NZ and Regional Global Trends: Innovation, Production & Development

Basil Sharp
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Outline

- Deal only with capture fisheries
- Brief overview of NZ and regional trends
- Sources of innovation
- Present overview of evidence of innovation in a NZ fishery
- Concluding thoughts on future challenges
World Capture Production

Source: FAO
% World Catch by FAO Region

Source: FAO
Eastern Indian Ocean

Source: FAO
Pacific Eastern Central

Source: FAO
Pacific Southwest

Source: FAO
New Zealand’s Production

Source Ministry of Fisheries

NB: data not in real terms
General Observations on Global Developments

- Twin problem in capture fisheries remain:
  - harvesting at unsustainable levels – low quality governance
  - problem of over capacity – supported by subsidies
- Massive increase in supply from aquaculture but expected to taper off in some areas.
- Governance and policy remains largely focused on input controls and subsidies.
- Sensitivity of demand for seafood varies across products e.g. demand for shellfish relatively more sensitive to price, but in general appears to increase with income.
General Observations on New Zealand’s Competitive Position

- Bulk of harvest enters competitive markets where we are price takers
  => Need for harvest + product innovation
- Institutional foundations are more robust than our competitors.
  - Progress toward sustainable fisheries
  - Opportunity to devolve management
  - Offers opportunity and scope for leveraging investment locally and offshore
- Latent potential of aquaculture yet to be fully tapped.
Evidence of Innovation in NZ

• Institutional Foundations
  QMS has worked to foster innovation by
  – signaling inefficiencies and potential
  – Reduces uncertainty around investment
  – Fosters continuous change
  – Impetus rests with industry
  – Levels playing field

• Government and innovation
  – Evidence of direct government involvement (in NZ’s past and currently overseas) is not encouraging
  – Best suited to provide fundamental institutional structures and let industry innovate from this foundation
Economic Evidence of Innovation in NZ

- Organizational structures
  - Dynamic environment: amalgamation, quota associations, entry of Maori into fishing
- Process and product innovation
  - Process: allocate input mix so as to lower average cost
  - Product: invest in product beneficiation that enhances consumer demand
  - Expect to observe complementary innovation
Empirical Evidence

- Case study of Rock Lobster:
  - In general:
    - Estimates of vulnerable biomass show signs of improvement
    - Overall TACC has not increased
    - Percentage of TACC harvested increased
Rock Lobster Fleet

Number of vessels


- Number of vessels decreases over time from approximately 700 in 1989-1990 to 200 in 2002-2003.
Change in Seasonality

![Graph showing change in seasonality from 1990-1991 to 2002-2003 for November and June.]
Efficiency Gains

- Capital-labour ratio doubled
- Average output increased
- Labour units decreased
- Output per labour unit increased by 70%
- Examined production efficiency at two points in time
  - 1993 and ten years later in 2002
- Industry has produced strong efficiency gains
  - As a group, the mean level of efficiency has increased (significant) and the variance of inefficiency decreased.
  - Measured in terms of cost reduction, the annual average rate of gain is about 3-4%.
Conclusions

- Regional trends show production from capture fisheries leveling off with some variability.
- Incentives to innovate well-aligned in NZ
- Empirical evidence of innovation at least in harvesting sector.
- Future challenges:
  - organisational innovation – business “design”
  - adding value to output
  - prevention of rent dissipation with allocation of Settlement rights