Development of ecological sustainable fisheries practices in the Benguela Current Large Marine Ecosystem (ECOFISH)

Incorporation of stakeholders’ knowledge in data collection and analysis

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Case 1: Namibia – Hake
Case 2: Angola - Sardinella & horse mackerel

EAF

Ecological Wellbeing  Human Wellbeing  Ability to achieve

social & economic objectives and indicators

Fletcher et al. 2002, FAO 2005
• Shallow water hake *Merluccius capensis*

• Deep water hake *Merluccius paradoxus*

• Stocks declining (hake MP 2011, Kirchner 2010)

• Fishery not fulfilling economic expectations (Sherbourne 2010, Kirchner 2010)
Kirchner 2010
Outline

• Methods
• Brief history
• Results from interviews with fish plant workers
• Current knowledge gaps
• Results from LEK interviews with Fishers
• Conclusion
Approach and Methods
Local Knowledge in the Namibian hake fishery

Mixed Methodology:
• archival research
• interviews with
  – fish plant workers
  – trawl and longline skippers
  – fleet managers
  – factory managers
  ▪ audio recorded, transcribed and analysed (Nvivo)
Historic overview

- German colonial rule ends
- Small pelagic fishery established
- Distant water fleets arrive
- SA Factory vessels deployed
- ICSEAF has no Namibian participation
- UN revoke SA mandate
- Namibian Independence
- Rock lobster fishery collapses
- Hake population 50% reduced
- Small pelagic fishery collapses

(Paterson & Kirchner in prep.)
Post Independence Restructuring

- 1990 restructuring into a locally based fishery
- 200 mile EEZ
- Resource management focus on stock rebuilding
- Conservative catch limits soon increase

Source: Kirchner 2010
processing plant workers

22 plant workers from 3 hake processing plants participated conversations were held at the plants, audio recorded and transcribed
The current situation

- employment statistics are high, quality of employment is low
- resource depressed (Kirchner 2010)
- industry over-capacity (Kirchner 2010, Sherbourne 2010)
- Low resource rents & revenues (Kirchner 2010)
- ecosystem structure altered (Roux & Shannon 2004)
Knowledge gaps

• conflicting abundance estimates hide stock decline (van der Westhuizen 2001)

• Stock assessment
  – not species specific
  – cannot address effort creep

• Fish behaviour affects catchability
local ecological knowledge

• monitoring temperature (surface & bottom)
  – indicator to locate fish
  – indicator to predict fish movement
  – Influences quality of the catch

• Migration of hake in the water column
  – Vertical migration of M. capensis
  – Good night fishing in the deep (M. paradoxus)

• water colour
  – “the fish disappears but you get the same amount of monk, you get the same amount of soles, but the fish is gone”

• Wind direction & force
  – affects catchability (area specific differences)
  – Influences movement of hake

• Bycatch
  – Fishers are able to identify and map areas
Technological changes

• Lines are less noticeable to fish
• Length of longline doubled (9-15mi to 18-27mi)
• Number of fishing lines increased (320-400 to max 800)
• Use of swivels: 20% catch-rate increase
• Net openings increased (3.6m/4m – 12m)
“Some areas haven’t seen fish for quite a while .. so we’re passing through those areas without even wetting our nets“. (trawl skipper)
Different types of hake: trawlers

M. paradoxus
• “white hake”
• caught @ > 360m depth
• lighter and firmer flesh
• fewer blood clots
• easier to fillet
• less waste

M. capensis
• “black hake”
• caught @ 200-360m depth
• darker, softer flesh
• blood clots

“White fish” = hake
“White hake” = M. paradoxus
Different types of hake: longline

• White capensis
  – Preferred
  – Small head
  – Light colour
  – Prime quality
  – caught @ shallow parts of “the wall”

• Brown capensis
  – Similar to white capensis
  – Darker colour
  – caught @ deeper parts of “the wall” near Luderitz

• Black capensis
  – Dark fish
  – Long slender
  – Different length/weight ratio
  – Lesser quality
  – caught north of Walvis Bay

White, brown and dark capensis fetch different prices on the market
Conclusion

- Social & ecological goals should not compete
- We need to understand how the social & ecological parts interact
- Need to bring stakeholders to the table