

High Seas Fisheries Today Trends and Figures

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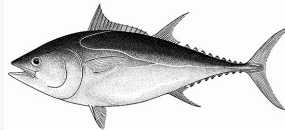
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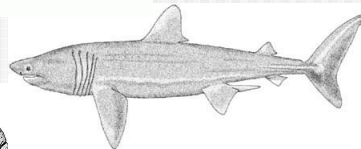
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1. Highly migratory species (as listed in Annex 1 of UNCLOS)

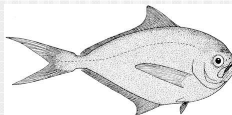
- Tuna and tuna-like species



- Oceanic sharks



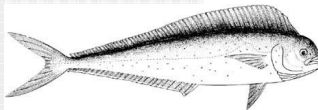
- Pomfrets



- Sauries

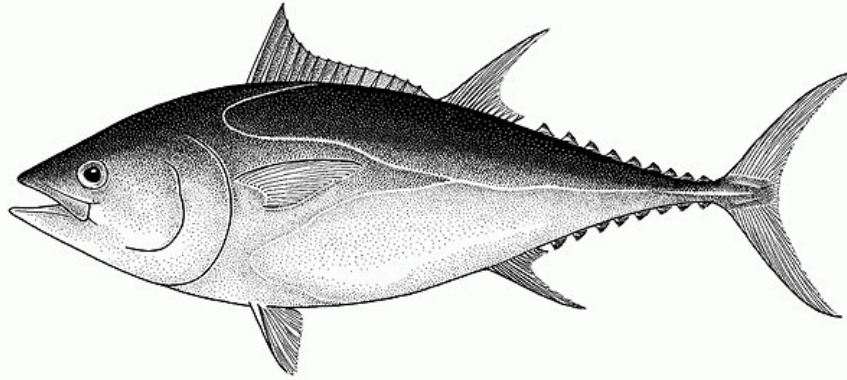


- Dolphinfish



Source: FAO

Trends and figures on tuna fisheries

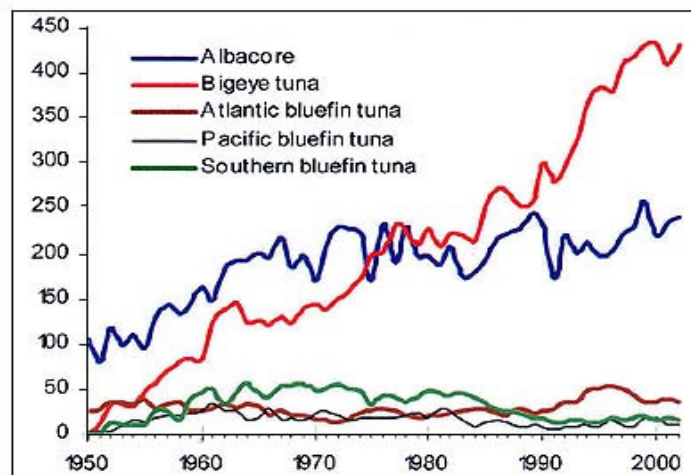


Atlantic Bluefin Tuna (*Thunnus thynnus*)

Source: FAO

Annual nominal catches (thousand tons) of selected tuna, World Oceans

Source: FAO 2005



Exploitation status of highly migratory tuna and tuna-like species (FAO 2006)

- Underexploited: none
 - Moderately exploited: 21%
 - Fully exploited: 50%
 - Overexploited: 21%
 - Depleted: 8%
- } 24 Stocks

The state of exploitation status on other 17 stocks of tuna and tuna-like species is not known.

2. Straddling fish stocks

- UNCLOS does not use the term “straddling stocks”.
- Usually, they mean “stocks occurring both within and beyond the exclusive economic zone.”
- Example: Alaska pollock, cod, blue whiting, haddock, mackerel, etc.
- Deep-sea species are included in the straddling fish stocks in this presentation.

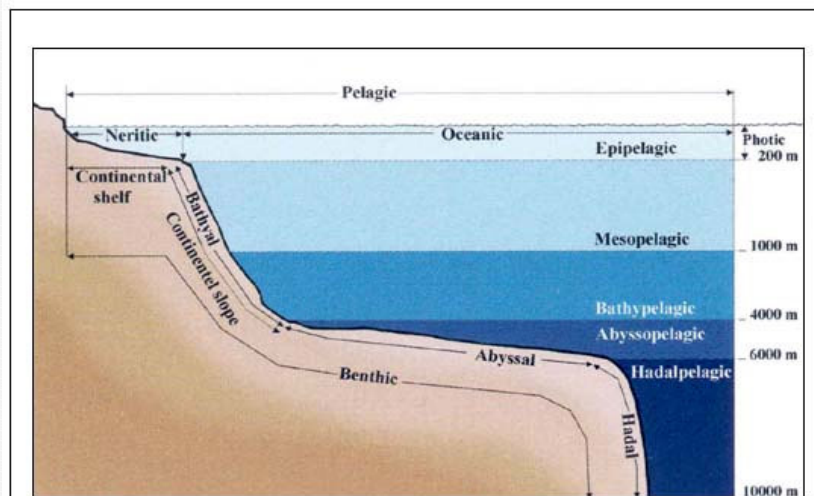
Exploitation status of straddling fish stocks (FAO 2006)

- Underexploited: 4%
- Moderately exploited: 12%
- Fully exploited: 19%
- Overexploited: 58%
- Depleted: 6%
- Recovering: 1%

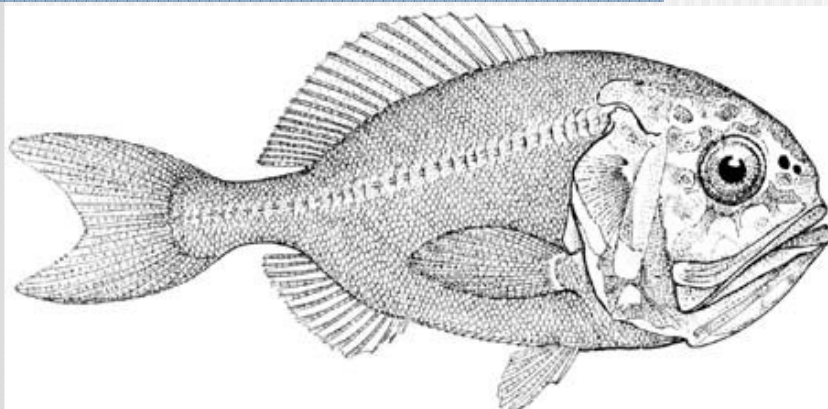
The state of exploitation is not known for 20% of the species/stock categories.

Trend and figures on deep-water Species

Depth Zones of the Oceans (source: FAO 2005)



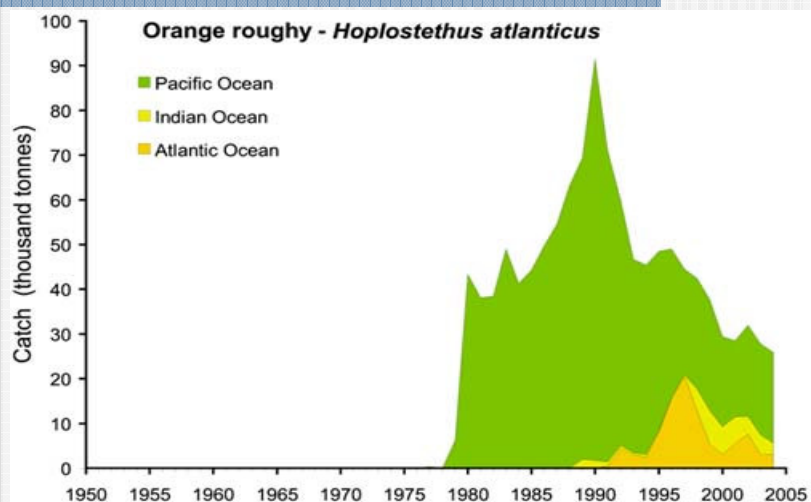
Orange roughy (*Hoplostethus atlanticus*)



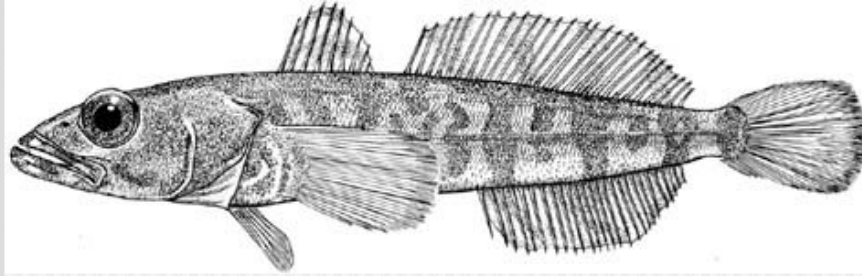
Source: FAO 2006

Catches of orange roughy as reported to FAO

Source: FAO 2006



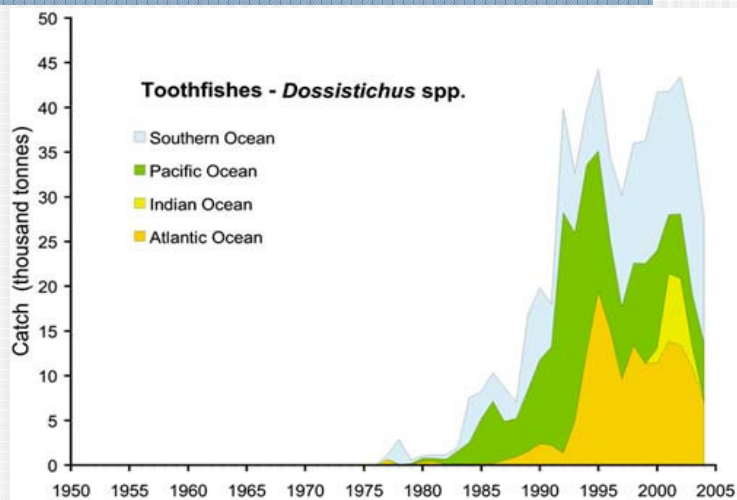
Patagonian toothfish (*Dissostichus eleginoides*)



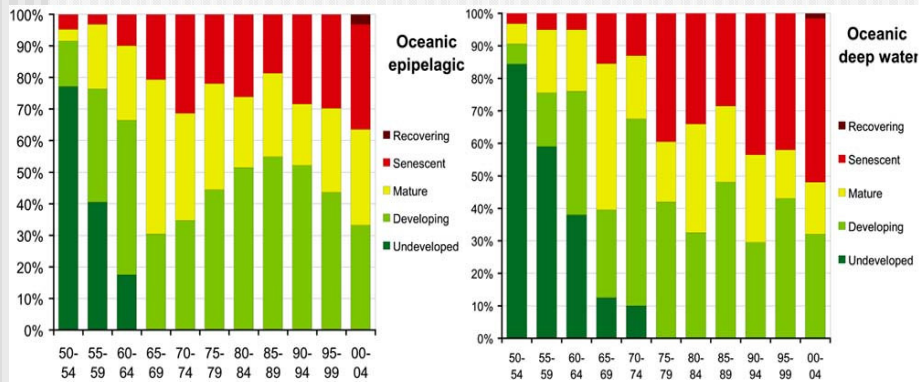
Source: FAO 2006

Catches of toothfish (Antarctic and Patagonian) as reported to FAO

Source: FAO 2006

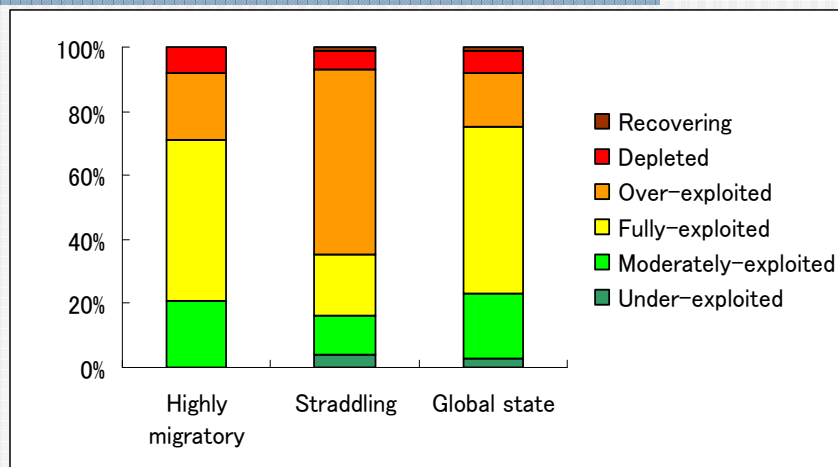


Percentage of the world's top oceanic-epipelagic and deep-water fishery resources in various phases of fishery development, 1950 – 2004



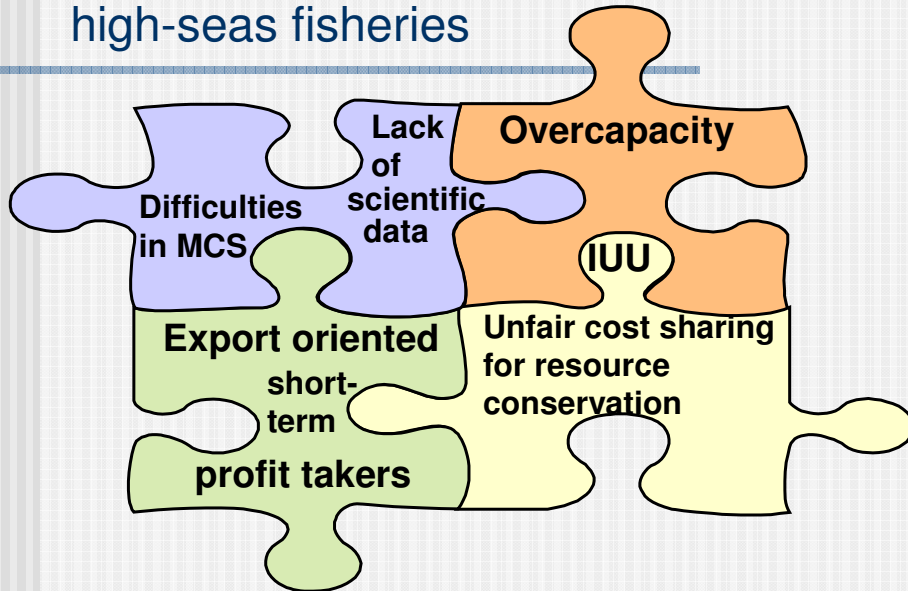
Source: FAO 2006

The high sea stocks appear to be more over-exploited compared with other fish stocks.



Data Source: FAO 2006

Multiple causes of the problems for the high-seas fisheries



Problems of the IUU (Illegal, Unreported, and Unregulated) Fishing

- 20% of the tuna large scale long-line vessels are flag of convenience vessels (Hanafusa and Yagi, 2004).
- Concerns on IUU fishing also exist on tooth-fish fisheries.
- These free-riders must pay the cost of resource conservation.

As for the overcapacity of fishing vessels:
Problems are widely recognized but challenges exist in achieving international consensus.



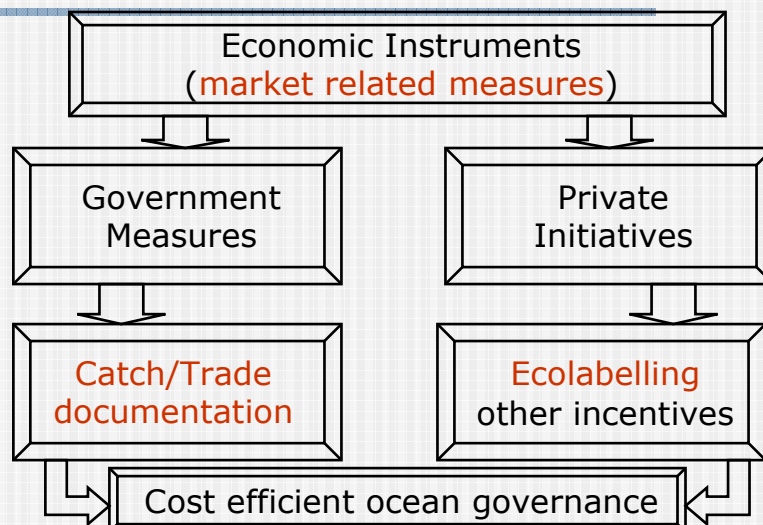
The WTO Doha Round negotiation

- The World Trade Organization (WTO) has provided the rule for WTO Members granting subsidies since 1995.
- A new negotiation has started in 2001 on fisheries subsidies.
- In 2005, the WTO *Hong Kong Ministerial Declaration* noted that there was “broad agreement that the (negotiation) Group should strengthen disciplines on subsidies in the fisheries sector, including through the prohibition of certain forms of fisheries subsidies that contribute to overcapacity and over-fishing”.
- In July 2008, the WTO has failed to agree Ag and NAMA modalities, and the negotiation is considered to be suspended for a year or so.

Decision making processes of RFMOs are not speedy, either.

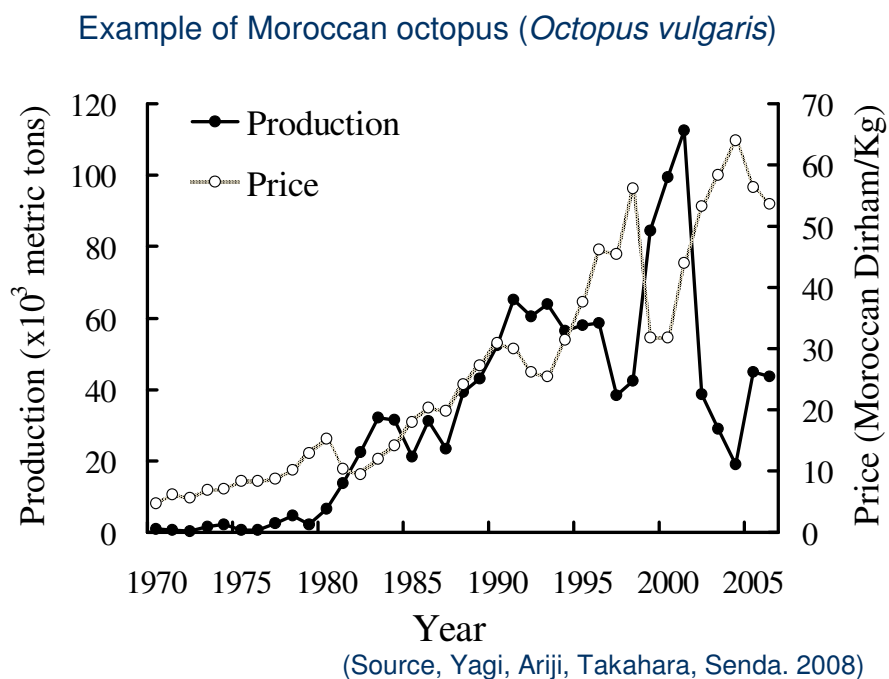
- Even in the case of the ICCAT (International Commission for the Conservation of Atlantic Tunas, which is widely regarded as a successful RFMO), it usually took more than three years before enforcing new measures and IUU vessels easily changed their flag or fishing tactics to continue the IUU operations (Hanafusa and Yagi, 2004)

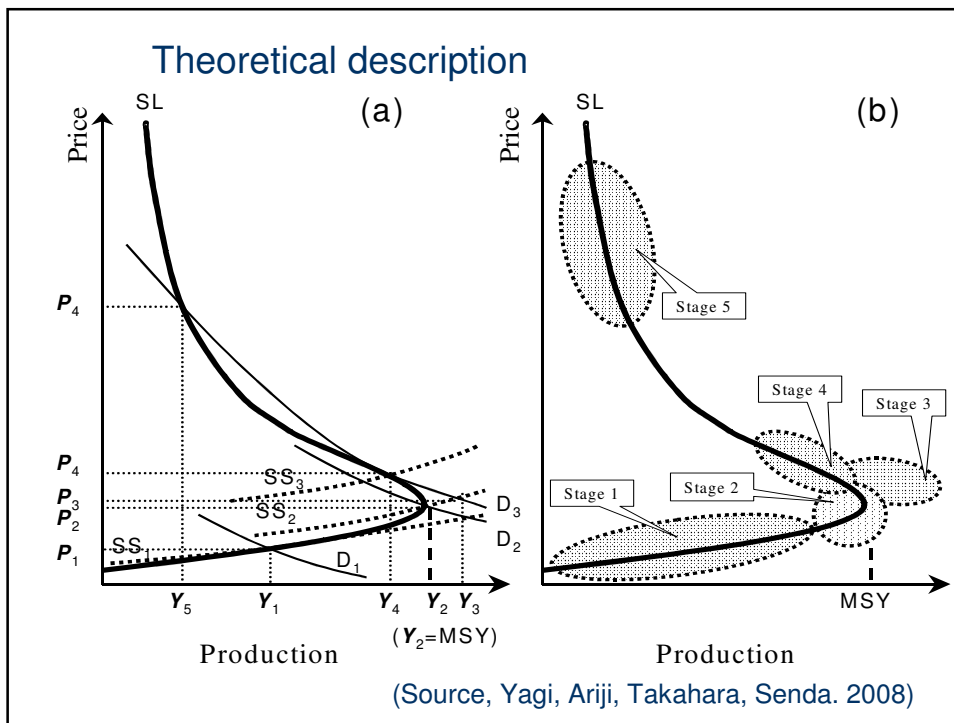
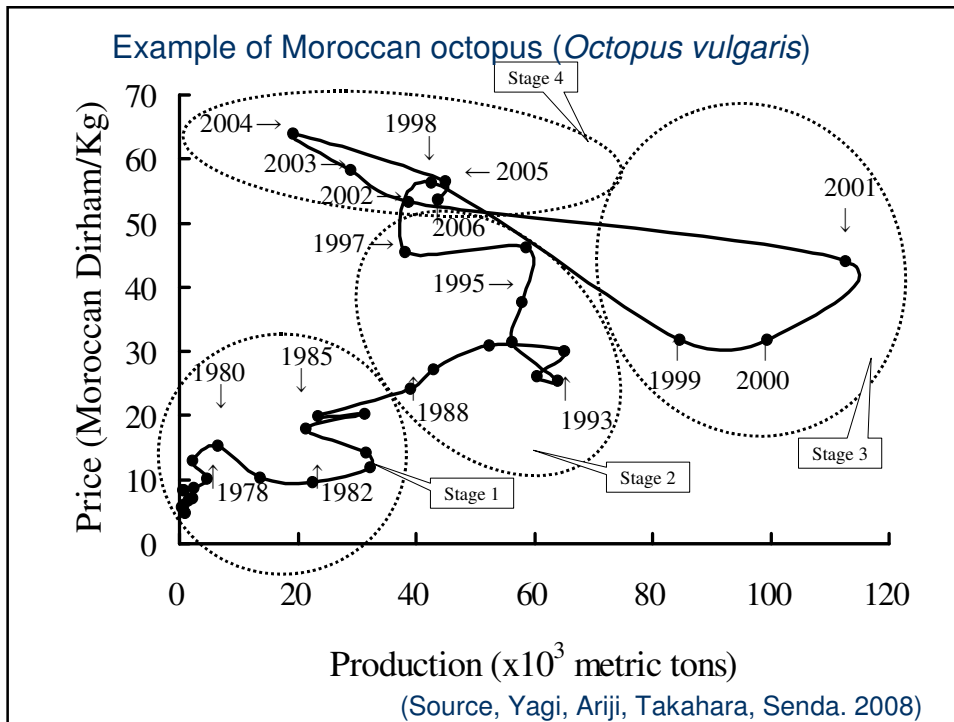
As for the difficulties in MCS (monitoring, control surveillance): Command and control measures should be supplemented by economic instruments



As for the lack of scientific data: The use of market information can be an effective tool.

- Data on (i) price of fish and (ii) the amount of production could tell approximate status of fisheries resources, (although the results have to be double-checked using available scientific data.)





The long-term supply curve (the curve SL in the previous page). (Source: Clark. 1976)

$$Y = \frac{rc}{p} \left(1 - \frac{c}{pK} \right)$$

where Y represents the sustainable yield, r denotes the intrinsic growth rate of the population, K stands for environmental carrying capacity, p represents price of per unit harvest, and c denotes the cost of per unit exploitation. (Source: Clark. 1976)

Summary

- High-seas fishery resources are dwindling, and their governances need challenges.
- Market measures/economic instruments can be used to supplement (but not replace) “command and control policies.”
- Market information may provide an approximate status of a fishery stock (under certain assumptions).

References

- Clark CW (1976). *Mathematical Bioeconomics: The Optimal Management of renewable Resources*. John Wiley& Sons.
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