



REVERSING ENVIRONMENTAL DEGRADATION TRENDS  
IN THE SOUTH CHINA SEA AND GULF OF THAILAND  
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# Managing Fisheries and Habitat Linkages in Thailand: The Prachuap Khiri Khan – Chumphon Fisheries *Refugia*

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## Purpose

- To review the history of the development of fisheries *refugia* in the Gulf of Thailand
- To present the on-going challenges in the management of fisheries *refugia* sites
- To introduce plans to establish a fisheries *refugia* site in the Koh Chang Strait area of Thailand





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### Pre-1953

- Identification of the importance of Indo-Pacific mackerel (*Rastrelliger brachysoma/neglectus*)

### 1953

- Establishment of a spawning season closure for Indo-Pacific mackerel (1<sup>st</sup> April-31<sup>st</sup> May) – prohibition of purse seine fishing





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

- Indo-Pacific mackerel  
(*Rastrelliger  
brachysoma*)





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1953-1959

- Realisation that the 1953 spawning closure was ineffective (site was too large, insufficient enforcement capabilities, and based on limited information)
- Establishment of the Indo-Pacific mackerel research team (1957)
- Collection of fishery biological information (mainly fish larvae)
- Led to change in 1959 of spawning closure area and duration (1<sup>st</sup> January – 30<sup>th</sup> April)





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1953-1959 (cont.)

- Purse seine and gill net fishing was prohibited during the Jan-April closure
- Department of Fisheries included a provision in the regulation that enabled fishers to operate these gears during closes season if they were licensed and maintained log books





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1960-1963

- On-going fishery research, focus on larval fish
- Establishment of specific spawning (1<sup>st</sup> January-31<sup>st</sup> March) and nursery closures (15<sup>th</sup> April-14<sup>th</sup> June) in 1962
- Purse seine and gill nets prohibited during spawning closure
- Encircling gill nets could be used during nursery closure if mesh size >4.7cm . Purse seine fishing was prohibited.





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1964-1972

- Over-fishing of demersal resources led trawl fishers to modify their gears and practices to target pelagic species
- List of fishing gear prohibited was extended to include trawling during the periods 1<sup>st</sup> Feb-31<sup>st</sup> Mar

### 1973-1975

- Rapid increase in the use of light luring purse seines – led to ban of this practice and extension of nursery closure to 14<sup>th</sup> July







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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1976-1984

- Identification of importance of the site to other species
- 1983 notification extended closures to multiple species – led to large protests by fishers
- Negotiations between Department of Fisheries and fishermen led to the area of the site being reduced (50,000 sq. km) and duration of spawning and nursery closures were reduced – areas managed for multiple species





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## Development of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site in the Gulf of Thailand

### 1985-1994

- Anchovy purse seine fishing permitted in area for 6 years
- Conflicts between fishers using anchovy purse seines and other gears

### 1995-1999

- Rapid increase in the use of new fishing gears and practices – 1999 Notification of permitted fishing gears and practices





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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site

### 2000-2006

- Pressure from fishers to reduce the area of the site by 3,000 sq.km in the Chumphon area
- Inappropriate use of mackerel gill net by both large and small scale sectors





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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site

Mackerel gill net  
Mesh size=4.7cm  
Length=>14km

- Schools detected using echo-sounders
- Net set in zig-zag manner
- Hauled by power-block





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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site

- Fishers target Indo-Pacific mackerel
- Practice highly species/size selective
- Species targeted during spawning aggregations
- $\approx 100\%$  of mackerel landed at gonadal stage 4&5





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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site



Long-tail fishing boats – adapted for use of long gill net



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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site



Medium-size fishing boats – adapted for use of long gill net



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Recent Challenges in the Management of the Prachuap Khiri  
Khan – Surat Thani Fisheries *Refugia* Site



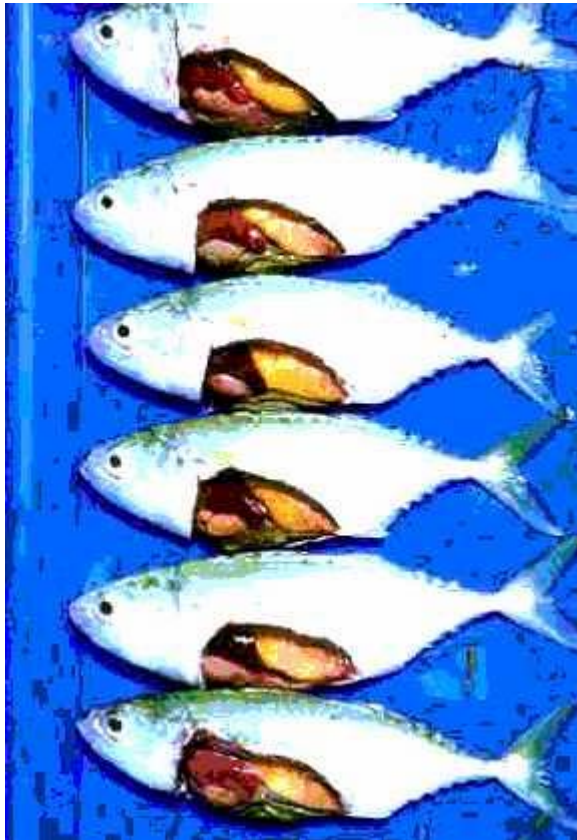
Large-size fishing boats – adapted for use of long gill net





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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site

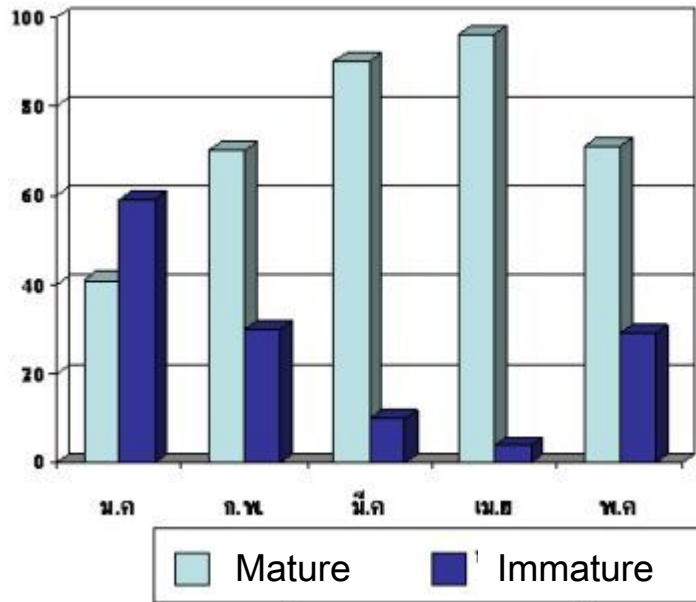


Mackerel in spawning condition

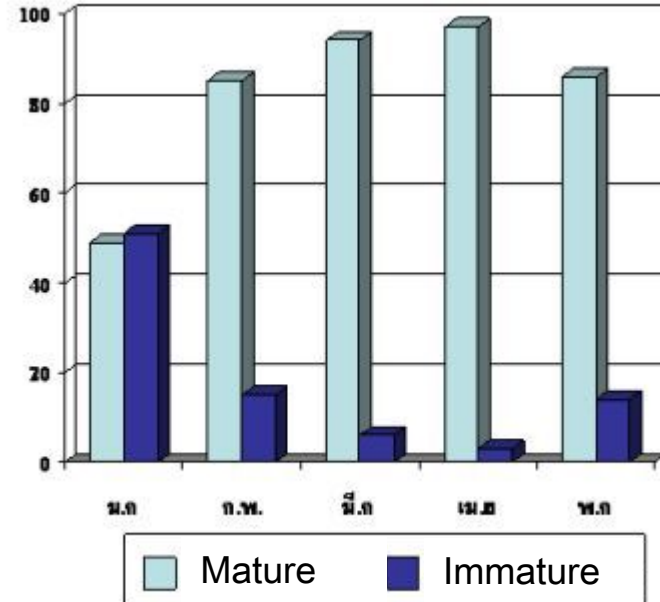


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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site



Female



Male



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## Recent Challenges in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site



Stakeholder Consultations



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- Development of the Koh Chang Strait Fisheries *Refugia* Site (1)
- Nursery area for a large number of economically important fish species

