

The impacts of the adoption of ITQs in the Tasmanian fishery for rock lobster (*Jasus Edwardsii*)

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Ifremer

Outline

- I. Context: the growing debate on access regulations in fisheries and the expected impacts of ITQs
- II. A case study: the Tasmanian rock lobster fishery
- III. Assessing the impacts of adopting ITQs in the fishery: first empirical results

I - Context: the growing debate on access regulations in fisheries

Fish = common pool resources → "race to fish"

- overcapacity, economic inefficiency
- competition, conflicts
- depletion of fish stocks

Typology of management measures

1. **Conservation of resource**: preservation of productive / reproductive capacity of stocks (and habitats)
2. **Regulation of access to resource**: Allocation of this capacity among harvesters

I - Context: the growing debate on access regulations in fisheries

The problem is recognized internationally

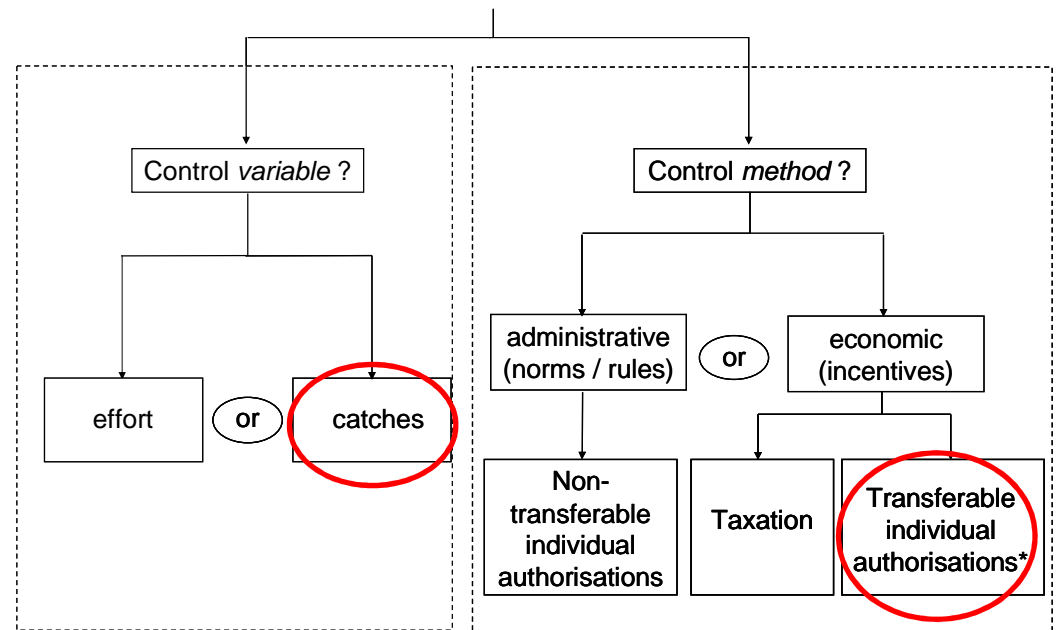
"The topic of allocation - how to share, portion, allot, distribute - is at the heart of any and all efforts around the world to manage fisheries.

There is worldwide recognition that the question of how to share limited fisheries resources must be addressed and that this means finding ways of determining who can catch what.

These are sensitive decisions, but there is growing recognition in both the private and public sectors that the longer fishing communities and fisheries managers avoid allocating fishing rights, the greater the risk of making decisions that, ultimately, do not lead to fisheries that are as healthy or as sustainably utilized as they could be"

(FAO, 2007. SOFIA, p85).

Alternative approaches to access regulation



* So-called « rights-based management »

ITQs

Country	Limited licences	Effort / vessel	Territ. Use Rights	Transferable limited licences	Transferable effort/vessel	Community quota	Quota / vessel	Individual quota	Transferable indiv. quota
Australia	X	X			X				X
Canada	X	X				X	X	X	X
Corea			X			X			
United-States	X	X	X		X	X	X	X	X
Iceland	X								X
Japan	X		X			X			
Mexico				X					
Norway				X			X	X	
New-Zealand									X
Germany							X	X	(X)
Belgium	X	X						X	
Denmark				X			X	X	X
Spain	X		X		X			X	
Finland			X						
France	X	X			(X)		X	X	
Greece	X								
Ireland							X		
Italy	X		X					X	
Netherlands	X	X		X					X
Poland									X
Portugal						X		X	
United-Kingdom	X	X		X			X	X	(X)
Sweden			X		X				

After OECD, 2006

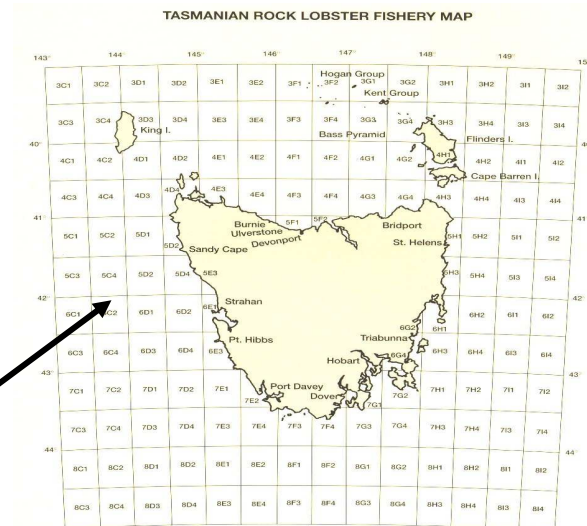
I - Context: the expected impacts of ITQs

1. Individual allocations: allows fishers to develop harvesting strategies maximizing the returns from harvest
2. Transferability: more efficient fishers buy out least efficient fishers → capacity reduction
3. Social issues: in particular, concentration of quota ownership

→ Lack of global consensus on these impacts: what can we learn from studies of the observed impacts of adopting ITQs ?

II - A case study: the Tasmanian rock lobster fishery

Coastal fishery, single species



- 214 vessels, baited traps, operate manly from march to February (closure in October)
- TAC (2008) 1523 T
- 2d Tasmanian fishery in value (60 million AUS\$)
- 1st for employment
- 75% of landings exported

Haddon & Gardner, 2008

II - A case study: the Tasmanian rock lobster fishery

History of the management system

- Exploited fishery more than 200 years, *first managed 1889 (Fisheries act)*
- Until 1967 only conservation measures implemented: *gear restrictions, minimum landing size, seasonal closures, ban on harvesting egg-bearing females*
- After 1967, *geographical restrictions, escape gaps on traps (for undersize lobsters), traps in water maxi 48 hours*
- Number of licences and number of traps used in fishery limited

But under those measures

- Sustainability of the stock remained threatened
 - Continuous increase of fishing effort

II - A case study: the Tasmanian rock lobster fishery

Details of the ITQ system

- After several years of debate **ITQs** voted in 1996 and **introduced in 1998 (based on trap ownership)** preferred to a 30% cut in the number of traps (1 trap ~ 143 KG of lobsters)
- **TAC ~ 1500 t** since introduction
- **Initial allocation :**
 - based on trap ownership
 - minor account for catch history (9%, 5% and 3% in first 3 years)
- **Aggregation limit:**
 - 200 quota units for operators and owners
- **Control:**
 - fishermen, quota owners and processors

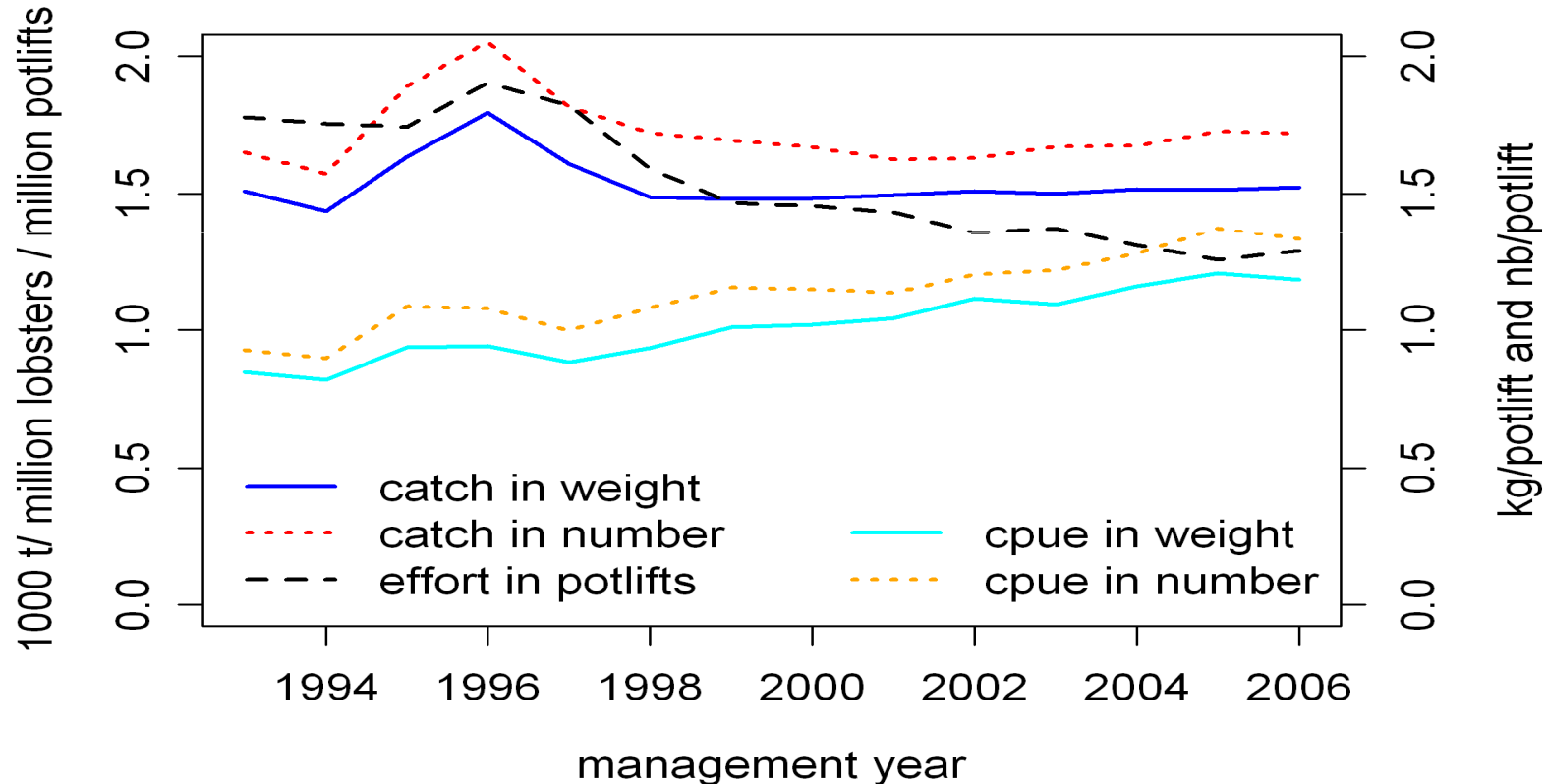
III - Assessing the impacts

Preliminary analysis of **changes in the fishery with respect to the three broad categories of expected impacts:**

1. **Compilation of available data sets:**
 - Spatialized catch and effort data at day level per vessel since 1993
 - Fleet characteristics (vessel length, tonnage and home port)
 - Ex-vessel price of lobster (monthly average per processor since 1990)
2. **Descriptive statistics / indices for key variables** (vessel numbers and characteristics, fishing effort, landings and ex-vessel prices of lobster)
3. **Analysis of modifications in seasonality and trend in lobster prices**

III - Assessing the impacts

Overall impacts

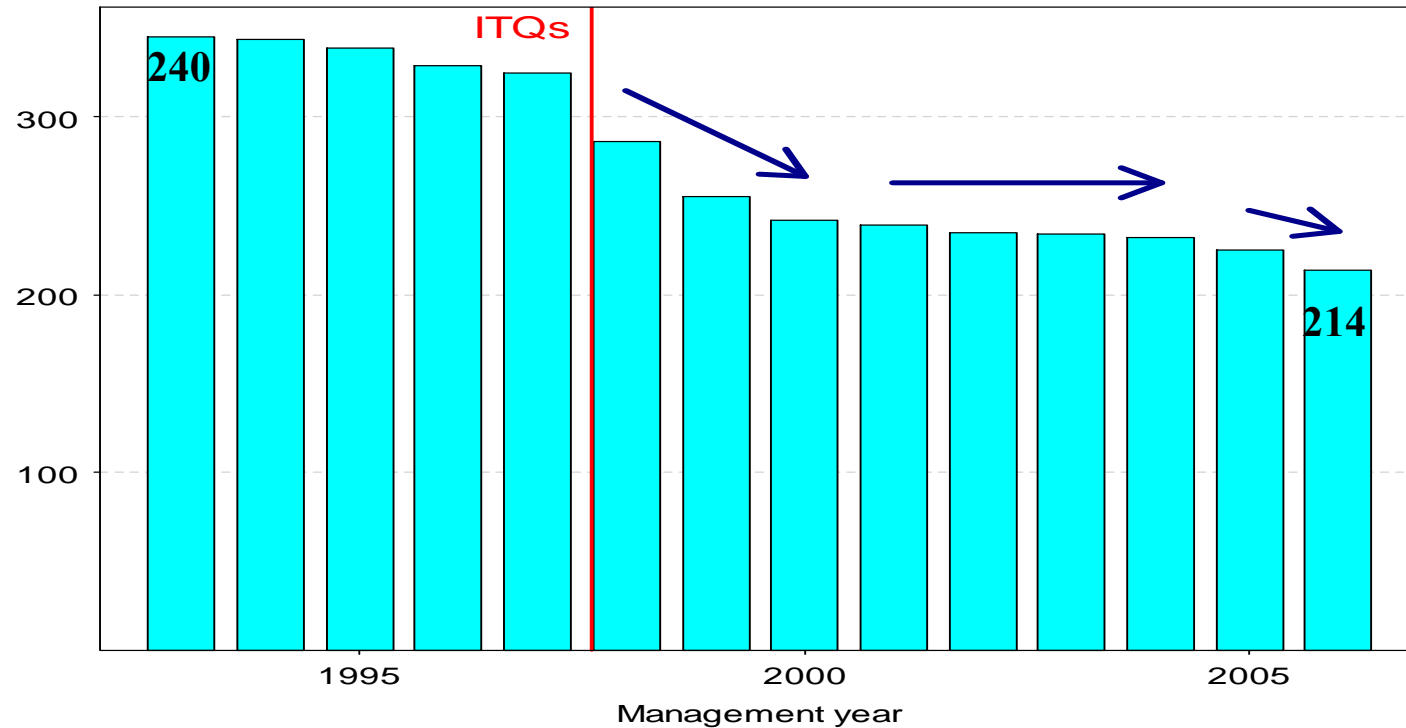


- **Catches remain constant** (~1500 T.)
- Except 1995 – 1997: *Fishers build « catch history »*
- **Total effort is decreasing** as soon as 1997
- **Stock rebuilding: exploitable biomass X2** (1994 to 2008)
- **Increase of CPUE** (20% less traplifts)

III - Assessing the impacts

Fleet rationalization

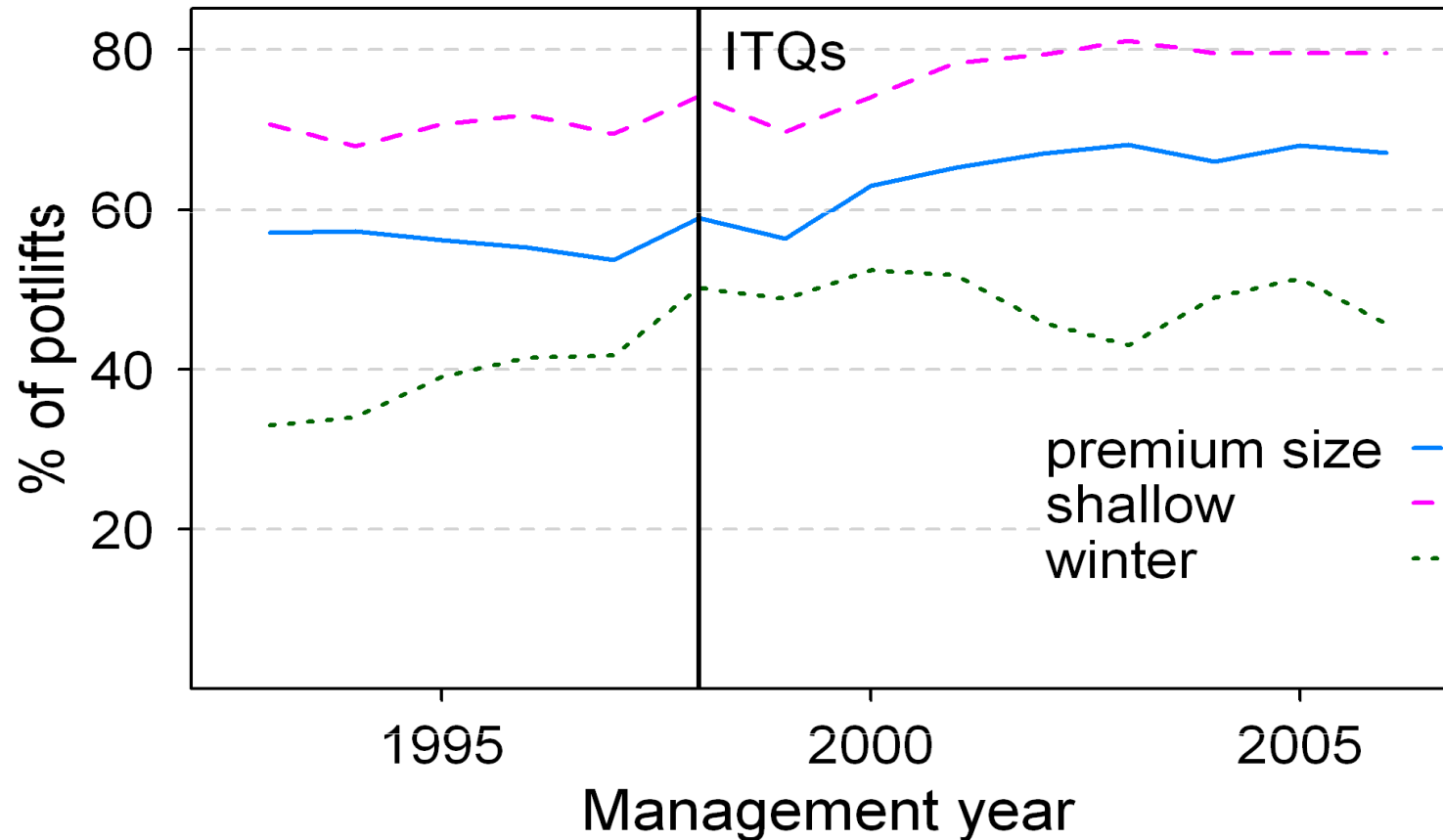
Number of vessels operating in the Tasmanian rock lobster fishery



- First 3 years: **rapid exit of vessels** from the fishery (-25%)
- Second round of vessel exits since 2005
- That induces a **drop in the number of traps** used by fishermen
- **Changes in the structure of the fleet:**
 - < 10 m. decrease in number and in%,
 - >18m. remain in number and increase in%,
 - 10 to 18m. decrease in number but increase in %

III - Assessing the impacts

Change in fishing strategy

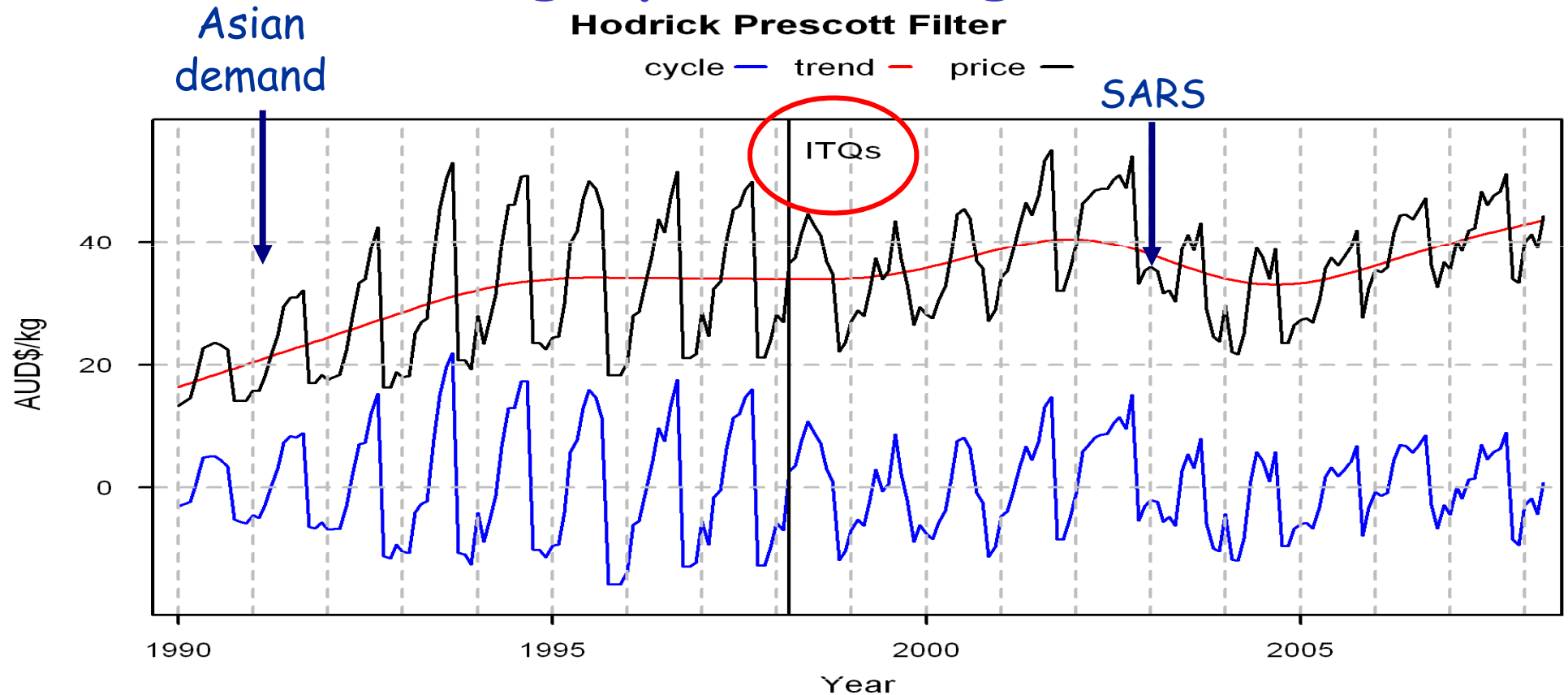


Increase in the proportion of « premium » lobster in landings:

- Hard shell (**winter**)
- Red color (**shallow water**)
- Size (**weight between 0.8 and 2 kg**)

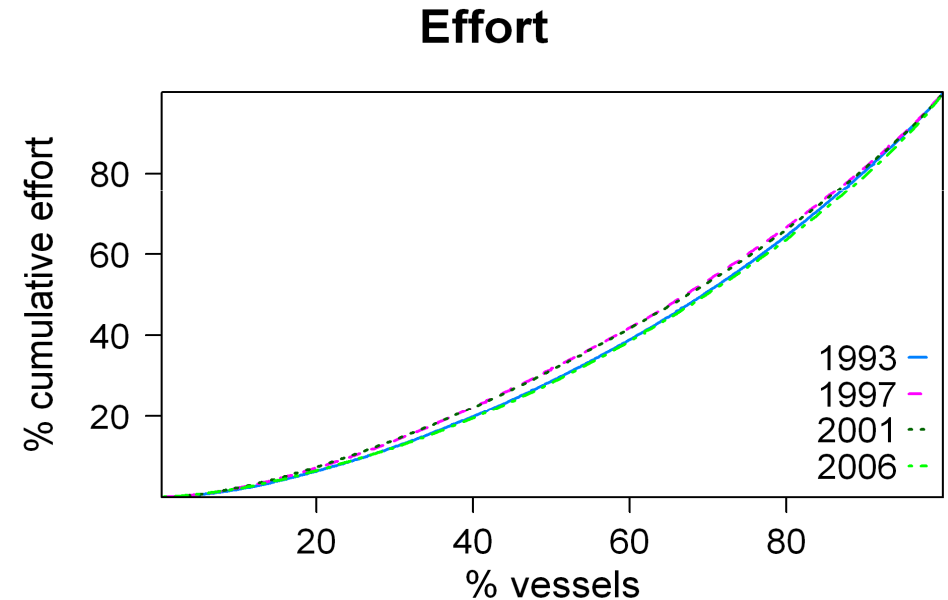
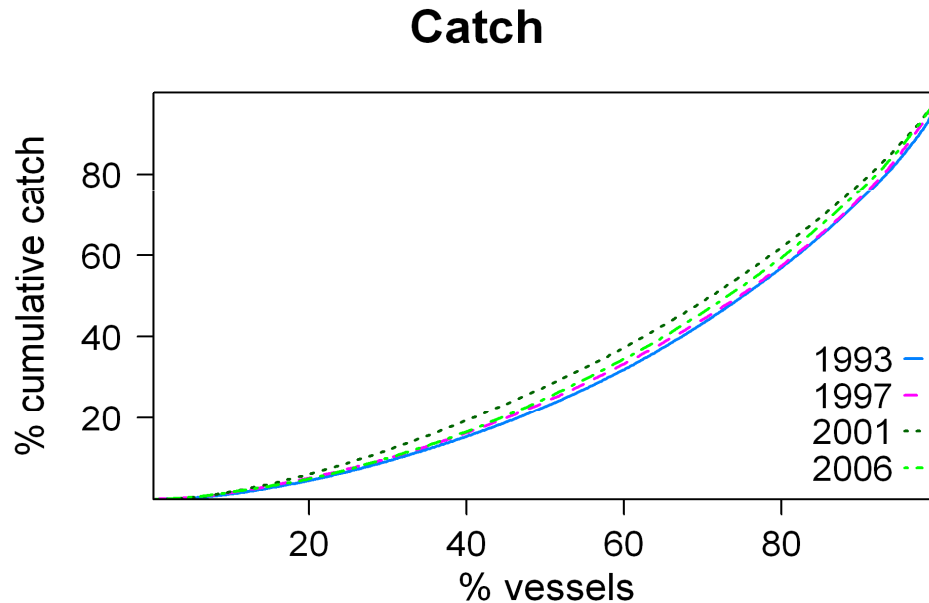
III - Assessing the impacts

Average price changes



- **Prices influenced by the chinese market:** development of export in the 90', decline with SARS in Asia
- **SARS effects :** Difficulty to clearly identify effects of ITQs on prices on the study period
- However in the first years 1997-2002 prices increase (from 34aus\$ to >40 aus\$)
- **Strong modification in the intra annual price variability** (less variability: blue curve 20\$ instead 30\$ before ITQs, particularly after Sars)

III - Assessing the impacts Concentration of Activity



- Low Gini indices → relatively equal distribution (0,35 and 0,28)
- no change in distribution among fishers

Conclusion & Perspectives

1. Some of the expected impacts seem to be observed:

- Reduction of excess capacity
 - Change of fishing strategies to increase returns on catch allocations
- Overall increase in the efficiency of the fishery
- Response was fairly rapid (~ 2 years)

2. Distribution of activity and catches among operators appears to have remained stable

3. Works in Progress: further analysis of individual responses of fishers & integration in a bioeconomic model of the fishery including a model of the market for catch shares

Thank you for your attention

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