



NAPOLEON FISH, *CHEILINUS UNDULATUS*, INDONESIA

AUTHORS:

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I. Background information on the taxon

1. Biological data

- *Species: Cheilinus undulatus* (Napoleon, Humphead or Maori wrasse)
- *Distribution:* Widely distributed on coral reefs of the Indo-Pacific with adults extensively using outer reef slope habitats; hence distribution follows that of coral reefs in region.
- *Biology:* Species attains 2 m in length and can exceed 30 years of age. After a dispersive pelagic egg and larval phase of unknown duration and settlement, movements from shallow inshore waters to deeper offshore reef slope areas occur with growth and only limited movements thereafter as far as is known. Reproduces over many months in small male dominated transitory aggregations. Is protogynous (female to male) hermaphrodite with female-biased adult sex ratio and wary of humans wherever fished. Adults only reproduce along outer reef slopes as far as known. Feeds mainly on invertebrates, some fish; thought to be important predator of *Acanthaster planci* (crown of thorns starfish).
- *Global population:* thought to be declining due to historically unmanaged fisheries throughout extensive parts of its range. Population estimates calculated for Indonesia – a major exporter.
- *Conservation status:* IUCN Red List Endangered (2004: <http://www.iucnredlist.org/search/details.php/4592/all>). In Indonesia the species is regulated with no exports of fish < 1kg and > 3kg and NDF since 2007 of 8,000 fish annually. Main threat is harvesting.

2. Species management within the country for which case study is being presented

- *Management:* 1995 control of harvest and export size introduced (see above) due to high value of/demand for fish in live food-fish export market. Measure intended to exert some control on the trade and to stop use of cyanide as a fishing method by permitting traditional fishing only. No restoration or alleviation other than some designated marine protected areas, many of which are still fished.
- *Monitoring:* Sporadic market surveys for landings. Detailed underwater visual census surveys for size and density broadly in eastern Indonesia conducted by Indonesian Scientific Authority and the IUCN Groupers & Wrasses Specialist Group. Details of legislation available on pp. 34-43: http://www.humpheadwrasse.info/AC22_Final.pdf.

3. Utilization and trade for range State for which case study is being presented

- *Type of use:* Wild-caught live animals destined for luxury food in restaurants. Major destinations are Hong Kong and Mainland China and Chinese communities regionally. International trade is in live fish whereas local markets is for dead fish. All fish are wild-caught with extensive capture and grow-out of juveniles. No hatchery production.
- *Harvest:* Fish preferred in size range 0.5-1 kg for restaurants and caught by hook and line and cyanide mainly. Cyanide is most commonly used for smaller fish. Taken by fishers prepared to catch and maintain fish alive, often with assistance of trader/exporters. No management internally other than as above. Exports/permits as in Section II below and as above.
- *Legal/illegal use:* Illegal exports by sea and air continue.

II. Non-detrimental Finding procedure (NDFs)

- *Methodology and data for NDF:* Comprehensive underwater visual censuses (UVC) for numbers and sizes of fish were undertaken in 6 locations in eastern Indonesia in key adult habitat and areas of low medium or high fishing intensity. To calculate abundance in Indonesia, reef slope areas were calculated based on satellite imagery by FAO. A fishery model **FAO Fisheries Circular 1023** was then developed with an interactive programme to allow for country-specific, stock-specific NDFs to be calculated. NDF for Indonesia was developed using internal consultations, including with traders independently of the FAO model, and both approaches gave the same recommendation, adopted in 2007 of 8,000 animals annually (see: http://www.humpheadwrasse.info/C1023_Full_Pub.pdf). Only air exports permitted to improve enforcement with some illegal air cargo into Hong Kong intercepted; Hong Kong requires permits in addition to those under App. II. The UVC method has recently been applied in E. Malaysia, a major supplier of the species, for NDF, with recommendation of zero quota under consideration.
- *Major problems:* Illegal exports by sea continue including through Malaysia and out of the Philippines. Application of Appendix II listing has not been applied in Mainland China, a major importer.
- *Recommendations:* All relevant countries to implement Appendix II esp. Mainland China; only air exports permitted; conduct in-country monitoring of landings and grow-out. Work to address illegal exports from Philippines to Malaysia. If illegal trade continues ban all export (consider Appendix I).