Food and Agriculture Organization of the United Nations

Towards TAC-based Fisheries Management in Korea - Experiences and Challenges

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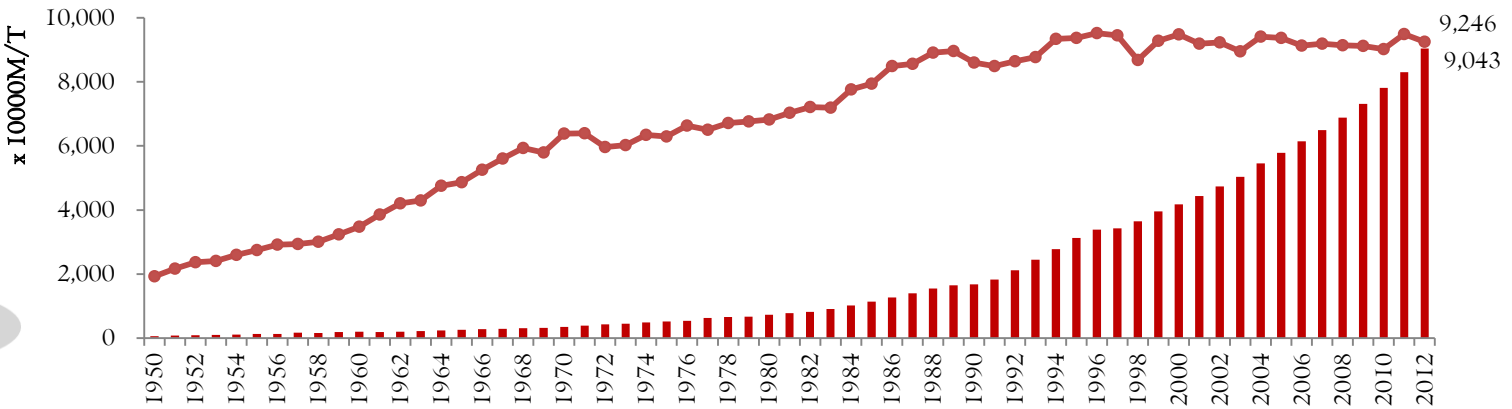
Contents

1. Production and Policy Goals

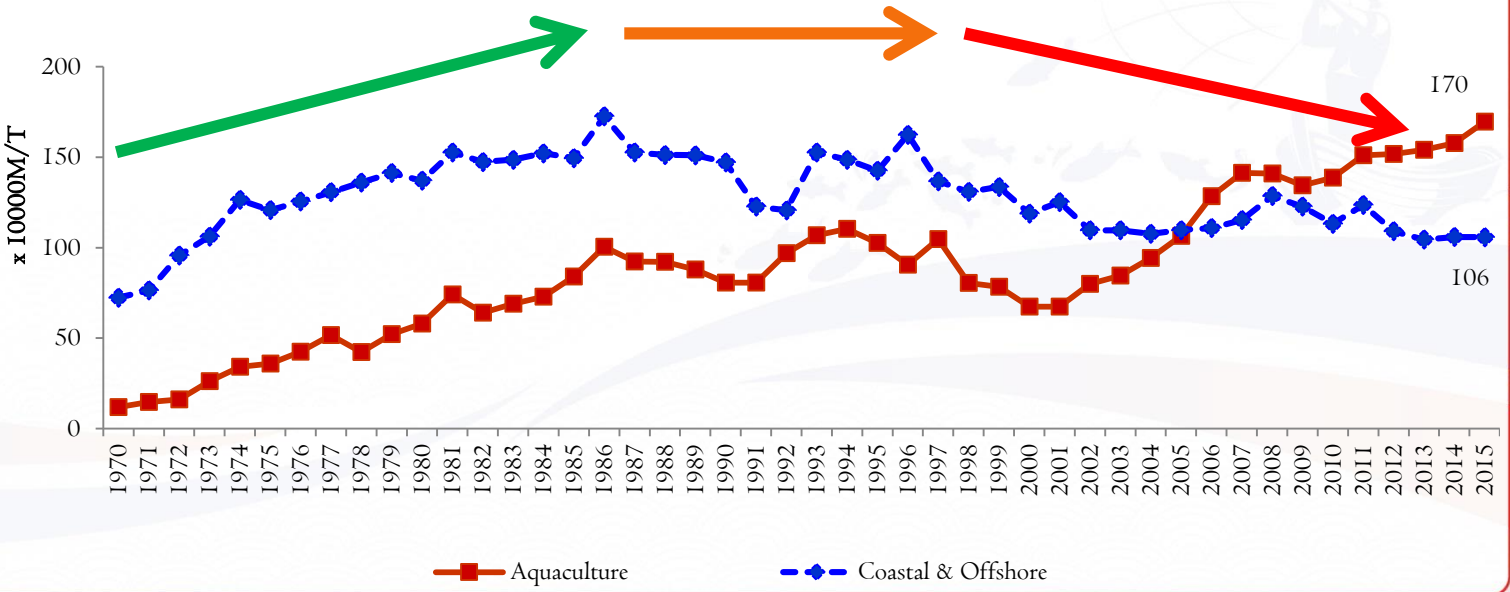
Decreasing Capture Fisheries Production

World

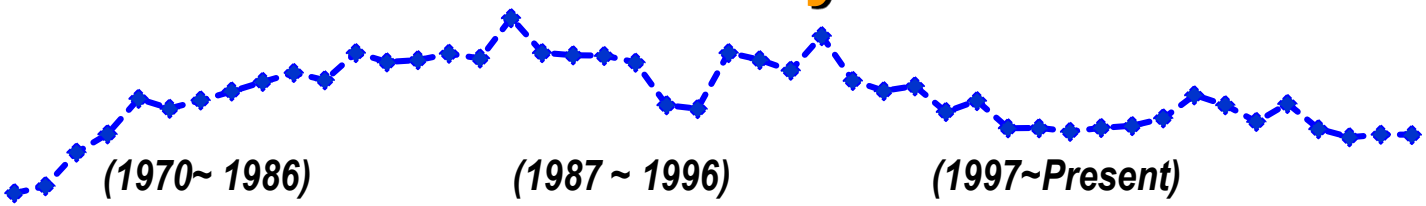


*Seaweed included

Korea



Transition of Fisheries Policy Goals

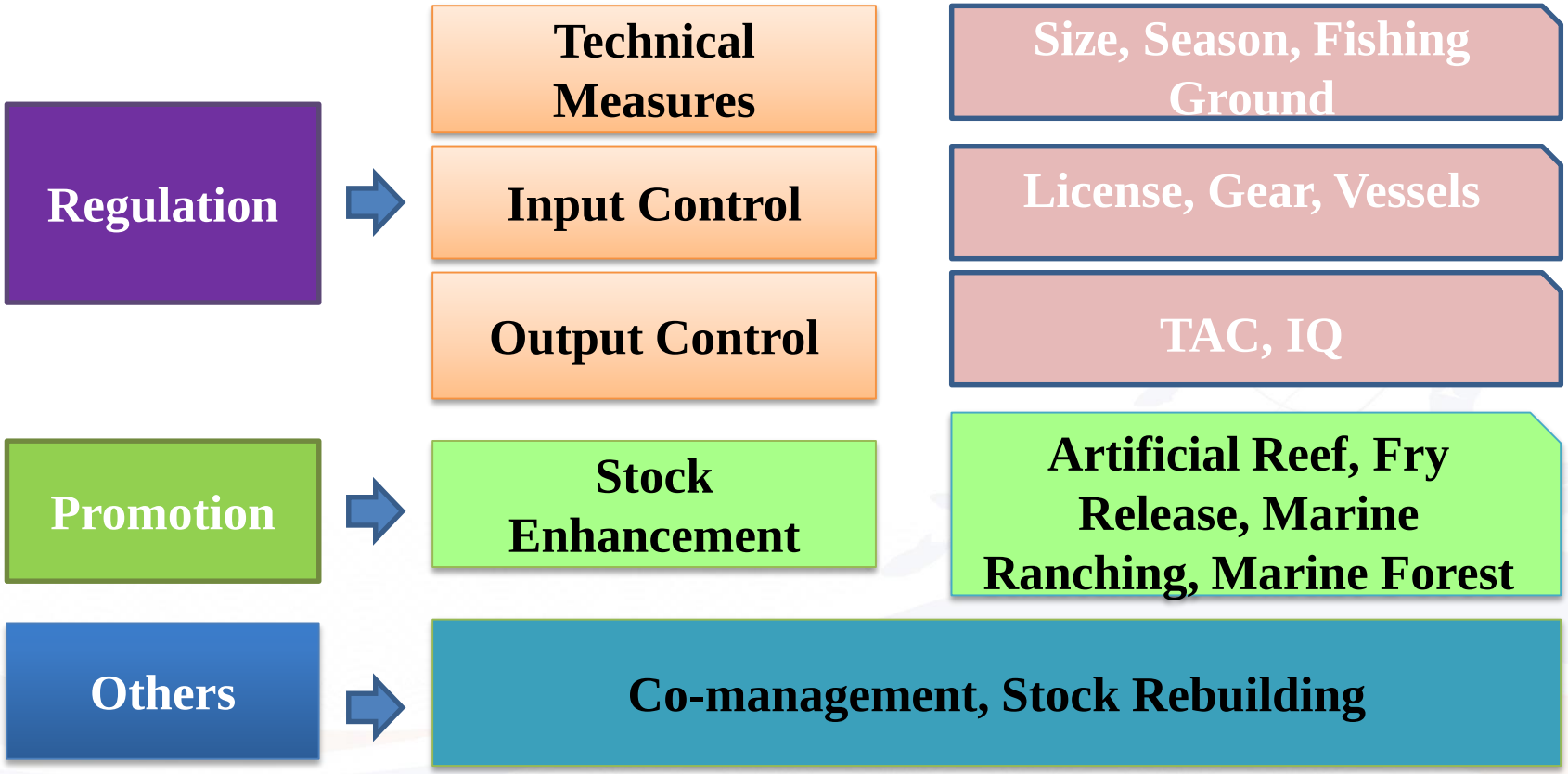


	(1970~ 1986)	*(1987 ~ 1996)*	*(1997~Present)*
	Rapid growth period	Stagnant period	Declining period
Environmental change	• Increasing harvests	• Excessive fishing efforts • Environmental contamination • Decreased fishing grounds	• Decreased fishing grounds • Depleted fish stocks
Policy goals	*More Production* →	*Business Stabilization* →	*Sustainable Fisheries*
	• Vessel construction and modernization • Renewing equipments	• Restructuring started • Cost reduction	• Intensive restructuring • Stock enhancement • TAC, Stock Rebuilding Plan

2. Introduction of TAC-based Management

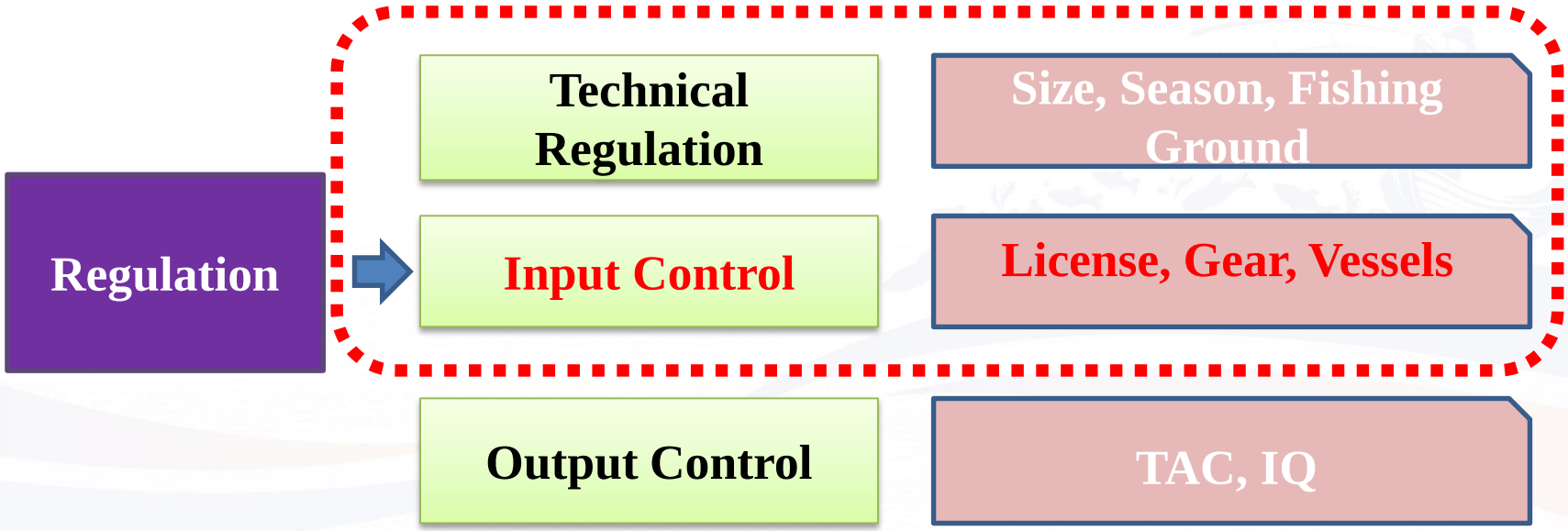
Fisheries Management Instruments

Regulation + Promotion + Others



Conventional Fisheries Management

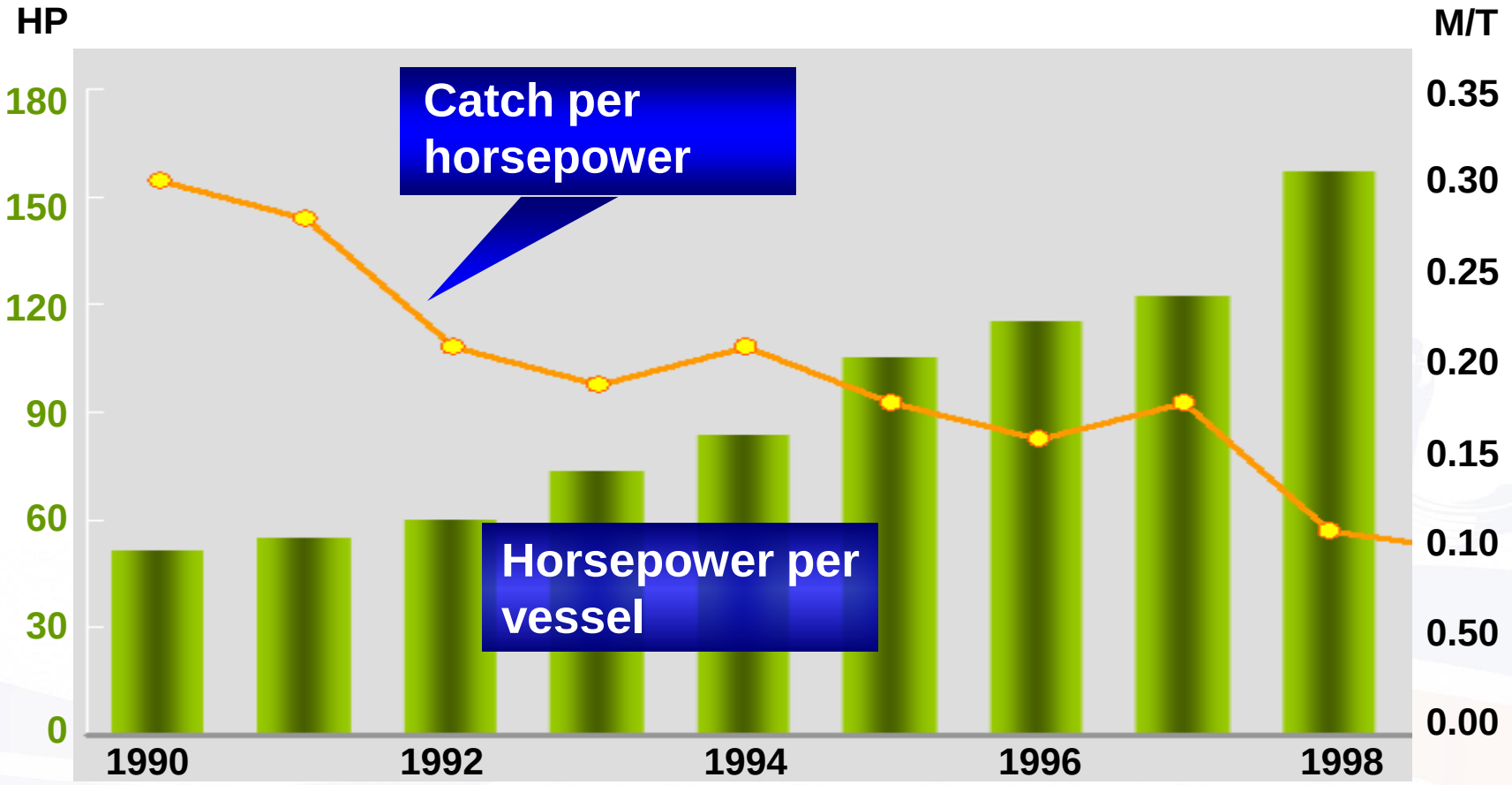
- Is based on input control and technical regulation
- Started with Fisheries Act legislated in 1953
- Needed more fishing vessels to increase production(no reason to regulated output)



Limitations of Korean Conventional Fisheries Management

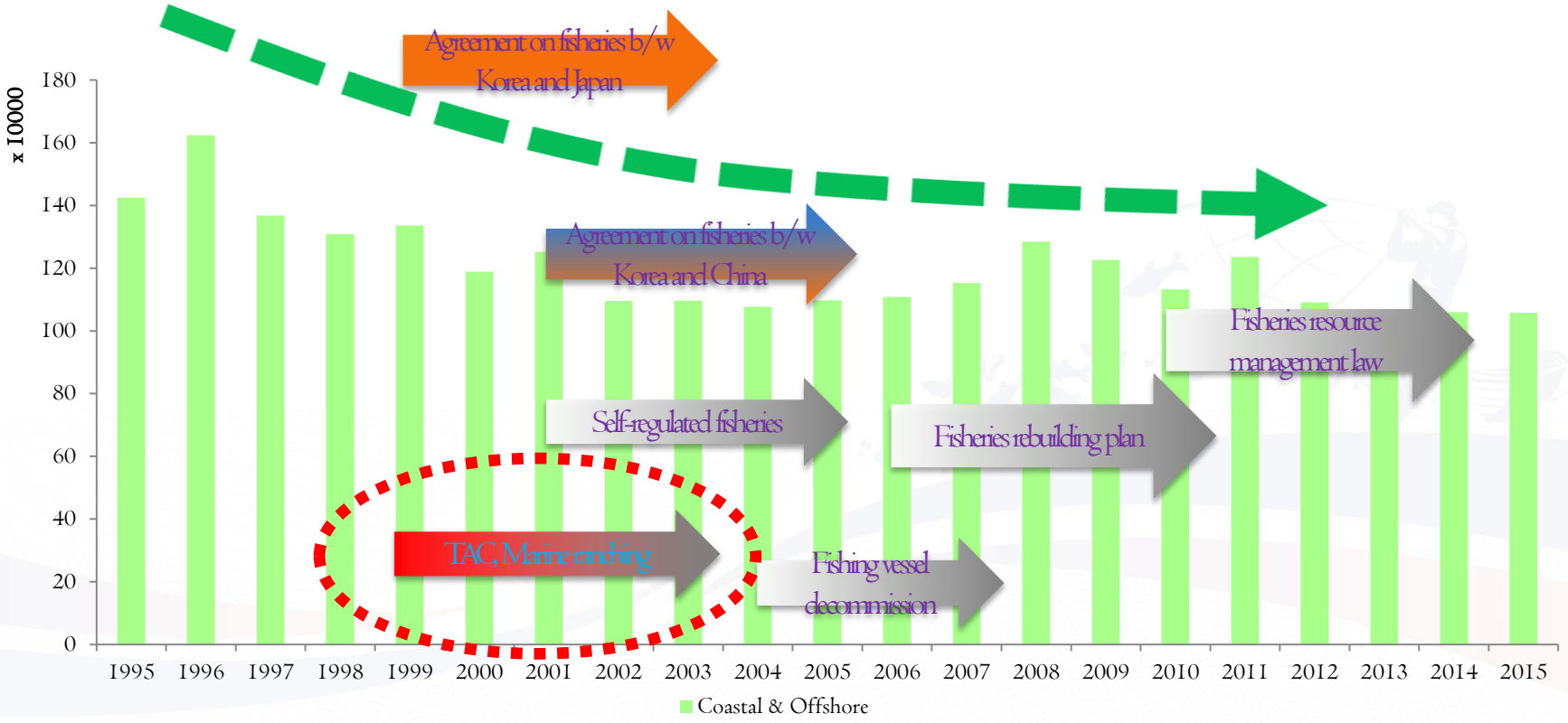
- Fish stocks in the coastal water have been depleted
  - Decreasing catch(plummeting production of pollock and filefish)
  - Decreasing CPUE(catch per horsepower) in overall fisheries
  - Increasing proportion of juvenile fish
- Real fishing efforts have increased and offset the effects of vessel and gear restrictions
- Technical regulation methods were not flexible in rapidly changing fisheries circumstances
- Timely assessment of the fish stocks was neglected by excessively concentrating on input restrictions

Horsepower per Vessel & Catch per Horsepower



Main Institutional Change

- Decrease in fisheries landings led to new systems and regulations
- Korea started TAC for 4 species in 1999 and expanded to 11 species until 2009



3. Expansion and Operation

Expansion of TAC-based Management

1. Pre-test Stage (Sep.16 ~ Oct. 30, 1998)	Mackerel(large purse seine fishery)
2. Second Stage (1999 ~ 2001)	4 species(mackerel, jack mackerel, sardine, Red queen crab) 2 fisheries(large purse seine, off-shore trap fishery)
3. Third Stage (2001)	3 species added(purplish washington clam, pen shell, Jeju island top shell) 2 fisheries(diver fishery, village fishery)
(2002 ~ 2003)	2 species added(Snow crab, blue crab) 1 fisheries(off-shore gill net fishery)
(2007 ~ 2009)	3 species added(squid, sandfish, mottled skate) 1 species dropped(sardine) 6 fisheries including large trawl and offshore squid jigging

TAC Determination Criteria

✓ High commercial value with large production volume
- mackerel, jack mackerel, sardine

✓ Conservation Purpose(seriously depleted stocks)
- snow crap, purplish Washington clam, Pen shell

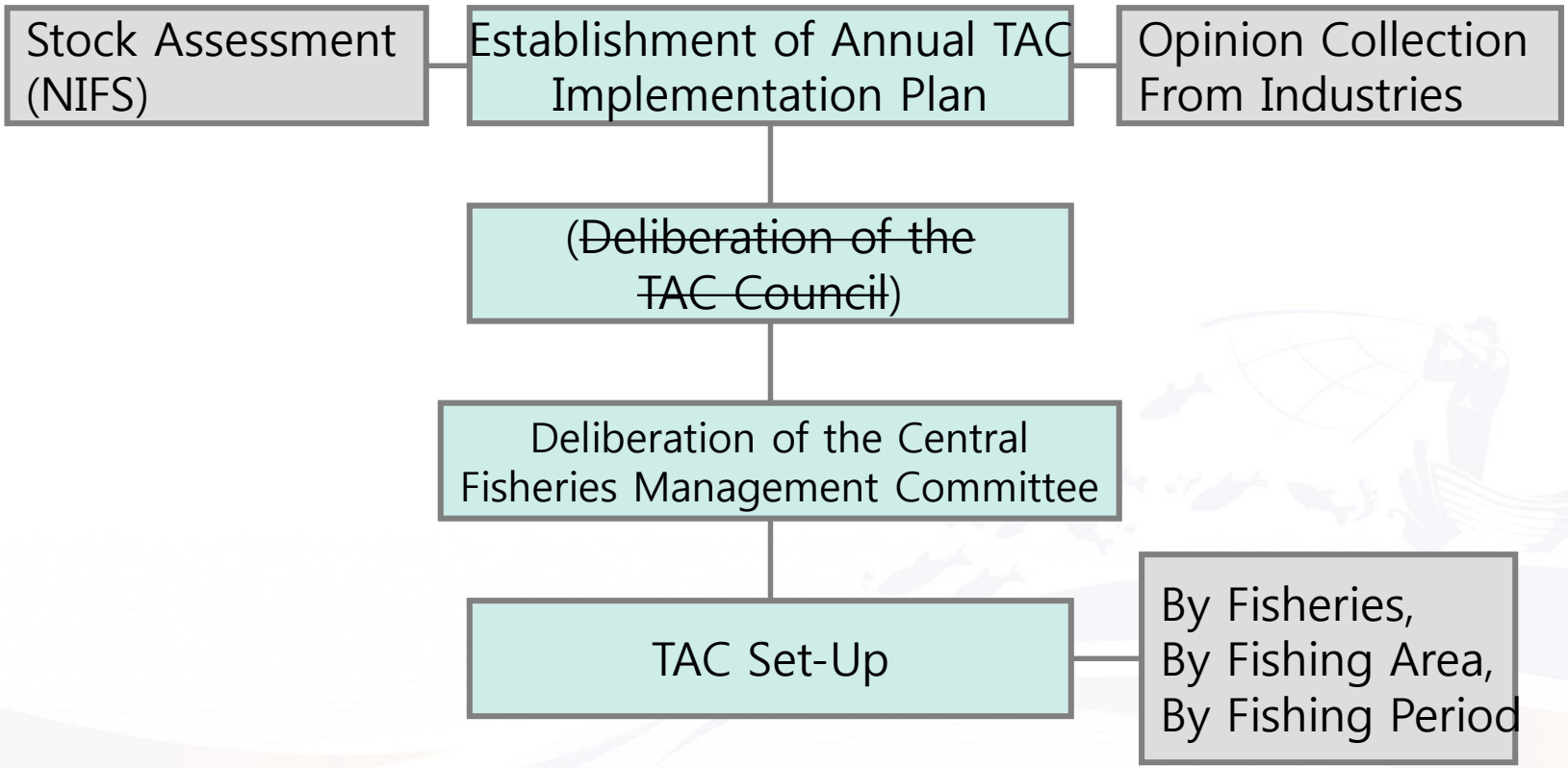
✓ Trans-boundary species
(needs international management with adjacent countries)
- mackerel, jack mackerel, sardine

✓ Necessity of local management
- Jeju island top shell, purplish washington clam, mottled skate

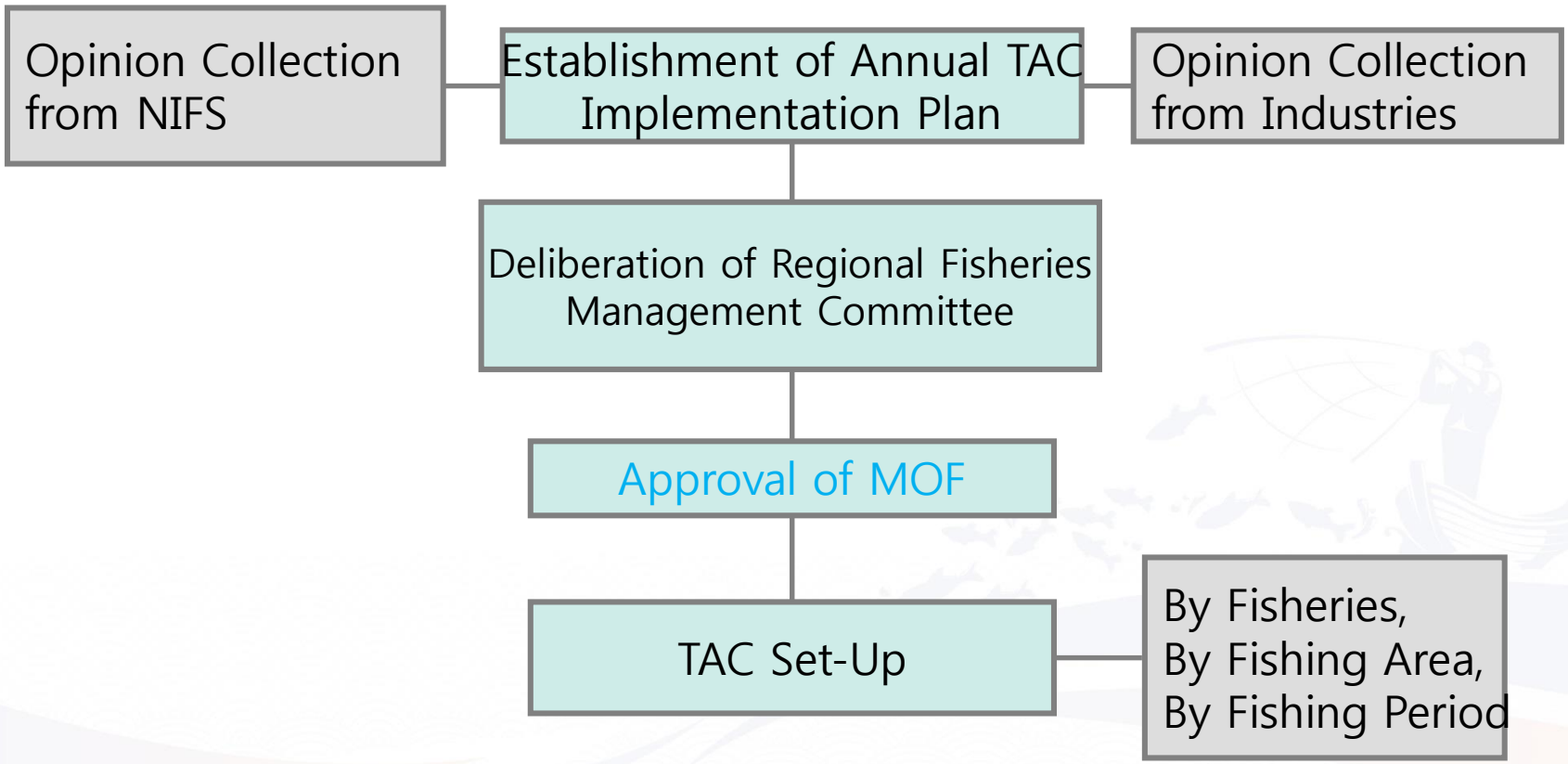
TAC Species

SCIENTIFIC STOCK ASSESSMENT & MONITORING, DESIGNATION OF SELLING AREAS, PROVIDING INCENTIVES TO PARTICIPATING FISHERMEN

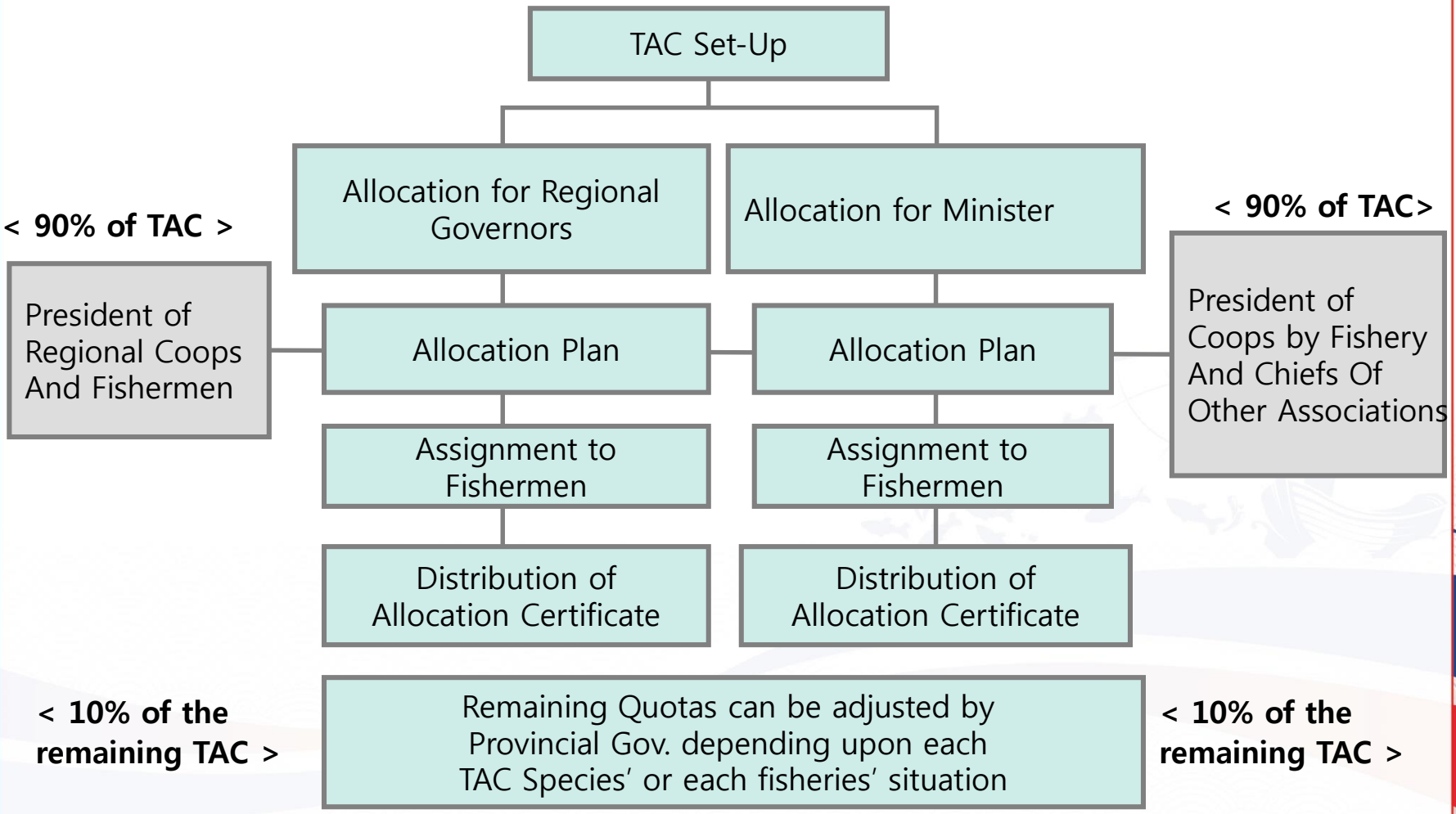
Process of TAC Creation by Central Gov.



Process of TAC Creation by Regional Gov.

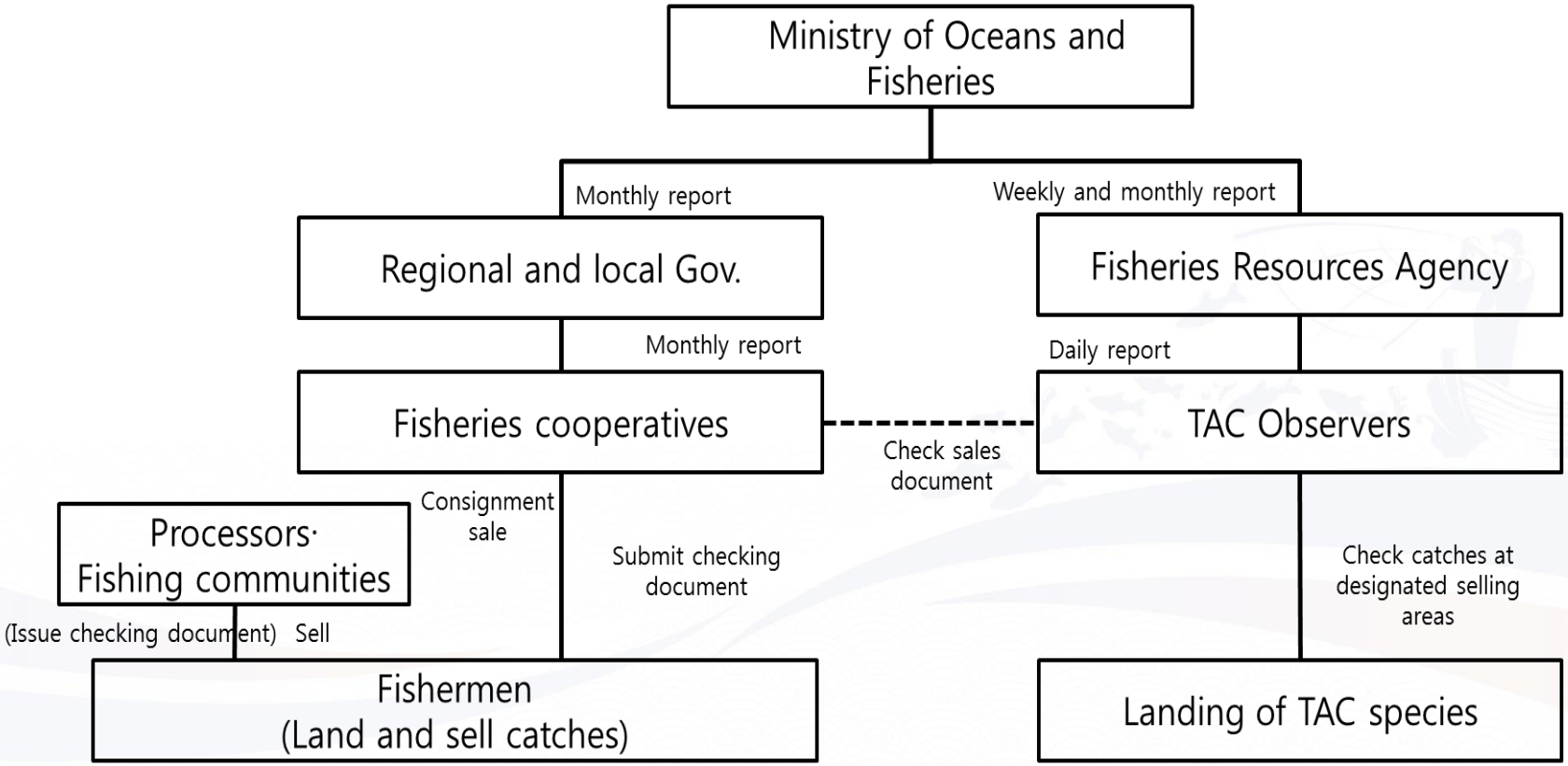


TAC Allocation System



TAC Monitoring System

- 85 observers from FIRA cover 118 designated selling areas
- (`00) 9 → (`06) 15 → (`07) 30 → (`09) 43 → (`10~) 70 → (`18~) 85



TAC Monitoring System

Check landing volume

Sample classification

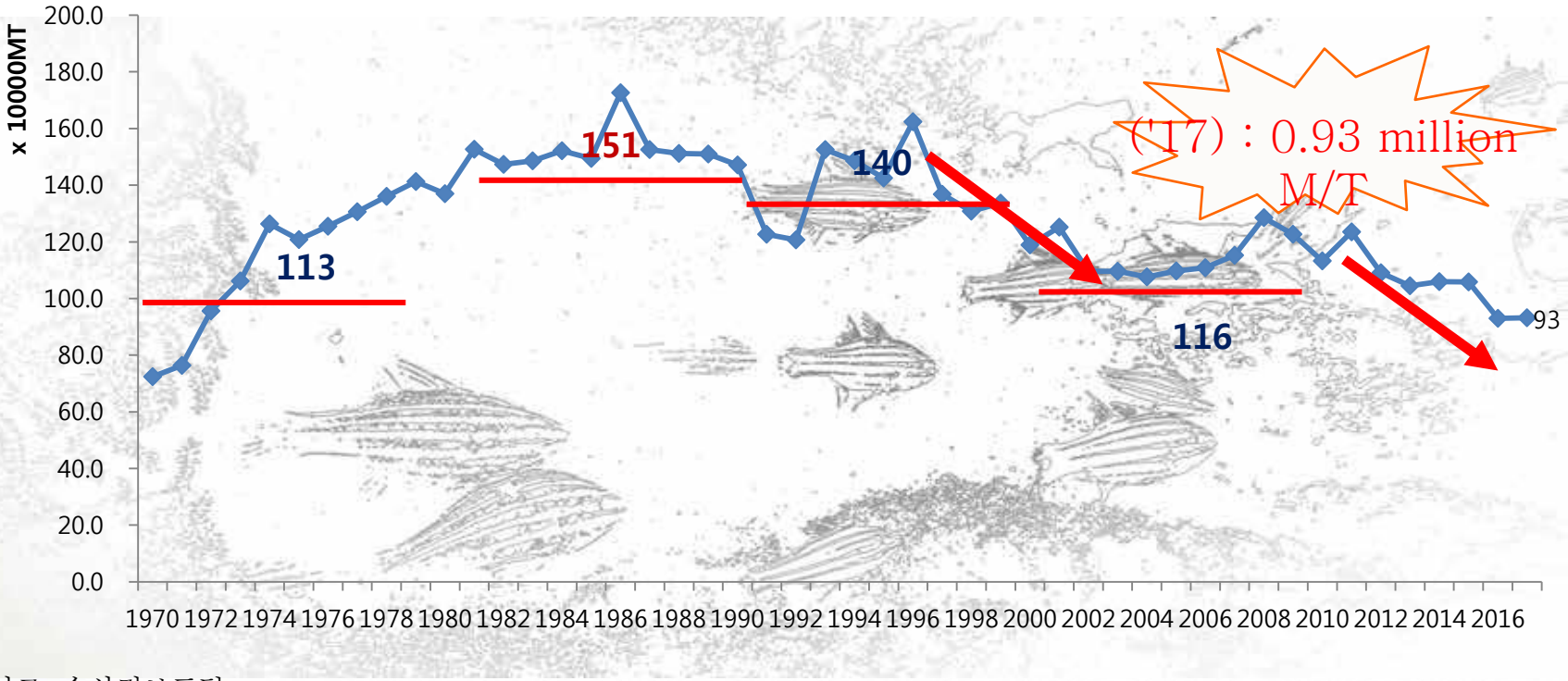
Check bycatch composition

Check size limit

4. Is TAC-based Management Successful?

Plummeting Coastal & Offshore Production

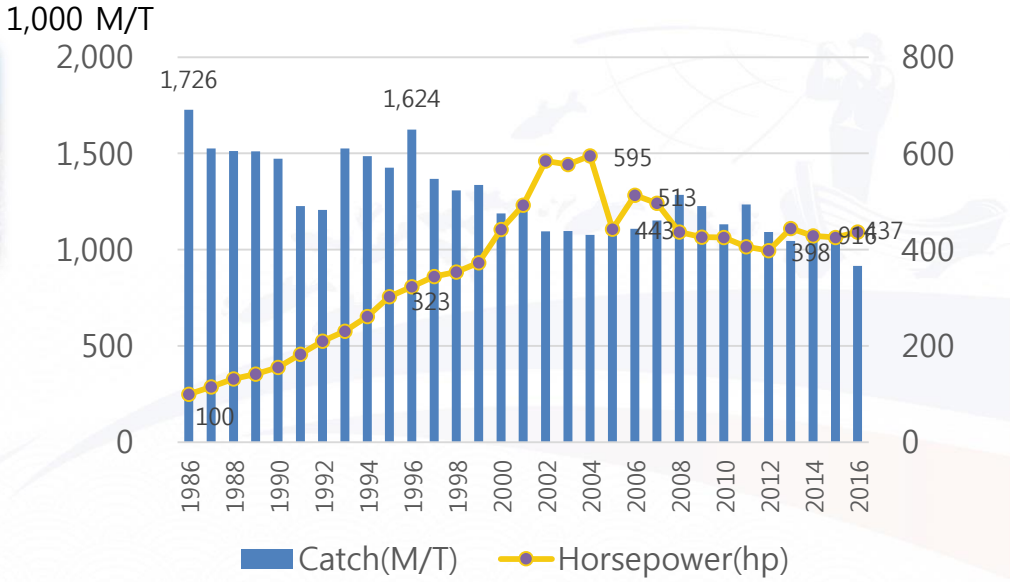
- Coastal and offshore production hit the historic low in 2016 since 1972
- 908 thousand M/T in 2016 and 927 thousand M/T in 2017



자료 : 수산정보포털

Causes of Plummeting Production

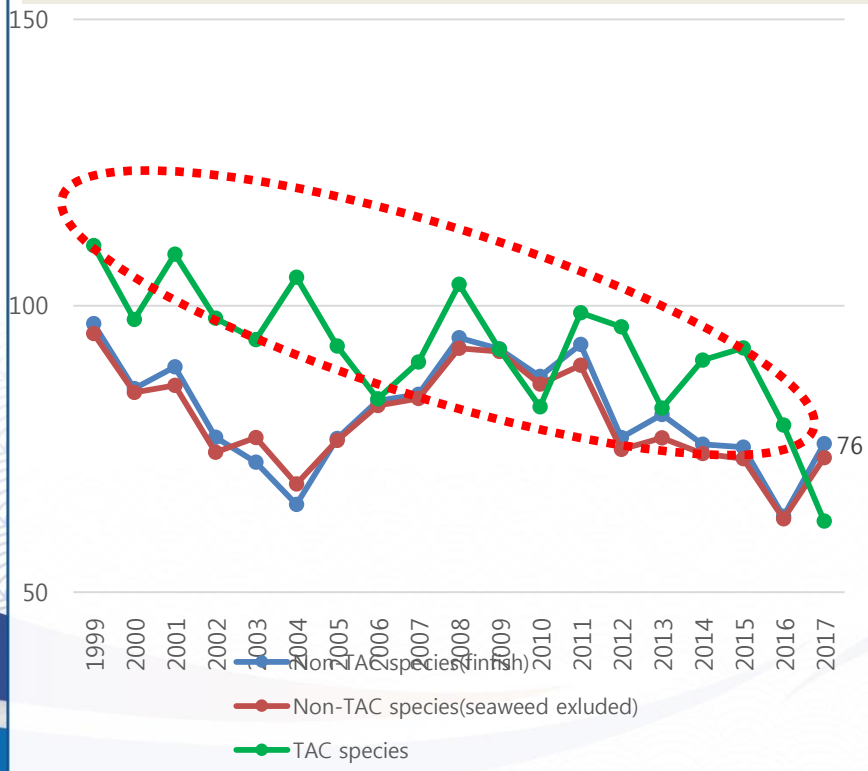
- Overfishing, derelict fishing gear and ghost fishing, climate change and destruction of marine forest, illegal squid fishing by foreign vessels
- Overfishing by Korean vessels'increased fishing capacity(horsepower still increase)
- TAC-based management failed to expand and work as central fisheries management instrument(TAC species cover only 30% of total production)

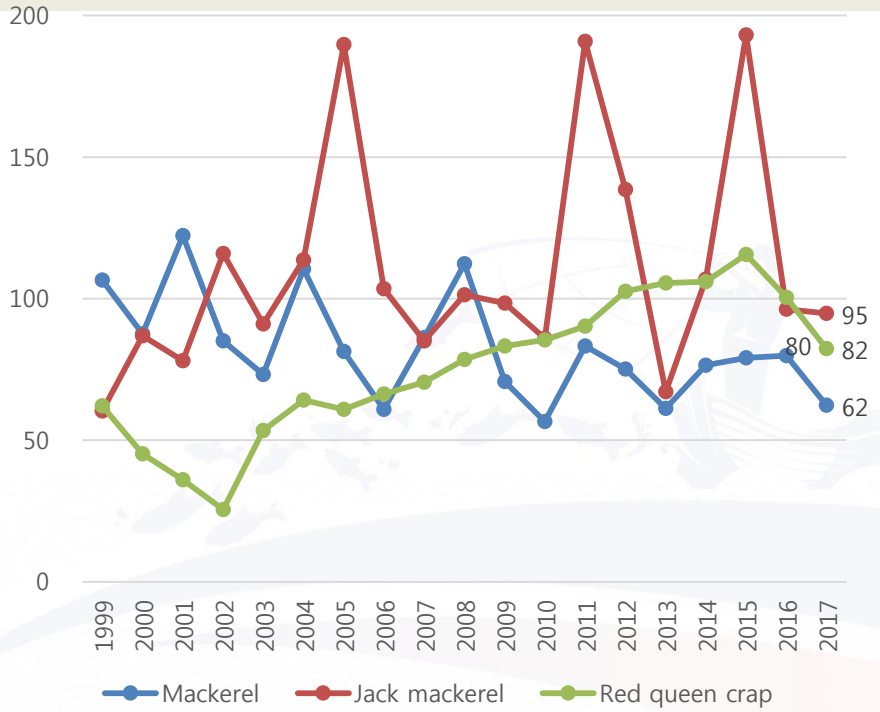


Note : Horsepower is recalculated as of 1986

Production of TAC Species

- Compared with non TAC species, production of TAC species decreased less
  - Rapid decrease in 2017 is largely due to decreased squid production caused by Chinese vessels'overfishing

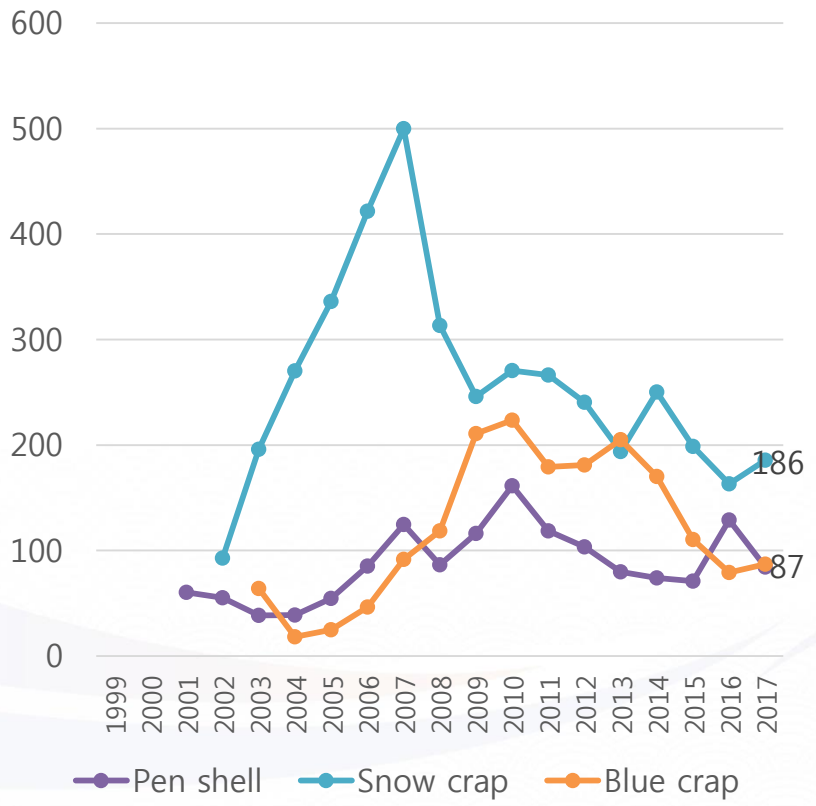


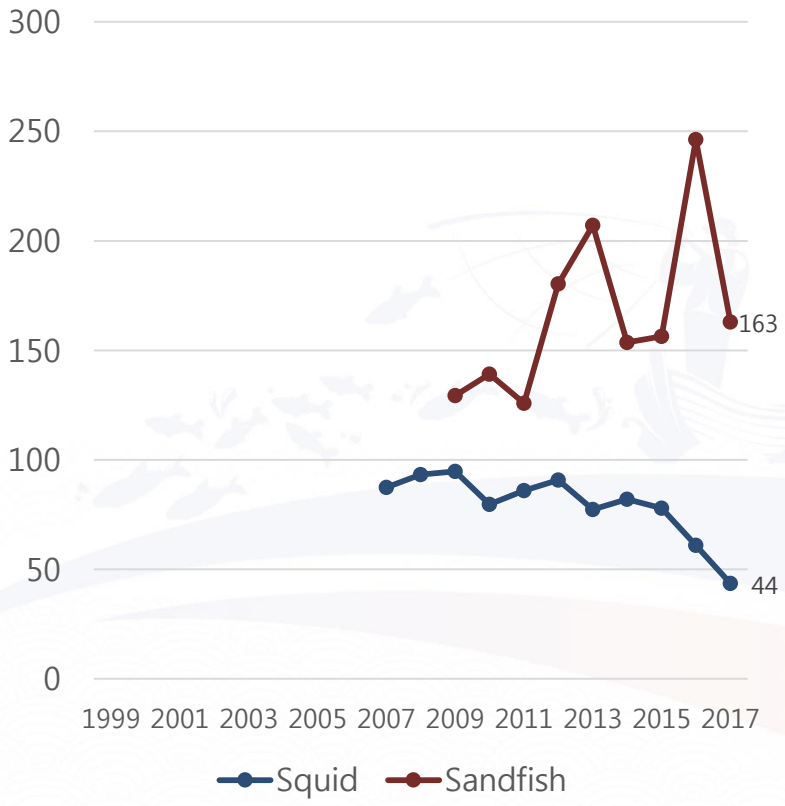


Note : Catches are recalculated based on the average catches of 2 or 3 years before TAC implementation

Production of TAC Species

- Except for mackerel and squid, overall production of TAC species increased after TAC adoption





5. Current Issues and Future Direction

Current Issues

- TAC set higher than stock status
  - Even though runout rate is lower than TAC, stock status does not improve
- Lack of monitoring : only 70 observers cover118 designated landing places
  - Observers : (`00) 9 → (`06) 15 → (`07) 30 → (`09) 43 → (`10~) 70 → (`18~) 85
- Many fisheries catching TAC species do not participate TAC allocation process

Quota runout rate(%)

Species	2015	2016	2017
Total	72.6	80.9	61.0
Squid	71.3	68.8	42.4
Mackerel	73.0	96.6	76.8
Jack Mackerel	75.8	62.9	58.9
Sandfish	58.5	92.4	72.7
Red queen crap	89.1	88.1	73.6
Blue crap	35.4	59.4	63.0
Snow crap	46.7	70.1	102.2
Pen shell	66.3	63.6	75.8

Stock status

Species	Stock status	Direction
Mackerel	Middle	Stagnant
Jack mackerel	Middle	Stagnant
Squid	Middle	Stagnant
Sandfish	High	Increasing
Snow crap	Low	Stagnant
Blue crap	Middle	Decreasing
Pen shell	Middle	Stagnant
Red queen crap	High	Stagnant

Future direction

Main Goal

- Conventional management failed to reduce increasing fishing capacity

→ From an additional and formal output management instrument

to a central fisheries management instrument

- Expand TAC species to cover 70-80% of coastal and offshore fisheries production

Future Direction

- Expand TAC species and participating fisheries
  - Implement TAC to species of which stock decreases(from voluntary participation to designation of species and relevant fisheries)
  - Expansion of participation to fisheries in excess of 10% of TAC fish production
- Strengthen dockside monitoring
  - increase observers from 85 to 250 to cover 118 main landing places

Future direction

Future Direction

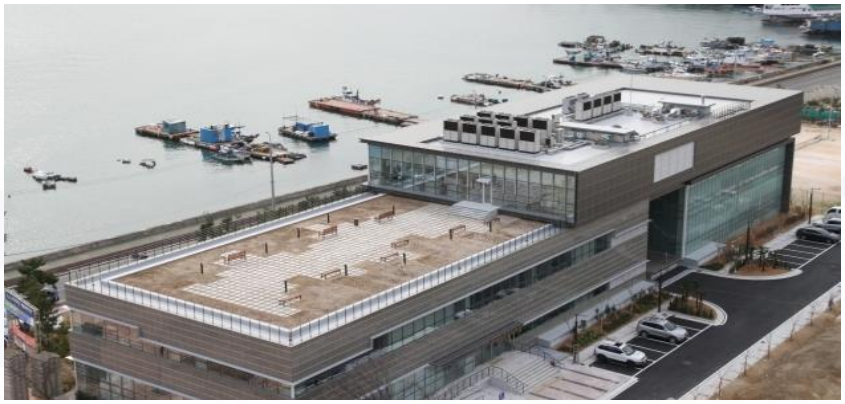
- Strengthening scientific stock assessment

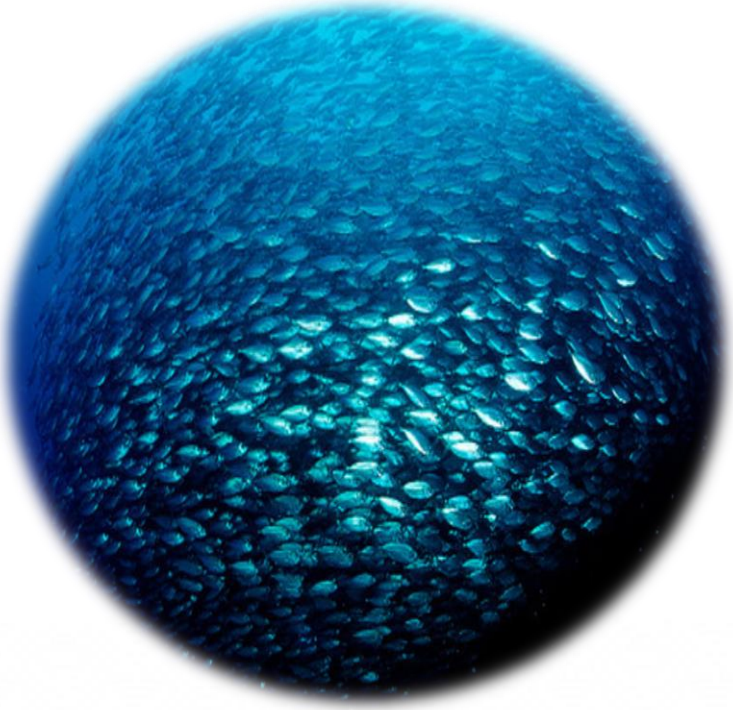
- Expand role of Fisheries Resources Research Center and build stock assessment ships(build additional1,500 ton class research ship and increase researchers from 11(2018) to 43(2022))

- Conduct additional stock assessment during extreme catch variation and increase runout rate of allocated quota

- Develop more incentive for fisheries to expand voluntary participation to TAC program

- Introduce income insurance to protect TAC program participating fishermen





Thank you!