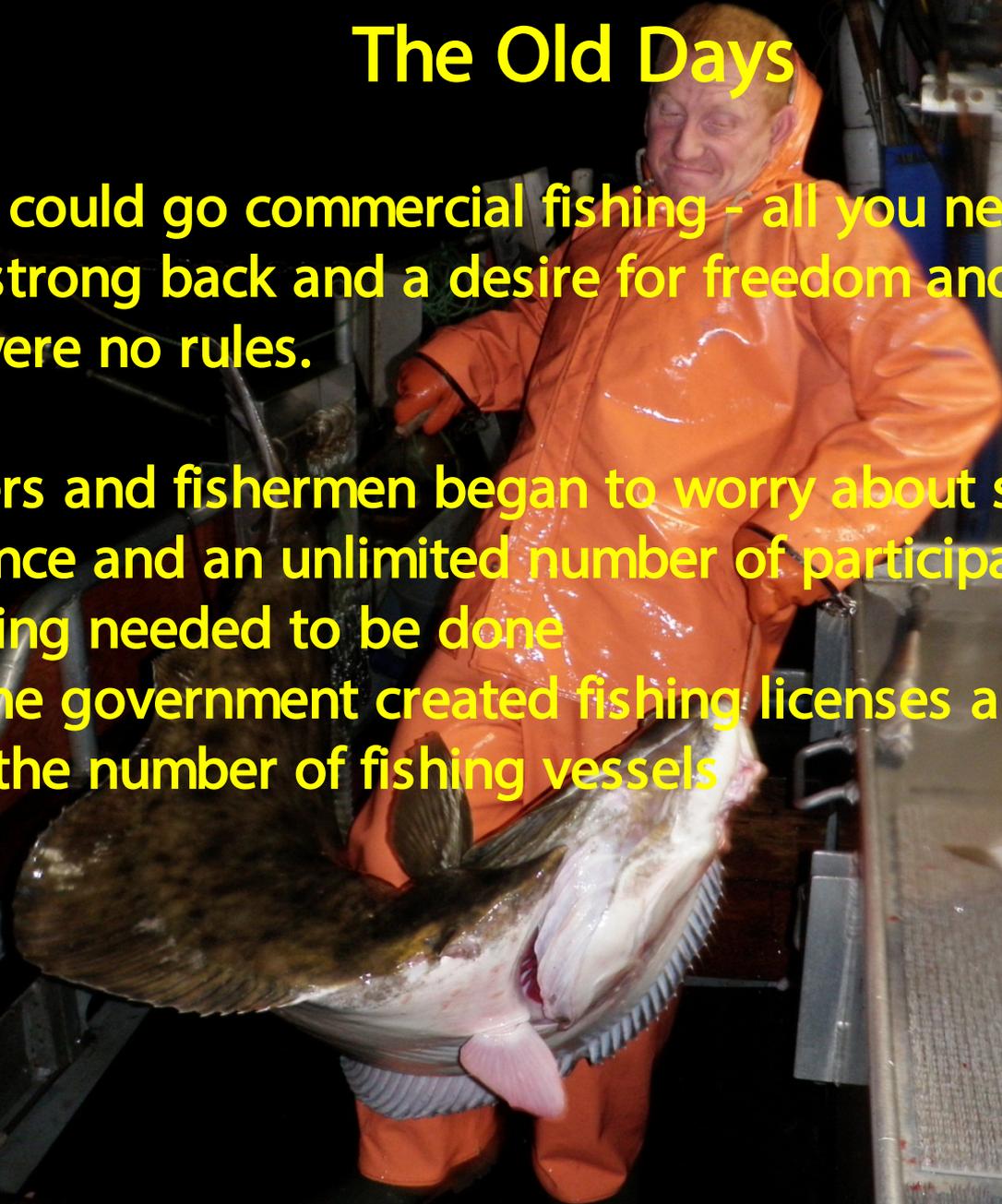
It was a 2 year plan.  
There was that much uncertainty.

# The Old Days

Anyone could go commercial fishing - all you needed was a boat a strong back and a desire for freedom and adventure. There were no rules.

Managers and fishermen began to worry about species abundance and an unlimited number of participants  
Something needed to be done

1971 the government created fishing licenses and effectively limited the number of fishing vessels



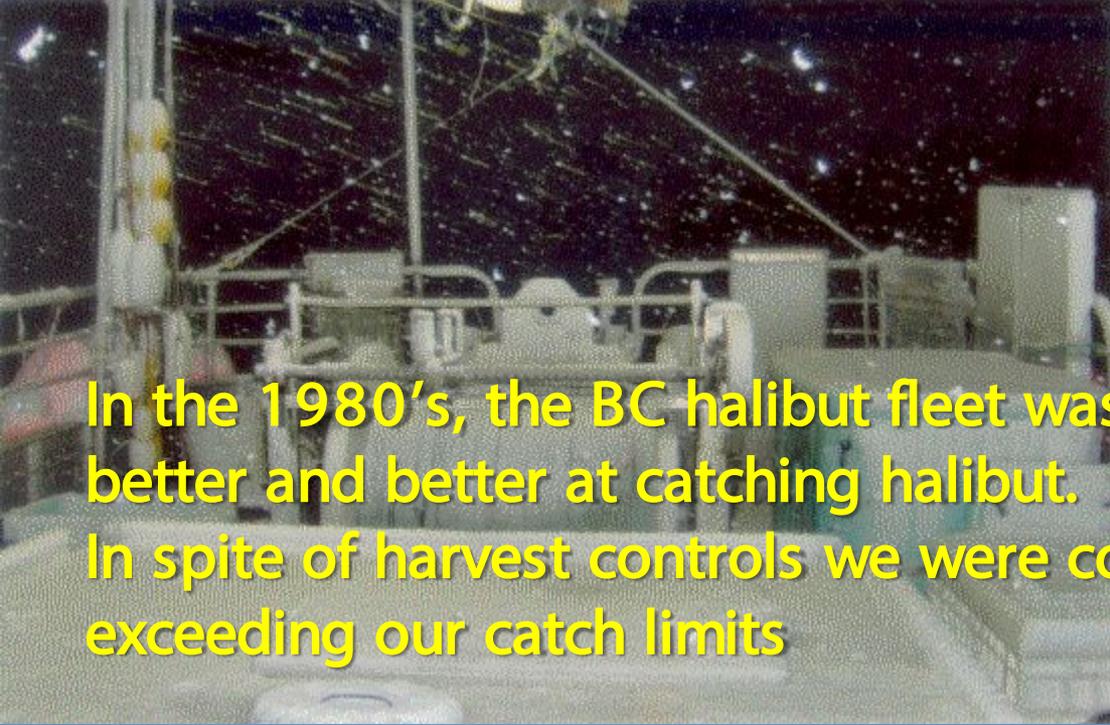
# Harvest Controls

A photograph of a fishing boat deck. Two fishermen in orange jackets are visible. One is in the foreground, looking at a large fish. Another is in the background, looking away. Several large fish are on the deck. The background shows the sea and a cloudy sky.

Managers attempted to control fishermen's behavior

- Time (Seasons)
- Gear
- Species restrictions
- Vessel size restriction
- Closed areas

We can navigate around any rule. We are natural problem solvers



In the 1980's, the BC halibut fleet was getting better and better at catching halibut. In spite of harvest controls we were continuously exceeding our catch limits



- ❑ Six days of fishing
- ❑ 435 vessels
- ❑ Poor quality
- ❑ Limited fresh supply
- ❑ Low price
- ❑ Fish discarded
- ❑ Gear loss



“Most men would rather deny a hard  
truth than face it”

*Tyrion Lannister, Game of Thrones*

But when the pain of the present is  
greater than the fear of the future,  
that is when we change

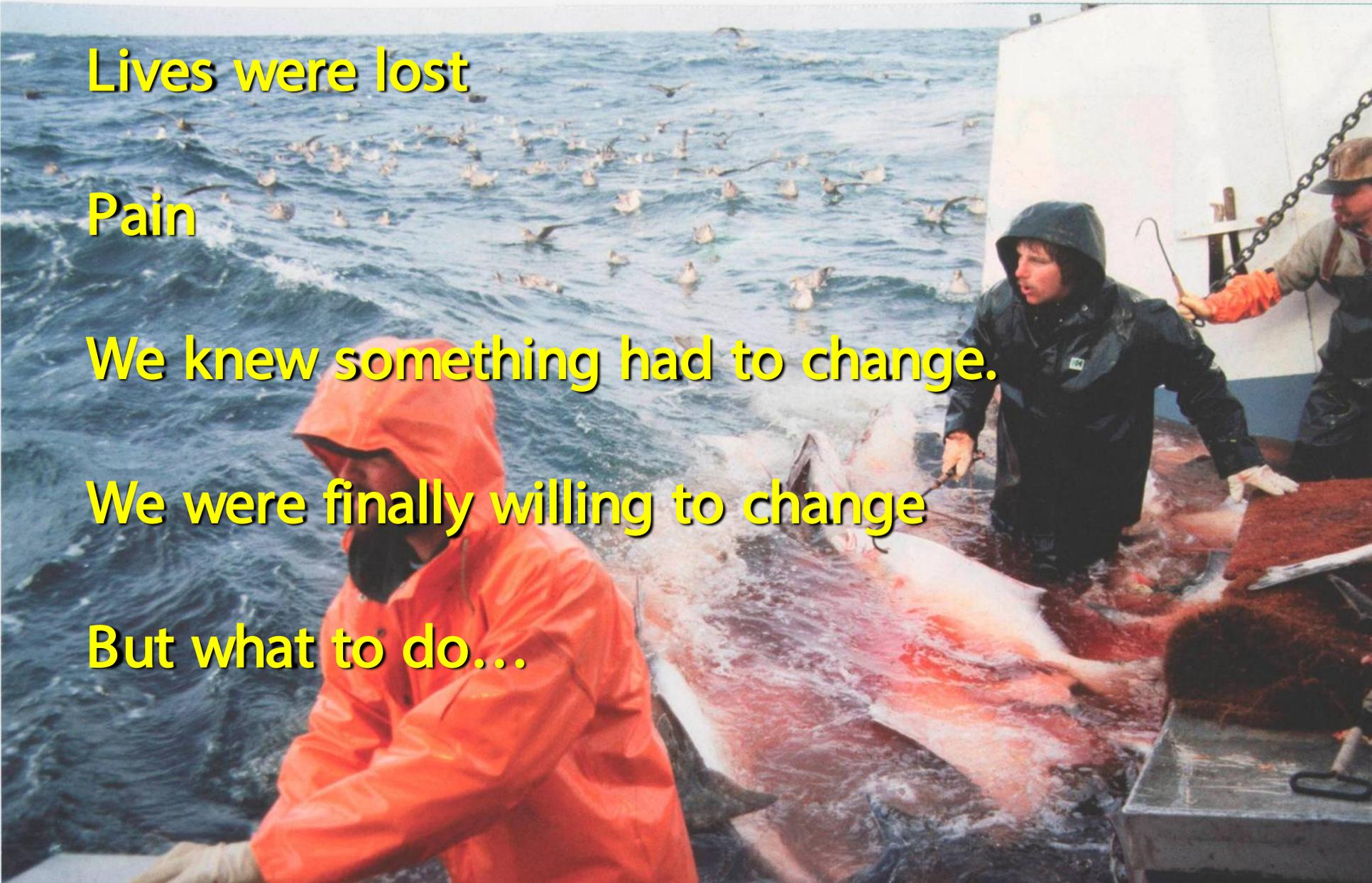
Lives were lost

Pain

We knew something had to change.

We were finally willing to change

But what to do...



## Individual Quotas (IQ).

- The idea came from a fisherman who belonged to an industry organization.
- The organization presented the idea to the Department of Fisheries and Oceans (DFO).
- We agreed on an individual allocation formula and industry worked with DFO to develop a set of rules to manage the fishery.

# FEARS

*Definition: fear almost always relates to future events, such as worsening of a situation, or continuation of a situation that is unacceptable. Fear that we may lose something we already possessed or fail to get something we demand*

- Corporate concentration
- Cheating
- Job loss
- Coastal communities
- Non-fishermen would buy quota
- Privatization of public resource\*
- The biggest fear was would I get a large enough share

Our fears manifested as anger and self pity

*Projected fears, like shadows, are larger than life.*

*We designed the fishery to address our fears*

□ *At that time*



**Halibut fishery moved to a catch share fishery in 1991  
and with it the beginning of 3<sup>rd</sup> party monitoring**

- **Hail requirements**
- **Port Validation**
- **1% ownership cap**
- **Designated landing ports**

**We addressed the fears with the rules**

# SECURITY

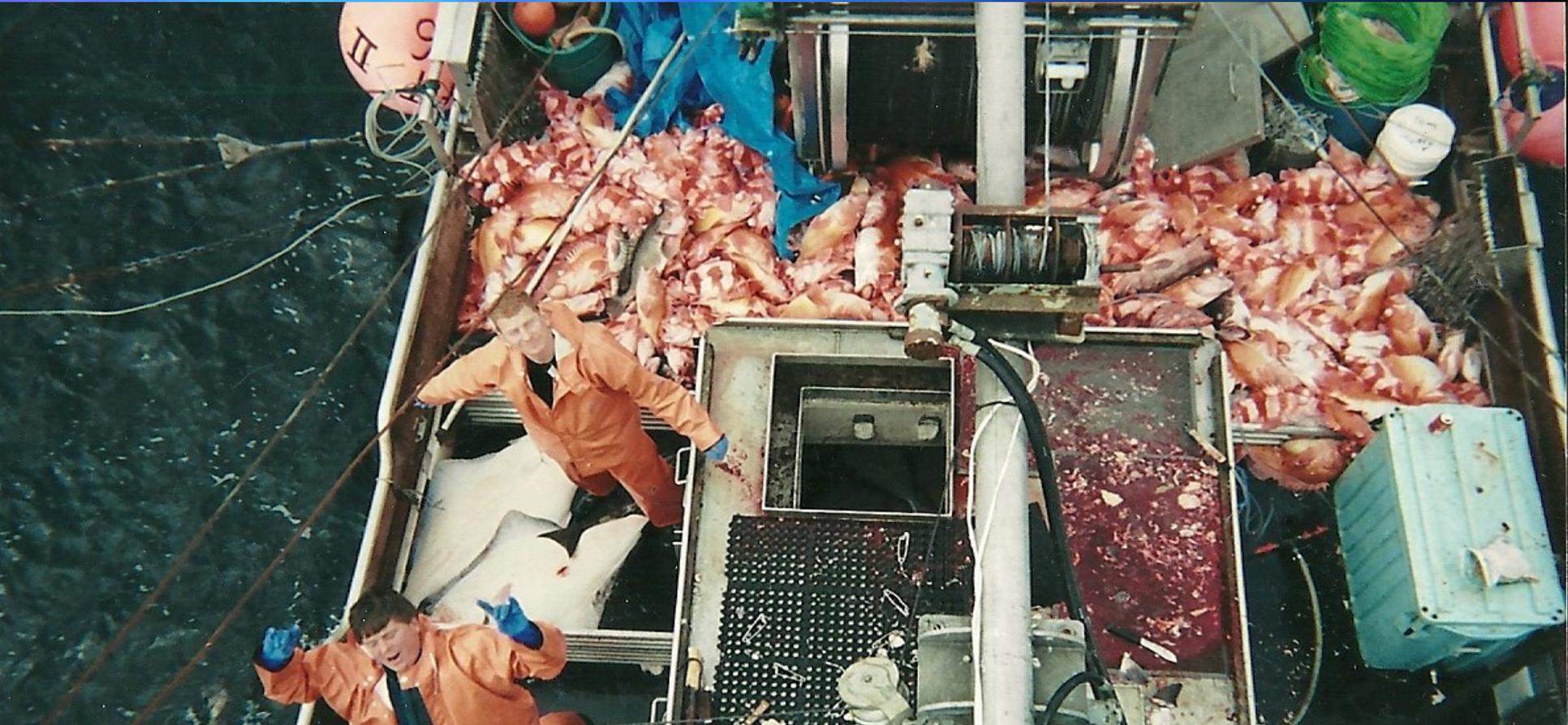
We know at the beginning of each season how much we can individually catch. We could now make a pre-season business plan based on actual catch. This was stability we had never experienced before.

Something changed in the way we viewed our fishery. It felt like I owned a piece and I wanted to protect it and care for it. *It felt like security.*

Fish had a value before it was caught. Before it only had value after.

- We became willing to *sacrifice some freedom* for this security
- Markets reward security

Years pass happily fishing halibut, encountering non-target species like rockfish, and in many cases throwing them away. I thought, 'Wow, don't imagine we will be able to do this forever.' Some of my fellow fishermen said there is absolutely nothing wrong with discarding fish. "There is lots of this bycatch stuff." "We wouldn't keep catching it, if there wasn't lots."



We could cap out on all our allowable catch by discarding our overages.

At sea observers began to be deployed on vessels 5-10%

Fishermen found innovative ways and persuasive arguments to avoid taking observers

*"This is a privacy issue and you are violating my human rights"*

*Observer Bias*

*This bought us some time... but*





Many species are encountered



Closed areas and discarded catch are difficult to monitor



This fact did not go unnoticed



Pressure from the environmental community

We needed to prove ourselves sustainable

We needed to integrate the various fisheries

For the first time, fishermen began to understand that we needed more than just a commercial license to fish

*We needed a social license*

The Conservation of Marine Biological Diversity  
and Species Abundance on Canada's West Coast:  
Institutional Impediments

## Groundfish: A Case Study



A Report by Terry Glavin  
for the Sierra Club of British Columbia

# This was no easy task

- It began with a problem (unreported catch and discards)
- We address the problem with a process



7 fishing sectors participated in the process known as the Commercial Industry Caucus (CIC)

We met for 2 to 3 days every month for a year.



- Sablefish
- Lingcod
- Halibut
- Dogfish
- Trawl
- Rockfish (inside)
- Rockfish (outside)

Now I would just assume that I had the maturity to collaborate and problem solve with a group of my peers

The problem is I can't objectively see myself

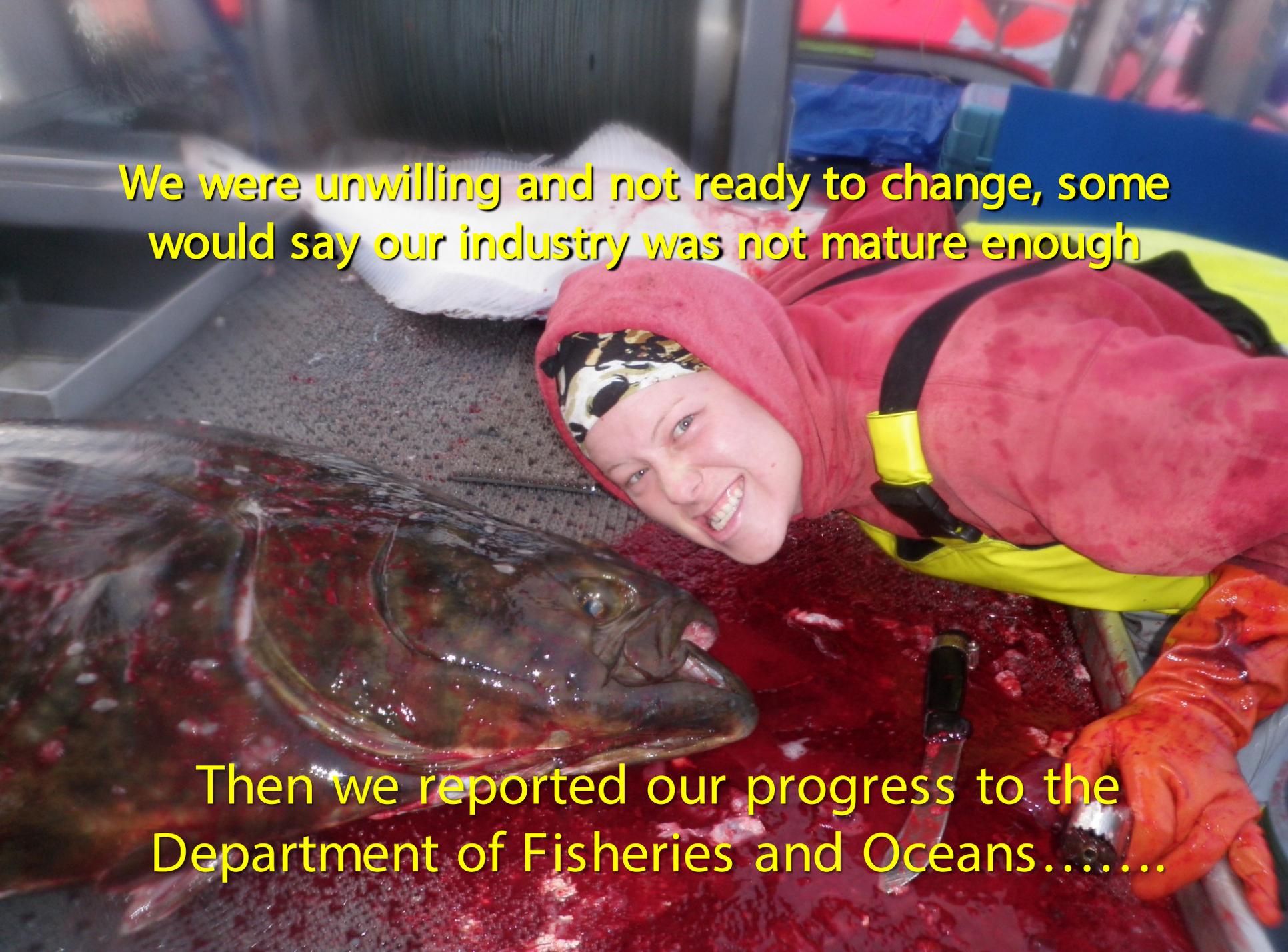
I am an immature, self-centered egomaniac with an inferiority complex

So were many of my peers

We accomplished absolutely nothing

We were unwilling and not ready to change, some would say our industry was not mature enough

Then we reported our progress to the Department of Fisheries and Oceans.....



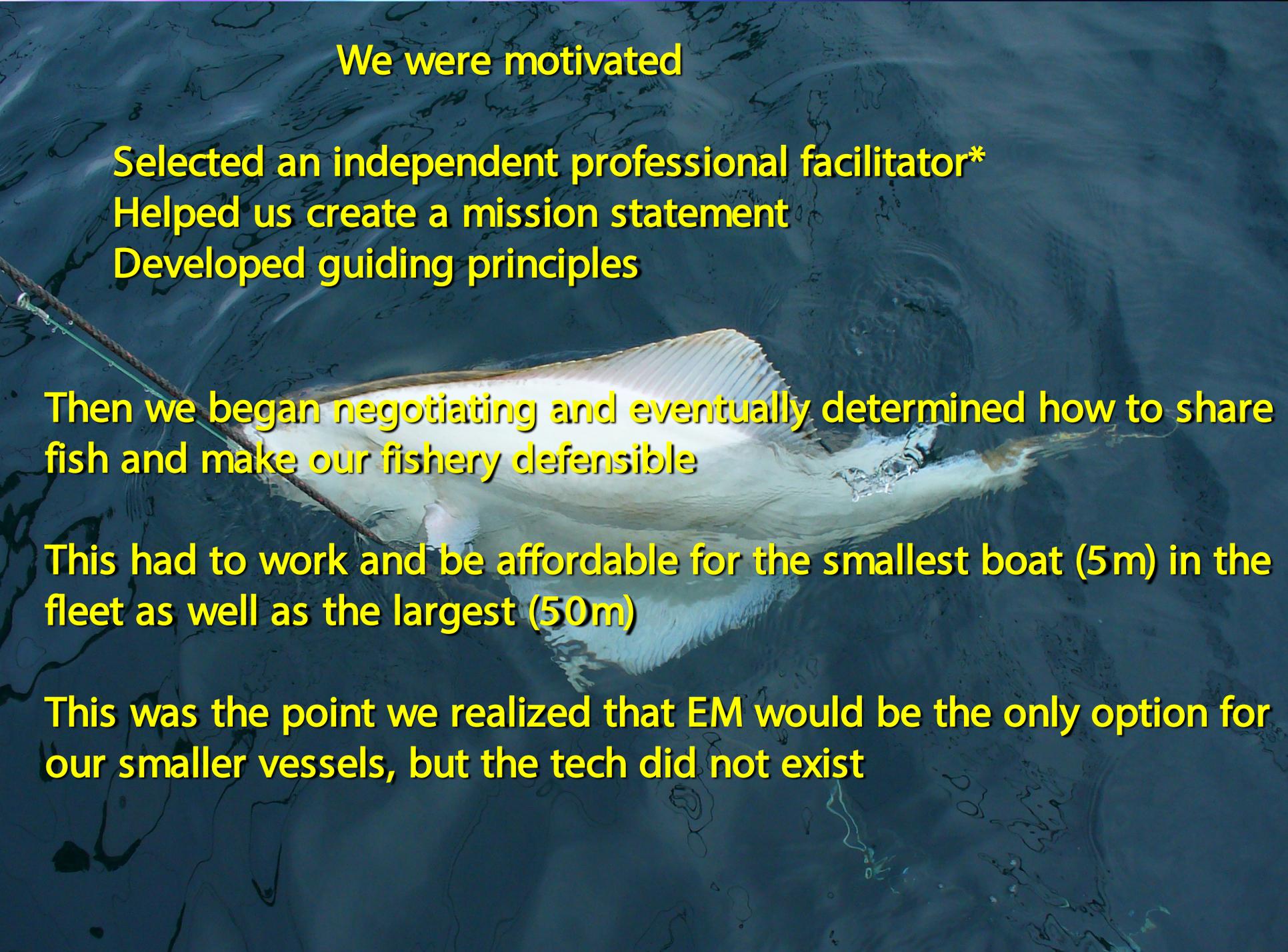
# Ultimatum

1. All rockfish catch must be accounted for,
2. Rockfish catches will be managed according to established rockfish management areas,
3. Fishermen will be individually accountable for their catch,
4. New monitoring standards will be established and implemented to meet the above 3 objectives, and,
5. Species of concern will be closely examined and actions such as reduction of total allowable catch (TAC's) and other catch limits will be considered and implemented to be consistent with the precautionary approach for management.

## OBJECTIVES

....and if we didn't figure it out...they would!! \*

*"Incentive"*



**We were motivated**

**Selected an independent professional facilitator\***

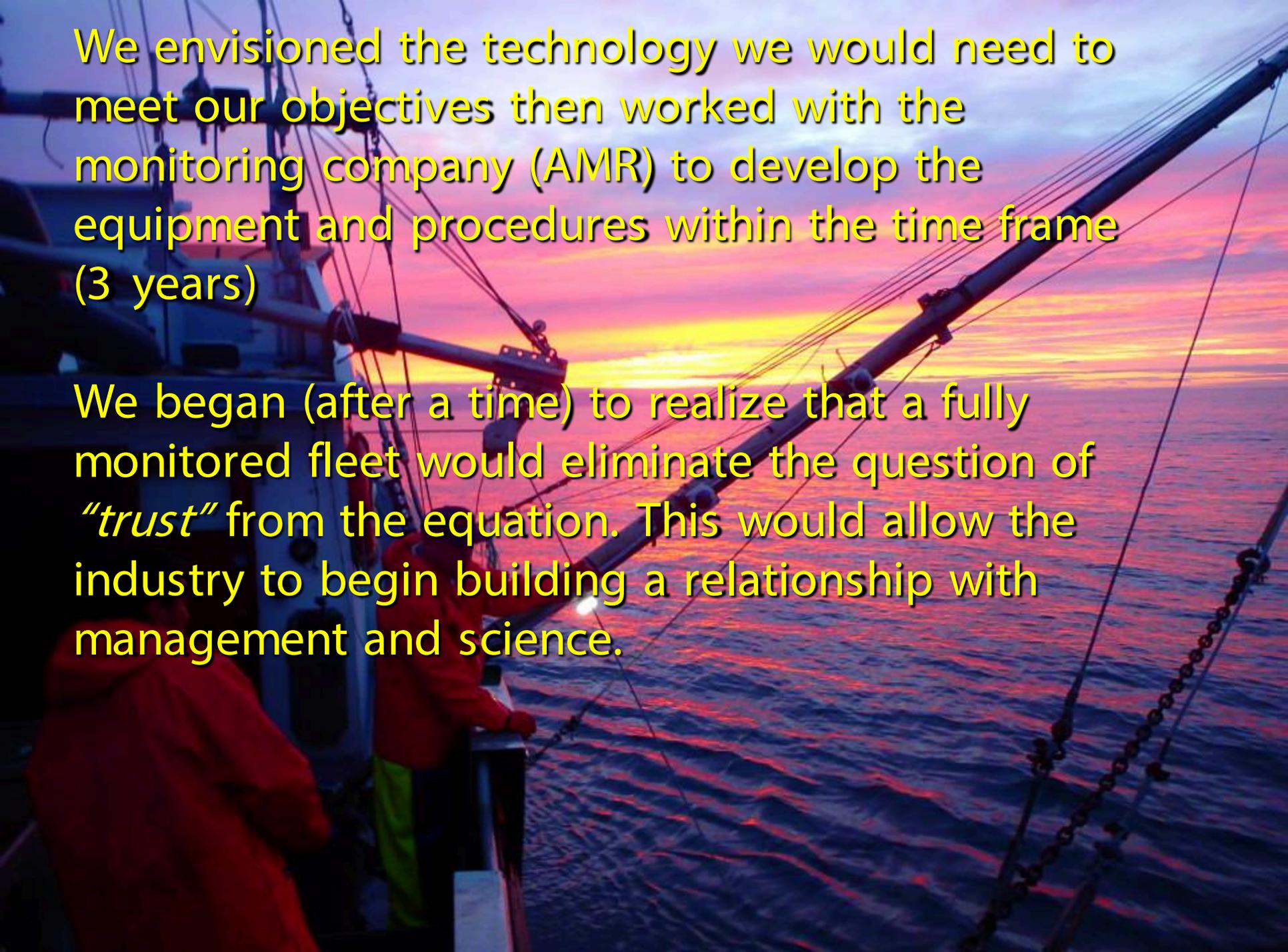
**Helped us create a mission statement**

**Developed guiding principles**

**Then we began negotiating and eventually determined how to share fish and make our fishery defensible**

**This had to work and be affordable for the smallest boat (5m) in the fleet as well as the largest (50m)**

**This was the point we realized that EM would be the only option for our smaller vessels, but the tech did not exist**



We envisioned the technology we would need to meet our objectives then worked with the monitoring company (AMR) to develop the equipment and procedures within the time frame (3 years)

We began (after a time) to realize that a fully monitored fleet would eliminate the question of *"trust"* from the equation. This would allow the industry to begin building a relationship with management and science.

## Fears:

- Not enough of certain species
- Force many fisherman out of the industry
- Too expensive
- Extremely complicated
- Decreased income
- Corporate concentration of low TAC species
- Monitoring equipment problems
- Competitive disadvantage with USA and other non-monitored sectors
- Discourage new/young people from entering the industry

# The Grieving Process

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

In a multi-species fishery if a vessel is catching all it can take there is a very good chance there is discarding. I can no longer do this in a fully monitored fishery

Not being able to cap out on all species was an unacceptable concept for me (denial, anger)

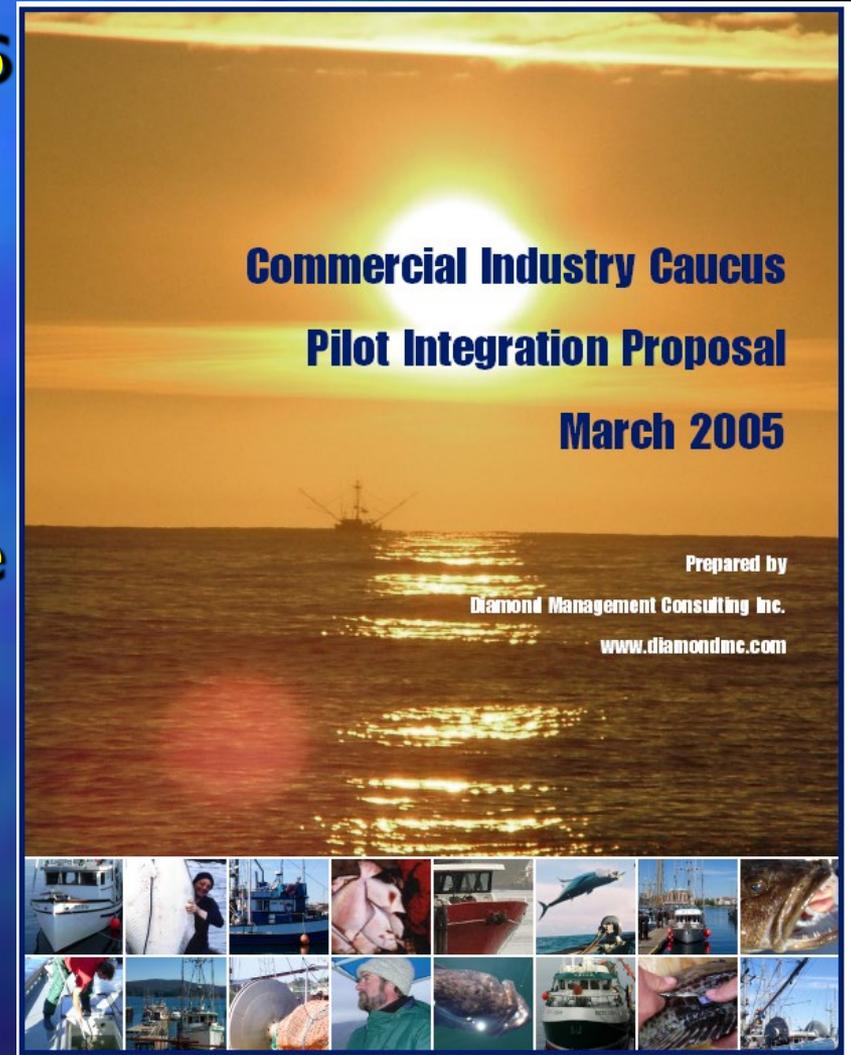
Again we addressed the fears with the rules (bargaining)

We were not sure if we could fish legally and would enforcement officers start arresting honest fishermen making honest mistakes  
We negotiated with the authorities and they agreed to not use the camera footage as an enforcement tool initially



# BC's Integrated Groundfish Fishery

- Pilot Integration April 2006
- 7 fisheries, all with various catches, combined and became fully accountable.
- Over 70 species to manage
- Up to 5 management areas per species



# INTEGRATED GROUNDFISH MANAGEMENT

- 1 management plan
  - Catch shares for all species and vessels
  - each vessel accountable for all catch – whether retained or released
  - Trading of quotas between vessels, gear types, and fisheries
- 
- 100% dockside and at-sea monitoring



# There is one logbook for all vessels

|                       |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
|-----------------------|--|--|-----------|---|-----------|----------------------|-----------|--------------------|-----------|------------------|-----------|----------------------|-----------|----------------|-----------|--------------------|-----------|----------|--|
| YEAR: 2 0             |  | INTEGRATED GROUND FISH FISHING LOGBOOK |           |   |           |                      |           |                    |           |                  |           | 27                   |           |                |           |                    |           |          |  |
| Vessel:               |  |  |           | FTCN: [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] |           |                      |           | DATE: _____        |           |                  |           |                      |           |                |           |                    |           |          |  |
| VRN:                  |  |  |           | GEAR ID   |           |                      |           | HOOK/TRAP          |           |                  |           | ESCAPE RING          |           |                |           |                    |           |          |  |
| Captain:              |  |  |           |   |           |                      |           | Type               |           | Size             |           | Spacing              |           | # per skate    |           | # per trap         |           | Diameter |  |
| FIN:                  |  | # of Crew:                             |           | Trip #:   |           | A                    |           |                    |           | B                |           |                      |           |                |           |                    |           |          |  |
| Tab #1:               |  | Tab #2:                                |           | C   |           |                      |           | D                  |           |                  |           |                      |           |                |           |                    |           |          |  |
| Hail Out #(s): /      |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Hail In #(s): /       |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Target Species:       |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Bait Spp.             |  | Spp. Wt.                               |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Bait Spp.             |  | Spp. Wt.                               |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Set/Haul              |  | Set #                                  |           | Haul #  |           | Set/Haul             |           | Set #              |           | Haul #           |           | Set/Haul             |           | Set #          |           | Haul #             |           |          |  |
| Gear/Skate Details    |  | ID                                     |           | # Set   |           | # Lost               |           | Gear/Skate Details |           | ID               |           | # Set                |           | # Lost         |           | Gear/Skate Details |           |          |  |
| Catch Area (GMU)      |  |  |           | Catch Area (GMU)                                      |           |                      |           | Catch Area (GMU)   |           |                  |           | Catch Area (GMU)     |           |                |           |                    |           |          |  |
| Set Start Date/Time   |  | (mm/dd)                                |           | (hh:mm)   |           | Set Start Date/Time  |           | (mm/dd)            |           | (hh:mm)          |           | Set Start Date/Time  |           | (mm/dd)        |           | (hh:mm)            |           |          |  |
| Haul Start Date/Time  |  | (mm/dd)                                |           | (hh:mm)   |           | Haul Start Date/Time |           | (mm/dd)            |           | (hh:mm)          |           | Haul Start Date/Time |           | (mm/dd)        |           | (hh:mm)            |           |          |  |
| Haul End Date/Time    |  | (mm/dd)                                |           | (hh:mm)   |           | Haul End Date/Time   |           | (mm/dd)            |           | (hh:mm)          |           | Haul End Date/Time   |           | (mm/dd)        |           | (hh:mm)            |           |          |  |
| Set Start Lat         |  | . . . . .                              |           | . . . . .   |           | Set Start Lat        |           | . . . . .          |           | . . . . .        |           | Set Start Lat        |           | . . . . .      |           | . . . . .          |           |          |  |
| Set Start Long        |  | 1 . . . . .                            |           | . . . . .   |           | Set Start Long       |           | . . . . .          |           | 1 . . . . .      |           | . . . . .            |           | Set Start Long |           | . . . . .          |           |          |  |
| Set End Lat           |  | . . . . .                              |           | . . . . .   |           | Set End Lat          |           | . . . . .          |           | . . . . .        |           | Set End Lat          |           | . . . . .      |           | . . . . .          |           |          |  |
| Set End Long          |  | 1 . . . . .                            |           | . . . . .   |           | Set End Long         |           | . . . . .          |           | 1 . . . . .      |           | . . . . .            |           | Set End Long   |           | . . . . .          |           |          |  |
| Depth in fathoms      |  | Start                                  |           | Min   |           | End                  |           | Max                |           | Depth in fathoms |           | Start                |           | Min            |           | End                |           | Max      |  |
| Species Name          |  | Retained                               |           |   | Released  |                      |           | Species Name       |           | Retained         |           |                      | Released  |                |           |                    |           |          |  |
|                       |  | Weight                                 | Pieces    | Bait  | Weight    | Pieces               | Liced     |                    |           | Weight           | Pieces    | Bait                 | Weight    | Pieces         | Liced     |                    |           |          |  |
| Halibut - Legal       |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Halibut - Legal    |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Halibut - Sub-L       |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Halibut - Sub-L    |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Sablefish - Legal     |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Sablefish - Legal  |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Sablefish - Sub-L     |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Sablefish - Sub-L  |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Lingcod - Legal       |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Lingcod - Legal    |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Lingcod - Sub-L       |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Lingcod - Sub-L    |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Dogfish - Mark.       |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Dogfish - Mark.    |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Dogfish - UnMark.     |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | / / / / /            | / / / / / | Dogfish - UnMark.  |           | / / / / /        | / / / / / | / / / / /            | / / / / / | / / / / /      | / / / / / |                    |           |          |  |
| Species Name          |  | Pieces                                 | Bait      | Pieces  | Liced     | Species Name         |           | Pieces             | Bait      | Pieces           | Liced     | Species Name         |           | Pieces         | Bait      | Pieces             | Liced     |          |  |
| Yelloweye             |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Yelloweye            |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Yelloweye            |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Quillback             |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Quillback            |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Quillback            |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Rougheye              |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Rougheye             |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Rougheye             |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| SS Thornyhead         |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | SS Thornyhead        |           | / / / / /          | / / / / / | / / / / /        | / / / / / | SS Thornyhead        |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Redbanded             |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Redbanded            |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Redbanded            |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Big Skate             |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Big Skate            |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Big Skate            |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Longnose Skate        |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Longnose Skate       |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Longnose Skate       |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Turbot                |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Turbot               |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Turbot               |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Pacific Cod           |  | / / / / /                              | / / / / / | / / / / /   | / / / / / | Pacific Cod          |           | / / / / /          | / / / / / | / / / / /        | / / / / / | Pacific Cod          |           | / / / / /      | / / / / / | / / / / /          | / / / / / |          |  |
| Tagged Fish/Tag #(s): |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| IPHC USE:             |  |  |           | Collected by:   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |
| Comments:             |  |  |           |   |           |                      |           |                    |           |                  |           |                      |           |                |           |                    |           |          |  |

Logbooks are audited against video footage and then compared to the offload

Fishermen's logbooks are being use in science and management (we can trust the data now)

At-sea data provides information on total catch mortality (retained and released)

To reduce cost 10% of fishing events are randomly audited

# WHAT ARE THE BENEFITS?

- Markets
- Managers
- Resource
- Safety
- Enforcement
- Science ( Data and more comfort changing management measures)
- Seafood certification
- *New jobs (monitoring)*
- *Evidence of fleet and fish pattern changes (Data access)*
- *Opportunity for exclusive access*
- *Improved cooperation among fishermen\**
- *Selectivity\**
- *Moral high ground*



- We now can retain all species caught and account for all species discarded
- B.C. fishermen now lead by example in conservation (our efforts were not conditional on something or someone else changing)
- Individual accountability and monitoring can eliminate illegal fishing activities

# Everything sounds wonderful

No part of this was easy

It was a process that took time, was inclusive, with much give and take from all involved. Fishermen sacrificed their freedom, time and money, scientists adjusted quotas and mortality variances, and managers adjusted rules. Back and forth...

We continue to contend with the  
*"Law of unintended consequences"*

Here are some of the things we have learned



# How did we facilitate change

Define the objectives (providing rationale for them)

Identify participants

Begin a consultative process

Every fishery will have a different design to address specific problems and concerns

With enough *"incentive"* any problem can be solved



# PROCESS/PRINCIPALS

**Initially, only a fishermen can talk to a fishermen**

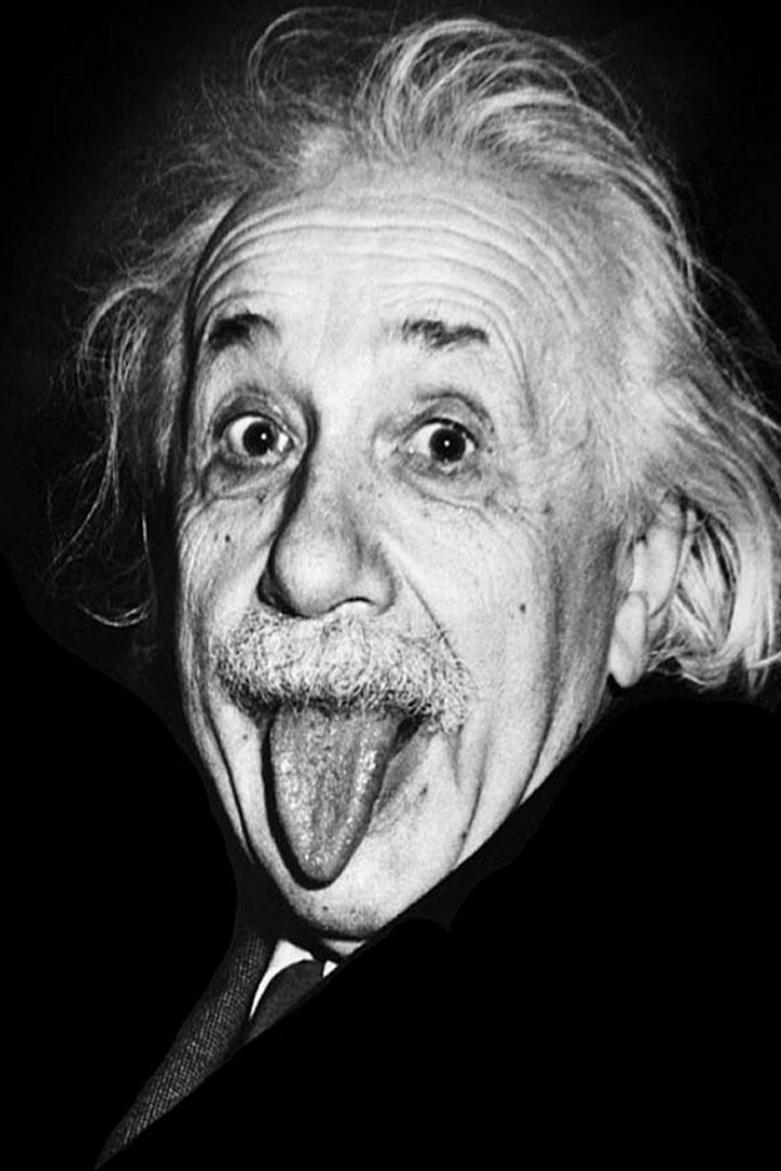
1. Involve the stakeholders (Involvement is the key to commitment. Without involvement, there is no commitment)
2. Impose a deadline (the work expands to fill the time allocated for its completion)
3. Allow the process to determine the roadmap to the objectives
4. Continually re-visit the objectives
5. Trust the process. The process is as important as the outcome (the right answer too soon is the wrong answer)

“ WE CANNOT SOLVE  
**OUR PROBLEMS** WITH  
THE SAME THINKING WE  
USED WHEN WE  
CREATED THEM. ”

ALBERT EINSTEIN



[thebestlifequotes.com](http://thebestlifequotes.com)



The five most important components of this fishery are

1. Elimination of the race for fish
2. Individual Accountability
3. Transferability
4. An innovative dynamic advisory body
5. Monitoring



This fishery works because of how these components compliment each other and how everyone worked together to achieve them.



# MOVING FISH

Transferability is an important feature of the management system – supports selective fishing, staying within allocations and allows industry to adjust to resource and market dynamics.

Vessels are allowed to carryover between years some level of quota underage and overages

***–This encourages vessels to fish under their allocation***

***Although this is the most controversial***

# Governance/ Co-management

- We make mistakes, mistakes are how we learn. We have a dynamic environment in which stakeholders seek ways to improve conditions, this leads to continued evolution.
- We have an advisory body, made up of stakeholders that *will never* be a decision-making authority
- Because of the relationship developed over time, it is so respected by decision makers, that almost all suggestions presented by the advisory body are implemented

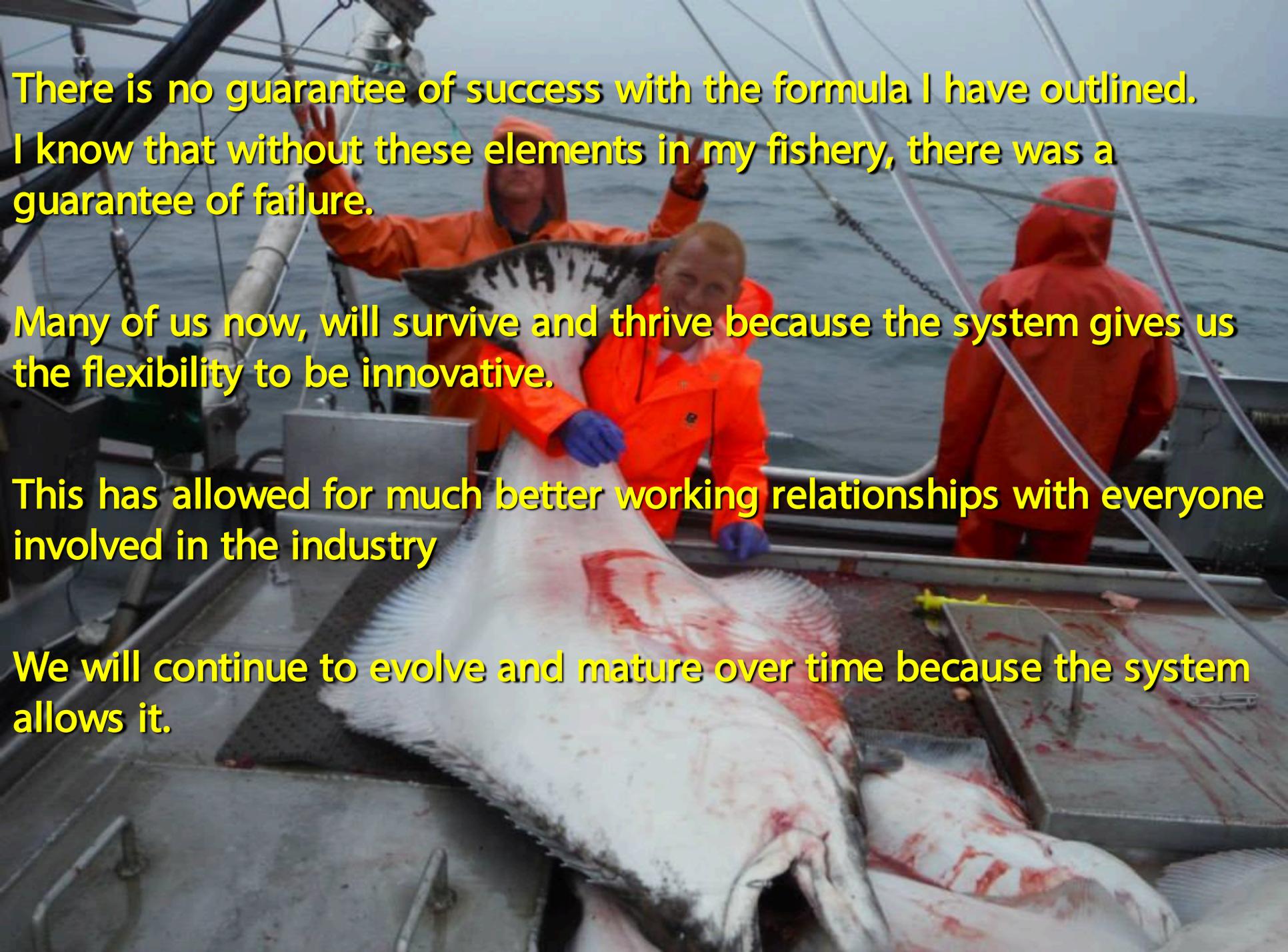
*TRUST*

There is no guarantee of success with the formula I have outlined. I know that without these elements in my fishery, there was a guarantee of failure.

Many of us now, will survive and thrive because the system gives us the flexibility to be innovative.

This has allowed for much better working relationships with everyone involved in the industry

We will continue to evolve and mature over time because the system allows it.

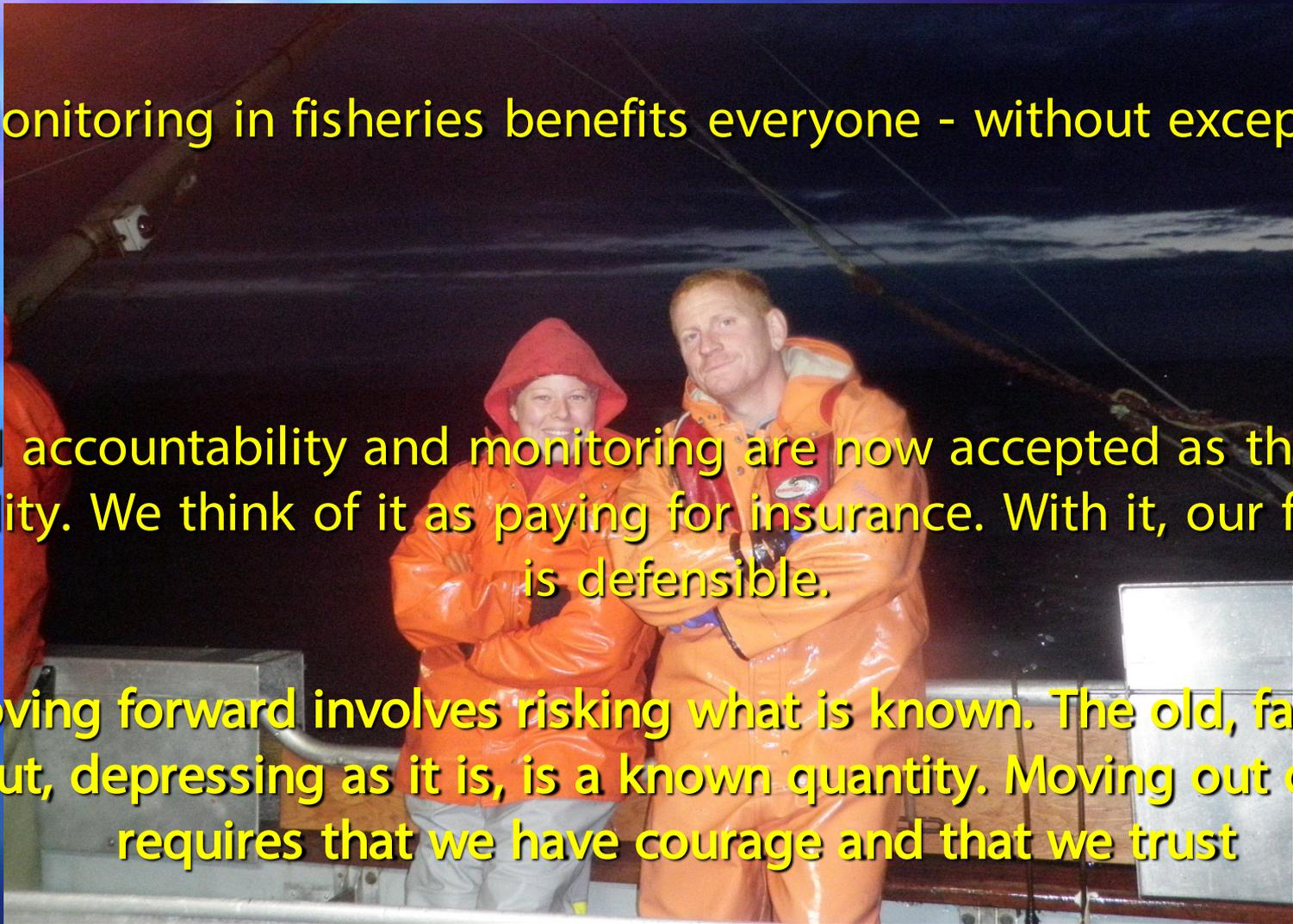


Monitoring in fisheries benefits everyone - without exception

Full accountability and monitoring are now accepted as the new reality. We think of it as paying for insurance. With it, our fishery is defensible.

Moving forward involves risking what is known. The old, familiar rut, depressing as it is, is a known quantity. Moving out of it requires that we have courage and that we trust

Today I am grateful that we decided to live in the solution rather than exist in the problem



# 'Rest on one's laurels'?

To be satisfied with one's past success and to consider further effort unnecessary.





# The story is not over

Shared benefits for boat, crew and quota owner

Expanding monitoring in the factory trawl fleet

Cooperation and allocation with other sectors and countries

We can be proactive

A photograph of several men in business suits and shirts talking at an outdoor event. In the background, there are trees and a gazebo. The text is overlaid in yellow on the image.

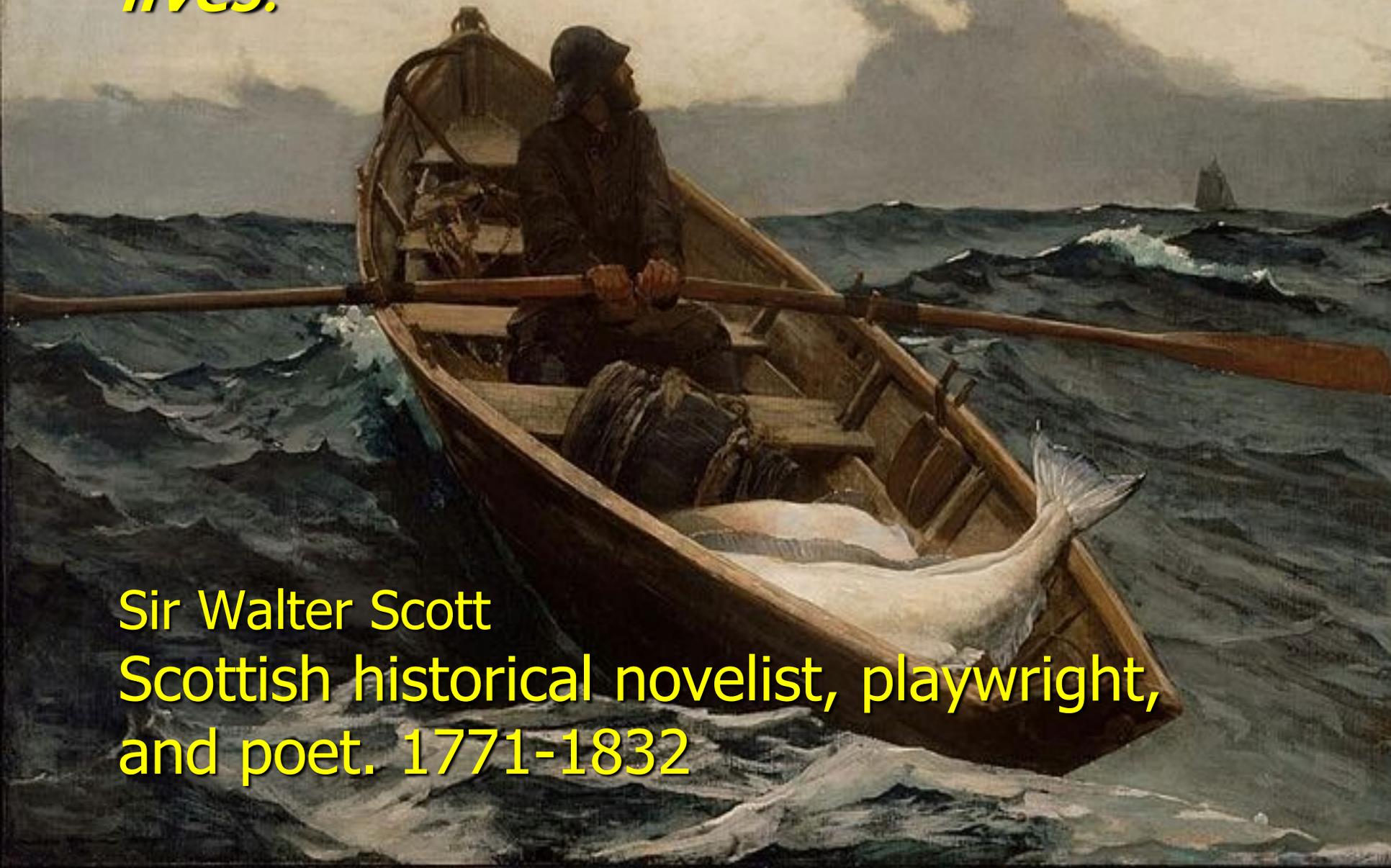
This story is unique

The principals are universal

We have matured over time from dependence to independence to interdependence

We could not have achieved this without vision, leadership and cooperation

*It's not fish ye're buyin, it's men's  
lives.*



Sir Walter Scott  
Scottish historical novelist, playwright,  
and poet. 1771-1832

THANK YOU