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**EMPOWERING DOMESTIC ARTISANAL FISHERS  
INTO BECOMING A SOUND ALTERNATIVE TO  
DISTANT-WATER FISHING VESSELS**

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# INTRODUCTION

Small-scale fisheries (per FAO, 2013):

- Generate income and employment for more than 90 % of the world's capture fishers and associated shore-workers (about half of whom are women),
- Provide food (for local, national, and international markets) by contributing almost half of global fish catches— $\frac{2}{3}$ <sup>rds</sup> of the fish destined for direct human consumption, and
- Make important contributions to nutrition in the form of high quality protein and minerals.



# INTRODUCTION (Cont'd)

- Many developing nations lack the technical expertise, capital base and experience to exploit their off-shore, deep-water fisheries.
- Per Article 62 of the United Nations Convention on the Law of the Sea; UNCLOS III, such nations must allow entry to foreign distant-water-fishing vessels (DWFVs).



# INTRODUCTION (Cont'd)

- This Presentation discusses:
  - ☑ Why Coastal Developing Nations (CDNs) should be enabled to re-exert local control over the mid-to-deep-water fish stocks in their Exclusive Economic Zones (EEZs).
  - ☑ Success in creating “right-tech” for CDN artisanal fishers.
  - ☑ The benefits, risks, and unintended consequences that may arise from releasing that “right-tech”.
  - ☑ Suggestions for how to optimize the benefit/risk mix via local-community control over the resulting fisheries.



# DISTANT-WATER FISHING (DWF)

- Has been a source of political and social instability throughout much of the 20<sup>th</sup> Century.
- Is a phenomena of Emerging Nations:
  - Developing Nations tend to not have enough technology, capital, and/or expertise to project fishing power into distant waters, and
  - Developed Nations usually have wage costs that are too high and find it cheaper to buy the fish.
- In the first quarter of the 21st century, DWFV issues are dominated by China, S. Korea, and Taiwan.



# DISTANT-WATER FISHING (Cont'd)

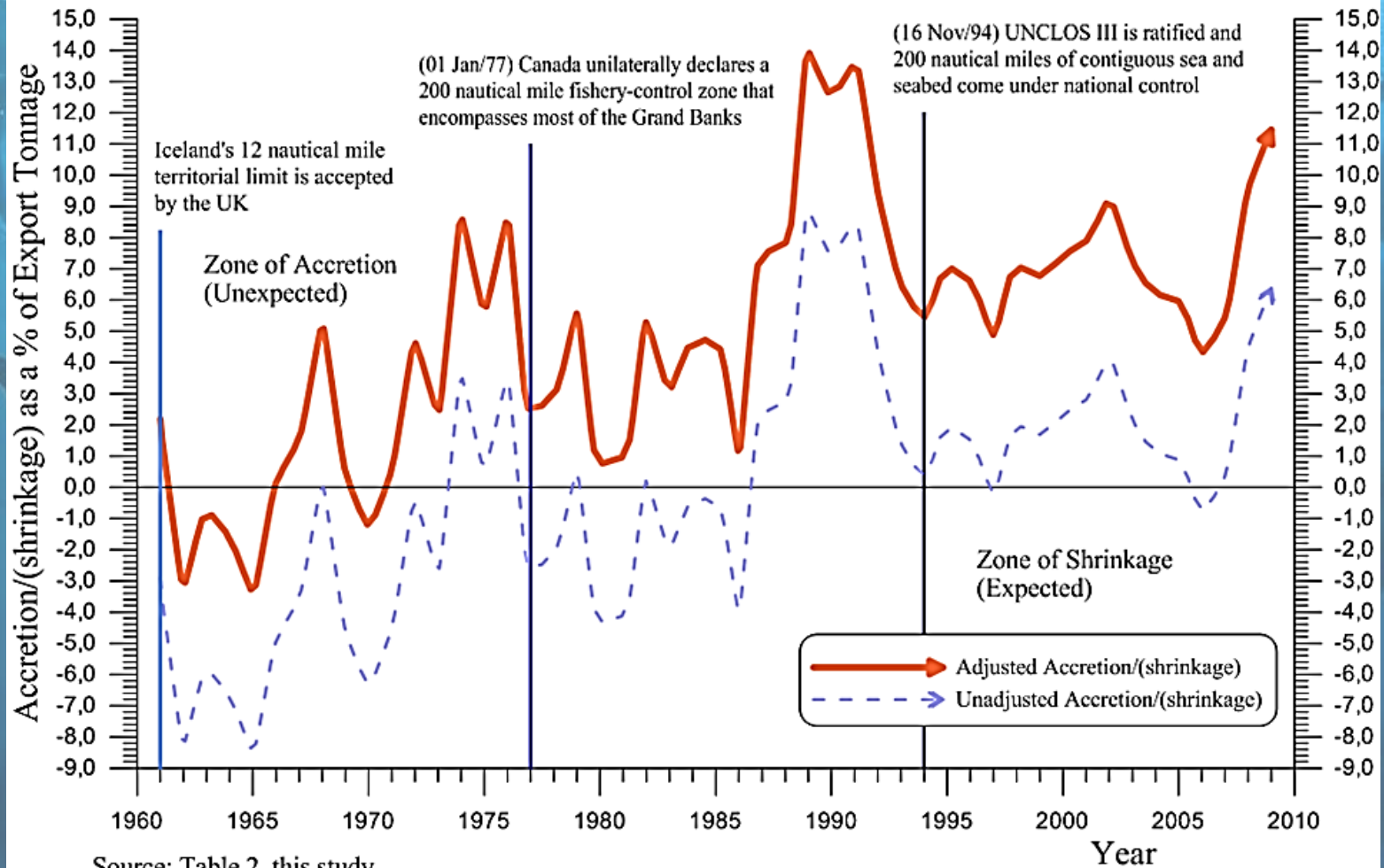
- DWF fleets have long been accused of a callous disregard for the environment, fish stocks, and the rights of other nations (e.g. non-reporting or under-reporting of landings and fishing without permission in the EEZs of other nations).
- The truth and magnitude of the reality driving these accusations are open to debate.
- However, for most of the last 50 years, the world fish imports significantly exceeded world fish exports leaving interesting questions as to source of the surplus fish.



# DISTANT-WATER FISHING (Cont'd)

- Handling, storage, processing, etc. should lead to shrinkage rather than accretion.

Figure 3: Accretion/(shrinkage) of World Exported Fish Products (1961-2009)



Source: Table 2, this study



# DISTANT-WATER FISHING (Cont'd)

- It is very interesting that before and after nations gain greater sovereignty/control over fish stocks, the unprovenanced fish leakage into the world-fish-supply chain tends to greatly decline, but only for a while.
- Today, Global "...losses due to Illegal, Unreported, and Unregulated (IUU) ... fishing are estimated to be between US\$10 billion and US\$23.5 billion per year."
- Much of this loss accrues to small fishing villages in developing nations.



# PROJECT OBJECTIVES (Cont'd)

- In order to increase coastal nation sovereignty over their mid-to-deep-water fish stocks, we developed a means of enhancing long-line gear.
- The first stage of the project focused on crafting a fishing technology to empower artisanal fishers with small-to-medium-sized vessels to cost-effectively fish mid-to-deep-water fish stocks.
- “Right-tech” is using a technology that can be made, used, adapted and maintained in most Developing Nations and reduces the creation of a high-tech dependency on Developed Nations.



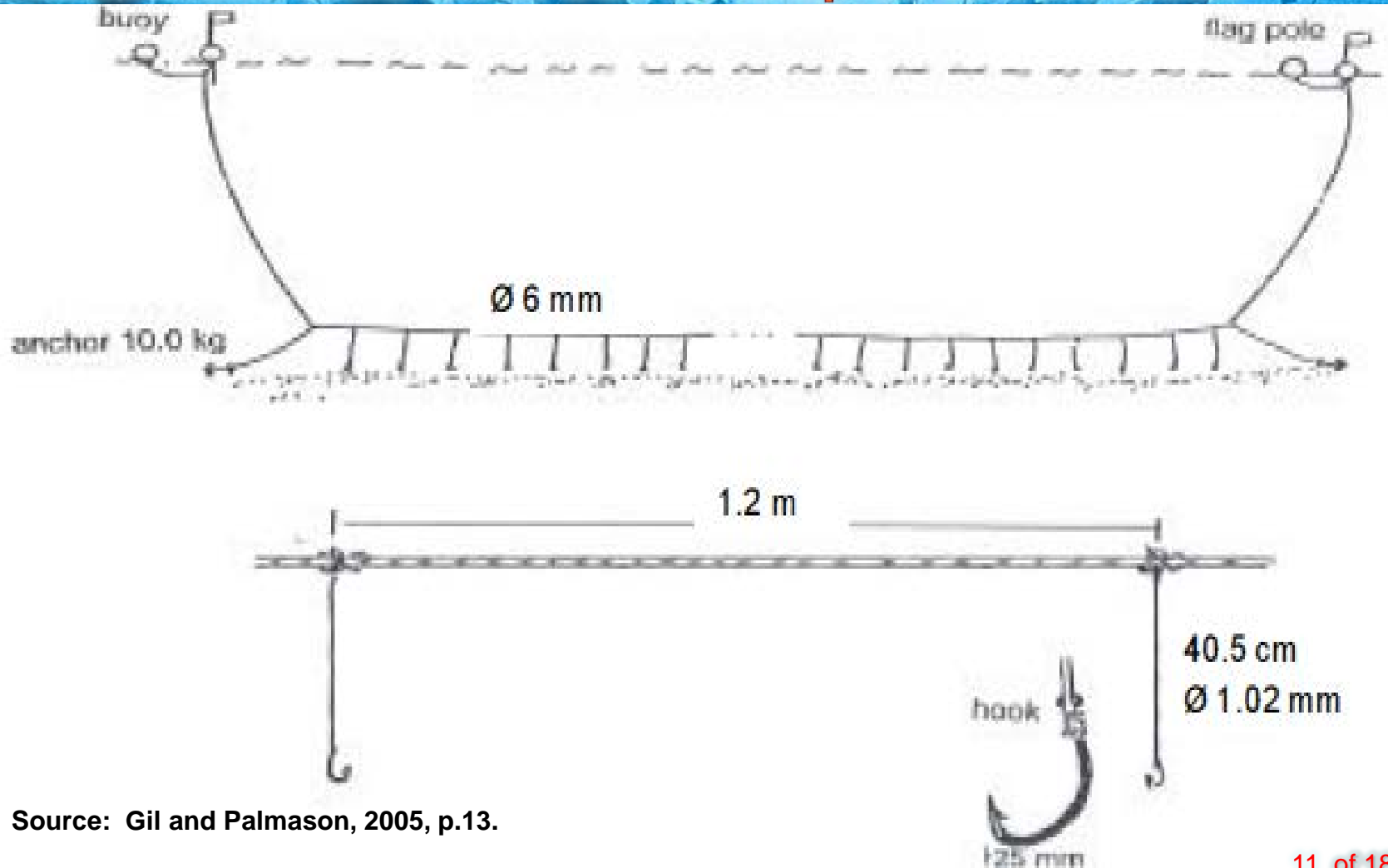
# PROJECT OBJECTIVES (Cont'd)

- Why long line gear? It has a much smaller environmental footprint than trawlers – especially for deep-water longlining.
- The new technology is also likely to work well with traps – another environmental low footprint gear type.
- After multiple field trials and adjustments, the new technology increased longline-vessel fishing power by 6-to-7 fold, caught more valuable fish species, and increased the fishing depth from 100 to 400 metres.



# PROJECT OBJECTIVES (Cont'd)

Figure 2: Depiction of a bottom-pattern long-line setting with a monofilament main line set above the bottom and multifilament side lines set to drop to the bottom



Source: Gil and Palmason, 2005, p.13.



## It's Not All Good (Cont'd)

- Peer's Law – The solution to the problem, changes the problem.
- New technologies create new capabilities that along with benefits bring problems.
- The new capabilities give small to medium fishing boats access to mid-to-deep-water fish stocks and that brings:
  - More wealth, more fishing and processing jobs, better diet and a potential for foreign currency.
  - A potential for fisheries management and service jobs along with education opportunities.
  - But all of the above can be put at risk if access to the fish stocks is not adequately controlled.



## It's Not All Good (Cont'd)

- Specifically, overfishing from too many fishers, over-investment in fishing power (e.g. bigger and better fishing boats) can dissipate all of the potential rent gains and leave the fishers and their villages worse off.
- This is an old, contentious and well-debated issue: *Who should own and/or manage the fish stocks and for whose benefit.*
- What is new and very rare is that access to these fish stocks is, in terms of local fishers, new and there are no established rights.



# It can be All Good

- The cost-effectiveness of the new fishing technology is not a concern:
  - In traditional fishing grounds, it increases the fishing power of longline vessels by 6-7 fold and increases the value of the fish caught,
  - It increases the depths that can be fished and opens-up new fish stocks for exploitation (currently from 100 to 400 meters and new tests will push at depths of 1,500 meters)
  - The expanded capacity of the small-to-medium boats will enable artisanal fishers to displace distant-water fishing vessel and their very environmentally unfriendly trawl gear.



## It can be All Good (Cont'd)

- However, the benefits need to be protected by finding the best owners/managers for the extended and expanded fishers.
- There is extensive debate about local villages being the best owners/managers in that they:
  - Have a long-term stake in the fishery being viable and prosperous,
  - Have children, spouses and other close family members earning a living from those fisheries,
  - Are very close to the fisheries, and
  - (And their relatives) will suffer if the fisheries are mismanaged into depletion.



# Conclusions

- We have developed a new and powerful fishing technology,
- If properly managed, its introduction can provide enormous benefits,
- Security and peace are among the benefits in that a more prosperous world can be a safer world (e.g. fewer fishers turning to piracy),
- Local ownership of the fishery is the key to the successful introduction and management of this technology, and



## Conclusions (Cont'd)

- Distant-water-fishing nations will be clear losers in this process, but their rights have always been based on the inability of coastal developing nations to exploit mid-to-deep-water fish stocks in their EEZ.
- The *Genie is out of the bottle* – this new fishing technology cannot be undiscovered.
  - The issue is how to optimize its quanta and distribution of benefits and ameliorate and compensate any associated harm.
  - Alternatively, the technology can be left to spread uncontrolled and to hope for the best.





*Thank you for*



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&  
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