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Young Napoleon wrasse at a retail outlet in southern China

INTRODUCTION & BACKGROUND

A workshop on the Napoleon (Humphead) wrasse was conducted in Jakarta for 2.5 days from 8-10 December 2015, co-hosted by the IUCN Groupers & Wrasses Specialist Group (GWSG) and Directorate of Conservation & Marine Biodiversity DG of Marine Spatial Management, Ministry of Marine Affairs & Fisheries. The workshop addressed (1) NDF for the species and associated survey results from 6 reference field sites, (2) issues around illegal, unregulated and unmonitored trade (IUU) of the species and (3) conservation planning for the species as a process complementary to the ongoing development of an Indonesian National Plan of Action for Napoleon wrasse initiated 3 years ago. The workshop and related activities were funded by the Convention on International Trade in Endangered Species (CITES) Secretariat to the GWSG and conducted as part of the work identified in CITES Decision 15.87 at CITES CoP15 in relation to IUU in Napoleon wrasse, and to assist in implementing the follow-up decisions 16.139 and 16.140 on the same issue from CoP 16, as well as in relation to NDF and their ongoing improvement. Funding for this workshop was also supported by the Ministry of Marine Affairs & Fisheries which provided transport for participants from outside Jakarta. Other issues addressed related to NDF effectiveness (as determined from field surveys) as well as discussion on possible new approaches to NDF and opportunities arising from settlement stage grow-out operations being conducted in the Anambas Islands of western Indonesia.

The meeting was jointly organized by the **IUCN SSC Groupers & Wrasses Specialist Group** (GWSG) and the **Indonesian Ministry of Marine Affairs and Fisheries**. Among the international participants and assisting in the meeting were Dr. Kim Friedman (FAO, aquaculture and fishery modelling), Dr. Philip McGowan (Newcastle University and IUCN, SSC Conservation Planning Sub-Committee) and Daniel Kachelriess, Marine Species Officer, of CITES. From Indonesia, key government attendants were present as well as 4 trader/farmers from Anambas/Natuna islands (see **participant list** and **agenda** annexes below). English-Bahasa translation was provided for the full 2.5 days of the meeting.



First day of meeting at the Jakarta BluSky Hotel, Jakarta. Bilingual translation (Bahasa/English) was provided throughout the meeting



The workshop was held for 2.5 days in two meeting rooms (upper and lower photos) in the BlueSky hotel in Jakarta with a total of 40 participants.

WORKSHOP OBJECTIVES

At least 40 participants attended to discuss four issues:

- (a) given that exports of Napoleon wrasse (from capture-based aquaculture operations) are ongoing from Anambas that are not part of the CITES export quota of Indonesia, there was interest to (i) develop an NDF for Anambas Islands given the unusual nature of the grow-out (capture-based aquaculture or ‘ranching’ of settlement phase juveniles which is much smaller than in other grow-out operations) production of wild-caught Napoleons, (ii) stop the illegal export trade out of these islands, (iii) deal with the current ‘stockpile’ of c. 300,000 caged fish held at the islands of Anambas and Natuna as a one-off export and (iv) develop sustainable use and conservation initiatives that would ensure ongoing income from Napoleon exports for the communities of these islands (western Indonesia) and healthy fish populations to support these communities;
- (b) the National Plan of Action NPOA for the species intended to address nationwide planning for the species to maintain healthy populations and the ecosystem it depends on while maintaining livelihoods from the species;
- (c) conservation planning was conducted as a complementary process to the NPOA and using IUCN expertise and approach which involved: broad consultation; development of vision and objectives; and identification of major issues to be addressed. The process is not prescriptive but is useful to provide guidance to move towards the jointly agreed vision and objectives;
- (d) the results of 6 years of work (underwater visual census (UVC) surveys for population abundance) during which field surveys were conducted at sites of low, medium and high fishing pressure (total of 6 sites) around Indonesia to assess Napoleon fish numbers. Initially, these surveys were conducted shortly after the CITES listing of the species in 2004 and then between 4 and 7 years later such that each site was surveyed twice to see the effects of management or ongoing fishing. These survey results were used in a FAO production model (Sadovy et al. 2007) to simulate how changes in fish density have affected production estimates across Indonesia. This is joint work between LIPI Indonesia and the IUCN GWSG.



The workshop organizers and participants ranged from fish culturists from Anambas/Natuna Islands to Indonesian government, IUCN/HKU, FAO, and CITES representatives.

KEY OUTCOMES

(a) A major discussion involved the exports of tens of thousands of Napoleon fish out of the Anambas (and Natuna) Islands, Riau Province, western Indonesia; approximately six to ten tonnes (about 15,000-20,000 fish as reported during a presentation) exported annually in recent years. Although the Indonesian government has implemented an air-only export policy for this species, exports by boat continue to Hong Kong and/or Mainland China although the traders present at the meeting reported that the frequency of exports had become less in recent years. Indonesia is investigating this situation.

The fish are caught while still very small (shortly after settlement out of the plankton and up to a few cm in length). The source of these post-larval fish is not known since there are few large adult Napoleons remaining in the wild in these islands, according to a recent UVC survey conducted on fringing reefs. While Napoleon fish tend to be more wary of swimmers where heavily fished, it is still possible to see them if they are present and the surveys were extensive. Moreover, it is possible that some small fish are also brought in the Anambas for grow-out from other places, according to one trader. While some of the traders at the meeting suggested that the caged fish are the source of the collected settlement phase fish, there is no evidence for this. DNA evidence that was collected to test this theory was not conclusive according to one presentation and very few adults are present in grow-out cages (Sadovy pers. obs). The very low numbers of this species in the wild around the Anambas Islands seen in a recent UVC seem unlikely to support a productive local source of larval production and is consistent with the interpretation that larvae are likely to be coming in from adults spawning outside the islands or from deeper water ‘seamount’ reefs that are potentially holding refuge communities of Napoleon fish; however larval provenance is unknown and their long larval duration and regional oceanographic conditions could mean that they travel a significant distance to the Anambas/Natuna islands. Work is needed to determine sustainable levels of post-larval capture for this species to support an NDF (non-detriment finding).



Several of many cages used to grow out early post-settlement stage Napoleon fish to market size in the Anambas Islands

The small fish are grown out to market size (about 500 – 1,000 g) for as many as 5 or 6 years and then shipped out of the islands live in ‘well’ vessels registered in Hong Kong/Mainland China. The vessels reportedly come multiple times a year and take the fish back to Hong Kong or Mainland China, according to reports from Anambas traders and interviews with traders in Hong Kong. None of these fish are legally exported from Indonesia as part of the 2,000 fish CITES export quota of Indonesia and none are reported to have CITES permits to enter Hong Kong or Mainland China or to be transhipped through Hong Kong (Wu and Sadovy de Mitcheson 2016). The numbers are entirely inconsistent with the zero official imports into mainland China, either as recorded in the UNEP-WCMC database by Hong Kong or Mainland China or in Hong Kong’s own records (AFCD reporting to Sadovy). In Mainland China market surveys, trader interviews and on-line adverts tens of thousands of fish (at least) have been on sale in recent years (Wu and Sadovy de Mitcheson 2016 and independent WWF and GWSG surveys:

(https://www.iucn.org/about/work/programmes/species/who_we_are/ssc_specialist_groups_and_red_list_authorities_directory/fishes/groupers_wrasses_sg/hhw_gwsg_home/).

In Indonesia, the government has tried to control international trade in the Napoleon fish by applying an export quota and providing some support (with staff) for the repeat UVC surveys conducted over multiple years and study sites (presented under item (c)). The government has also introduced an air-only export policy to assist implementation of CITES because of the challenge of ongoing illegal exports when fish are shipped out of Indonesia by sea.

Napoleon fish exports support many livelihoods (over 1,000 households) in the fairly remote and impoverished islands of Anambas and Natuna, and may be important for community income elsewhere in the country and so there is interest to maintain healthy populations and conduct legal trade. The Indonesian government has established a marine protected area (MPA) for Anambas and Natuna Islands: Anambas is a national MPA and Natuna is a District MPA. Indonesia is also conducting a project called coral reef rehabilitation and management (Coremap) for 24 MPAs including Anambas and Natuna. Part of Coremap activities include management of Napoleon wrasse with the objective to have its population stable in the wild; currently the species can only be harvested legally at 1000-3000 g.

As part of a presentation on Napoleon fish NDF and how this FAO approach could be adapted for the Anambas/Natuna Islands and the grow-out of very small fish, Dr. Friedman identified a need to ensure the removal volumes of juveniles enhanced overall production while ensuring enough remain in the wild to allow wild populations to persist. Several management options were discussed from input controls of effort limitation (limit to juvenile collection area, collection time, number of registered collectors), to output controls (catch quotas, size slot fisheries, threshold catch rates for limited number of fishers). Dr. Friedman also presented various relevant FAO publications on CITES non detrimental findings (NDF), capture based aquaculture (CBA), estimation of reef area, etc. (Lovatelli and Holthus 2008; Oddone et al. 2010; Use of wild fishery resources for capture-based aquaculture 2011).

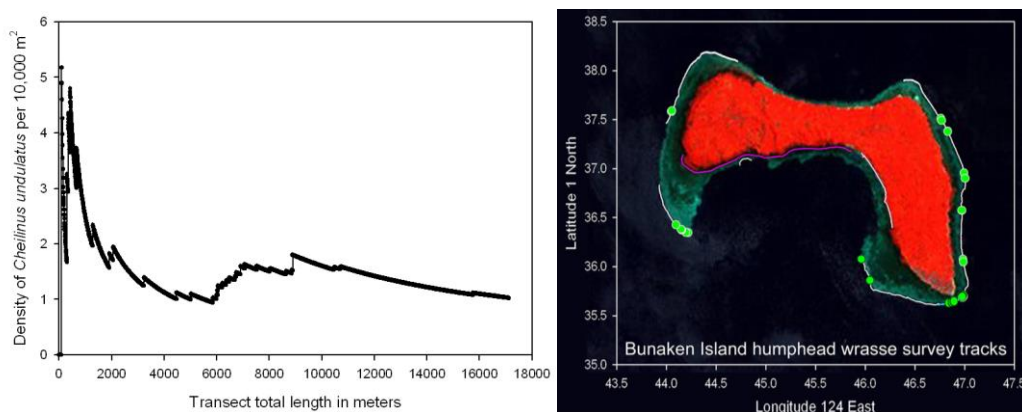


Conducting field survey to assess populations of Napoleon wrasse in Indonesia

(b) The National Plan of Action for the Napoleon fish was initiated three years ago but with the emergence of the Anambas situation has become more heavily focused on this area. It was presented in addition to a conservation planning exercise that sought to identify the vision, goals, objectives and possible actions for Napoleon wrasse in the country through a consultative process. The draft conservation plan is now under review but the vision identified by the December meeting, consistent with that identified at an earlier meeting in 2012 when the conservation planning process was initiated, was **‘The long-term survival of Napoleon fish in a diverse marine ecosystem for people to enjoy and use’**. Two specific goals under the vision were identified as (1) **‘The Napoleon fish occurs throughout its natural distribution in Indonesia’**, and (2) **‘The Napoleon fish is available as a source of pride and a resource for local communities to improve and sustain their livelihoods’**. An earlier assessment of exploitation and trade in this species indicates clearly that it is ‘conservation-dependent’ (Gillett 2010).

(c) The conservation planning exercise continued by identifying actions and discussing specific objectives for achieving these two goals (see **Table 1**). Working group discussions ranged from restocking to awareness-raising (Napoleon as an iconic species, ‘Napoleon week’), and identification of information needed for sustainable use and how this might be collected. The importance of juvenile habitat was discussed, as was monitoring of catches and the idea of an association of fishers/farmers for live reef fish in areas where this trade is particularly active. The need to diversify export trade of Napoleons beyond solely on Hong Kong and China was identified. The long-term Vision included both social and biological goals ‘The long term survival of Napoleon fish in a diverse marine ecosystem for people to enjoy and use’. The two Objectives under this Vision reflected these two needs as (1) The Napoleon fish occurs in viable populations throughout its natural distribution in Indonesia, and (2) The Napoleon fish is available and respected and safeguarded as a source of pride and a resource for local communities to improve and sustain their livelihoods.

(d) Results of the UVC surveys unequivocally show that, in those locations in Indonesia, where the species is not protected or fishing pressure continues to be high, densities are extremely low for the species (i.e. < 0.5 fish per hectare), or decreasing, with very few of those fish in the adult size range; almost all fishes observed in the wild were juvenile to very small adult size range (Sadovy de Mitcheson Y. and Suharti, S, unpublished data). This is clearly a conservation-dependent species that depends on some level of protection to maintain viable populations (Gillett 2010). Only where fishing pressure was low or zero (e.g. Banda and Bunaken) were adults encountered. Encouragingly, where fishing pressure was initially (first survey) judged to be medium and then reduced (before second survey), recovery (more juvenile fish) was initiated within 4 years (the location was Fakfak, western Papua) suggesting that management bring positive changes within a relatively short period of time.



GPS transects were run along adult habitat to assess populations and plotted on maps (white line is transect, dot is fish location) (right) and as a graph to determine length of transect necessary for representative sample: in this case about 15 km (left).

The UVC results also showed that in protected areas fish densities were stable or had increased (Banda Islands, Bunaken MPA). In Fakfak, initially medium fishing pressure but where fishing stopped, fish densities increased. In Raja Ampat (medium fishing pressure) densities stayed constant. However, in areas of initially high and ongoing high fishing pressure (Maratua and Komodo), Napoleon densities remain extremely low or had further reduced. Anambas, an additional site, was surveyed once and has very low natural density of Napoleon fish (although there were reported to be many wild Napoleons in the past) following a long period of exploitation and no management. Kangian, outside of Bali, was also surveyed once; this site is intensively collected, had very low fish numbers and was considered to be too dangerous to resurvey.



Live fish carriers take fish including Napoleon fish from Indonesia to Hong Kong; some are operating illegally

Additional presentations and major outcomes/issues

Two additional presentations were made on behalf of invitees who could not attend. In relation to invitees from mainland China and Hong Kong, Yvonne Sadovy met with AFCD (Agriculture Fisheries and Conservation Department of the Hong Kong Special Administrative Region) staff on 27th November to request updated CITES trade data to October 2015. A member of AFCD staff was invited to join the Jakarta workshop (with travel and accommodation to be paid by this project) but AFCD was unable to spare the staff to attend; however AFCD provided a powerpoint presentation of the current situation of Hong Kong trade and regulation of this species and confirmed that there is little monitoring of Hong Kong registered vessels entering Hong Kong (note that these are likely to be a major source of trade in this species). A mariculture researcher (Dr. Guohua CHEN (chguh3240@aliyun.com) of Hainan University, Hainan Province, China, was invited from China but was unable to attend. He (together with colleague Jian LUO: luojianfish@aliyun.com) provided a powerpoint to update the meeting on hatchery production of the species; the powerpoint describes successful larval rearing and feeding of this species but further work may not continue at present because of economic inviability due to difficulty with artificially feeding small juveniles and the fishes slow growth to market size. *Note that all powerpoints are provided as a document separate to this report.*

In relation to NDF and Indonesia

1. The Indonesian government is now investigating violations of the CITES at Anambas islands and considering how to maintain a fishery with legal exports from there in accordance with the Appendix II listing of this species in future. The Minister of Marine Affairs and Fisheries has considerably tightened up on IUU vessels in Indonesian waters which might affect HK vessels collecting Napoleons and could account, at least in part, for the lower numbers of Napoleons exported in recent years. Control of the Anambas exports could be strengthened by successful implementation of additional measures (see below). There are both immediate and long-term challenges to safeguarding viable Napoleon populations and ensuring legal exports. Both were discussed including (a) Exporting existing fish in cages as one stock pile (exempt from quota) and (b) Setting up system for (legal) Napoleon trade and management. **Immediate challenge:** there is a large 'stockpile' of approximately 300,000 Napoleons in cages in the islands (consolidated and raised over many years) that are waiting for export from Anambas/Natuna islands. The Indonesian government will, in liaison with the CITES Secretariat, explore options to export the fish already in these cages in line with Article IV of the Convention. Discussion was conducted on further stocktaking of Napoleons and data collection (including number of fishers, fish mortality rates in cages, etc., responsible agencies, export modes and documentation and oversight of grow-out operations). **Long-term challenges:** planning for NDF work to determine the number of Napoleon fish that can be sustainably exported annually, with the possibility to develop an NDF and/or quota specifically for Anambas/Natuna was discussed and various management options (spatial measures, quota, fishing effort, seasonal, etc) explored for their feasibility taking into account the CBA (capture-based aquaculture or ranching) nature of the fishery/culture operations and the reduced numbers of wild adult Napoleons in the area (relative to previously indicated levels). Studies to determine sustainable catch rates, critical post-larval settlement habitat (from where the fish are currently collected), and evaluate growth and mortality (both natural and in captivity) rates were discussed. Specifically addressed were legality, sustainability, traceability and outreach in relation to Napoleon export trade.

4. It was clarified by the CITES representative that the Napoleon fish being grown-out from small juveniles (up to a few cm) is considered under CITES as being 'ranched' which in contrast to "bred in captivity" requires an NDF to be established for the species to ensure sustainable levels of capture and export.
5. If there were a separate NDF or quota just for the Anambas Islands there could be a possibility of 'laundering' of small Napoleons into the Anambas islands coming from elsewhere in Indonesia, that are then grown out in Anambas and sold from the islands. Safeguards would need to be in place to prevent this. Hong Kong vessels also collect mixed shipments of groupers and Napoleons for export. Hence, traceability of tiny Napoleons is important to consider. The government is aware of this and is considering how to address these issues.
6. Planning between government and local communities will be discussed to address illegal trade and to determine how to export the fish (once NDF has been determined) legally. The possibility of forming an association of traders/farmers/government, etc., in Anambas to plan for future sustainable use was discussed. The current air-only export policy of Indonesia for this species is not considered to be very practical from this location so changes to legislation might be needed.
7. The planned transition of CITES MA authority from the Ministry of Forestry to Ministry of Marine Affairs and Fisheries should assist with oversight and enforcement of commercial marine species. Education/outreach for communities producing Napoleon fish through ranching about the CITES listing and its implications as well as the need for sustainable management of a capture-based fisheries is needed, as well as general education on the Napoleon fish in general.

In relation to imports of Napoleon fish from Indonesia and Hong Kong/Mainland China

1. Regarding communication between management authorities, there is communication between the Indonesian Management Authority (MA) and the Chinese MA but little from the Hong Kong MA (AFCD of the HKSAR) according to the Indonesian CITES MA.
2. An update from AFCD on internal import and re-export records of Napoleons on CITES permits provided to Sadovy showed that re-exports were not or rarely recorded to mainland China in recent years and that few (a couple hundred fish) had been recorded as imported under CITES permit over the last few years with 150 in 2014 and none in 2015 until end December. This is contrary to >1,000 fish counted by a Hong Kong University project doing monthly surveys from November 2014 to December 2015 (Wu and Sadovy de Mitcheson 2016). About 25 shops were surveyed by this project and none were clearly exhibiting their permit to possess Napoleons as required by the government. Inspections of some premises occur each year according to AFCD staff (6 shops in 2015) who have followed up on these reports and seized 9 individual Humphead wrasse.
3. There appear to be no legal imports of Napoleons into mainland China in recent years according to WCMC-UNEP records, despite many observed on retail sale and advertised according to separate studies by WWF, IUCN and TRAFFIC. The government has recently completed some training of customs officers to identify the species (loc. cit.).
4. One comment that occurs in mainland China occasionally is that some of the fish could be from Chinese waters and, while this may be true for a few fish, these waters are considerably overfished and there is no evidence of large numbers of Napoleons remaining. At the recent workshop in Beijing participants indicated that they did not know where the HHW come from that are sold in mainland China.



Live fish including many Napoleon wrasse on sale in Sai Kung, Hong Kong

NEXT STEPS

The following next steps are being taken or are under consideration.

1. The seven years of results of initial and follow-up underwater visual census monitoring, conducted shortly after the Appendix II listing and repeated 4-7 years later at 6 reference field sites in Indonesia will be published by Yvonne Sadovy and Santi Suharti in 2016.
2. We will seek to align the Conservation Planning Outputs to the ongoing National Plan of Action for the Napoleon wrasse in Indonesia, explore the development of aspects of its implementation of interest to the Indonesian government, and find ways to taking these forwards (this might require additional meetings).
3. Yvonne Sadovy is working with colleagues to model the different fisheries (different capture sizes of animals) of Napoleon fish to determine the most productive strategy and as an initial assessment of the implications of the post-settlement collection and grow-out operations being conducted in Anambas/Natuna islands.
4. A publication is being discussed to document lessons learned since the CITES Appendix II listing of the Napoleon wrasse in Indonesia for a journal publication.
5. Follow up work is being conducted in Hong Kong in relation to illegally sourced animals regularly appearing in local Hong Kong markets believed to come from Indonesia as part of investigations into ongoing IUU in this species into and through the city.
6. Dr. Kim Friedman (FAO) is looking for funding (with the support of Firdaus Agung) to conduct studies on the grow-out fishery of the Anambas islands to improve its sustainability and productivity and to act as a positive model for this mode of production. This would allow for a revisiting of NDF for this species.
7. Indonesia to follow up with the CITES Secretariat on the Anambas 'stockpile'.



Two sessions addressed conservation planning for the Napoleon wrasse involving brainstorming, sub-group discussions, identification of key concerns and needs and the development of a general planning framework. One suggestion was to have a 'Napoleon week' to raise interest and understanding of the species.

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The organizers are most grateful for financial and other assistance received that enabled them to organize and conduct this meeting. Funding was received from the CITES Secretariat to the IUCN GWSG and conducted as part of the work identified in CITES Decision 15.87 at CITES CoP15 in relation to IUU in Napoleon wrasse, and to assist in implementing the follow-up decisions 16.139 and 16.140 from CoP 16. Funding was also provided by the Ministry of Marine Affairs & Fisheries in Indonesia by providing transport for participants from outside Jakarta. We are also very grateful for various logistic and organisational support, especially thanking Badiah, Santi Suharti and Firdaus Agung. We thank Kreasi Veteriner Indonesia for excellent translation services. We are very grateful to Philip McGowan (IUCN), Kim Friedman (FAO) and Daniel Kachelreiss (CITES) for their support and input to the meeting and ongoing work.

Table 1. Vision, Goals, Objectives and Actions for Conservation Planning for the Napoleon fish (humphead wrasse) in Indonesia

Vision	The long term survival of Napoleon fish in a diverse marine ecosystem for people to enjoy and use	
Goals	The Napoleon fish occurs in viable populations throughout its natural distribution in Indonesia	The Napoleon fish is available and respected and safeguarded as a source of pride and a resource for local communities to improve and sustain their livelihoods
Objectives	1. To ensure that appropriate legislation, policies and administrative structures are in place so that management can be implemented effectively and efficiently	1. Develop sustainable wild caught fishery with legal exports conducted at biologically sustainable levels based on a complete overview of the fishery (fishers-capture-supply-markets) ensuring it provides long term benefits to the suppliers (local communities)
	2. To develop scientific capacity and expertise on Napoleon fish and collect, disseminate new scientific knowledge and regularly check the status of Napoleon fish to enable implementation of adaptive management	2. Promote coastal livelihoods that will meet local needs with benefits gained from the species, but will not damage the survival prospects of the Napoleon fish or its habitat.
	3. To implement management that will lead to recovery and increase in Napoleon fish numbers and distribution to a sustainable level and maintain healthy populations	3. Support the development of sustainable capture - cultivation operations (capture based aquaculture) linked to diversified marketing opportunities (local food and ecotourism, regional and Chinese markets)
		4. Strengthen the understanding of the importance of wise management of the Napoleon amongst those whose activities may influence and benefit from its survival
Actions	Objective 1. To ensure that appropriate legislation, policies and administrative structures are in place so that management can be implemented effectively and efficiently	1. Develop sustainable wild caught fishery with legal exports conducted at biologically sustainable levels based on a complete overview of the fishery (fishers-capture-supply-markets) ensuring it provides long term benefits to the suppliers (local communities)
	1.1 Develop effective co-ordination mechanism within and between agencies (e.g. fisheries, forestry, police, customs and local government) and establish leadership in implementation of CITES App II	1.1 Support the establishment of professional associations for the Live Reef Food Fish Trade (LRFFT) linked to a long term diversified business plan for all fisheries of Napoleon fish whether CBA or when captured for immediate export
	1.2 Review existing policies and legislation and revise as needed	1.2 Understand better the viability and/or potential export trade and seek to diversify market/trade chain for Napoleon wrasse.
	1.3 Regulate the capture of fish (eg number, time, location and method) and implement a log book system to track fish	1.3 Explore international airport/boat access options (Malaysia or Singapore)
	1.4 Seek means to ensure patrolling and	2. Promote coastal livelihoods that will

	enforcement and public engagement to support these.	meet local needs with benefits gained from the species, but will not damage the survival prospects of the Napoleon fish or its habitat.
	1.5 Monitor and evaluate impact of changes in policy, legislation, enforcement and general management, instituting adaptive management where needed	2.1 Develop and implement a socialisation programme on pressures facing the species and how sustainable practices can long-term benefit (e.g. fishing methods, sustainable offtake, habitat protection)
	2. To develop scientific capacity and expertise on Napoleon fish and collect, disseminate new scientific knowledge and regularly check the status of Napoleon fish to enable implementation of adaptive management	2.2 Develop business plan for alternative income sources for coastal communities, such as high end fishery, diving and culinary tourism (including for Napoleons)
	2.1 Define the key research questions and monitoring indicators , methods and reporting requirements for sustainable management of Napoleon fish in Indonesia	2.3 Develop community groups tasked with monitoring local practices (<i>Kelompok Masyarakat Pengawas</i>)
	2.2 Conduct study to understand key structural (e.g. population genetics) and functional (e.g. recruitment and reproduction) aspects of life history and population structure of Napoleon fish	3.4 Examine potential scope and content for formal education (e.g. through school curriculum) and non-formal awareness-raising programmes (e.g. ‘Napoleon week’, engaging local wisdom and the potential for the Napoleon fish to become an iconic species for Indonesia) (see 4.1 below)
	2.3 Conduct a regular assessment of stock status indicators to determine the current population level (abundance, distribution and sizes-adults/juveniles) against historical records	3. Support the development of sustainable capture - cultivation operations (capture based aquaculture) linked to diversified marketing opportunities (local food and ecotourism, regional and Chinese markets)
	3. To implement management that will lead to recovery and increase in Napoleon fish numbers and distribution to a sustainable level and maintain healthy populations	3.1 Develop a Live Reef Fish Food Association(s) in Anambas and Natuna and anywhere else where Napoleon fish CBA is conducted.
	3.1 Determine management needs for the species nationally (e.g. priority habitats, sites, life cycle needs) and promote appropriate measures that take into account globally accepted standards, such as IUCN and FAO guidance)	3.2 Conduct research into growth, catch and feeding rates for sustainable capture based aquaculture production including the sustainable use of feed fish.
	3.2 Identify important habitat (e.g. recruitment and reproduction) for the species and consider its possible protection or strategy for recovery by removal of damaging factors	3.3 Develop Non Detriment Findings for Anambas/Natuna for sustainable levels of legal export under CITES Appendix II and establish export transport mode
	3.3 Strengthen management of fished populations to maintain viability and productivity	3.3 Conduct feed studies to minimise feed costs and maximise food conversion rate
	3.4 Develop a strategy and framework for	Objective 4. Strengthen the understanding

	long-term monitoring of harvest and trade	of the importance of wise management of the Napoleon amongst those whose activities may influence its survival
	3.5 Conduct awareness-raising programmes targeted at those involved in business and regulations, such as fishers, traders, retailers and enforcement, conservation and customs officers, etc	4.1 Conduct awareness-raising programmes targeted at those involved in business and regulations, such fishers, traders and enforcement officers
		4.2 Conduct awareness-raising programmes targeted at the general public, school children, fishers, culturists. Local traders, the tourist service sector and tourists
		4.3 Examine potential scope and content for formal education (e.g. through school curriculum) and non-formal awareness-raising programmes (e.g. 'Napoleon week', engaging local wisdom and the potential for the Napoleon fish to become an iconic species for Indonesia)

ANNEX 1 – MEETING PARTICIPANTS

PARTICIPANTS JAKARTA NAPOLEON WORKSHOP 8-10 DECEMBER 2015

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ANNEX 2 – MEETING AGENDA

Time	Name/title	AGENDA TOPIC	Time Allocation
November 8 (9 am – 5.00 pm)			
9.00 – 09.30	1. Firdaus Agung (MMAF) and 2. Dr. Yvonne Sadovy (HKU/IUCN)	<ul style="list-style-type: none"> • Welcome and introduction to meeting • History of work on Napoleon in Indonesia and of CITES App II listing • Objectives of workshop • Self- introductions 	30 minutes
9.30 – 10.00	Mr. Agus Dermawan MSi (Director for Marine Conservation and Biodiversity)	Recent policy on Napoleon Wrasse (protection status and trade)	30 minutes
10.00 – 10.30	Dr. Yvonne Sadovy and Santi Suharti (LIPI)	Brief biological profile of the Napoleon wrasse and need for management. Presentation of 6 years of field studies on abundance of Napoleon wrasse following the CITES App II listing	30 minutes
10.30-11.00	Dr. Kim Friedman (FAO)	Demonstration of model of NDF as currently used for Napoleon fish in Indonesia as developed by IUCN/FAO and relevance for other marine species	30 minutes
Coffee break			
11.30 – 11.45	Dr. Yvonne Sadovy (on behalf of Professor Guohua CHEN, Hainan University)	Situation of mariculture of Napoleon fish in China – PPT submitted from China on status of hatchery production of the species – Professor could not attend personally-PPT translated by Dr. Liu Min (GWSG).	15 minutes
11.45-12.00	Dr. Yvonne Sadovy (provided by Boris Kwan from Hong Kong Agriculture, Fisheries and Conservation Department)	Situation of IUU with Napoleon fish between Indonesia and Hong Kong/Mainland China and presentation provided by Hong Kong government on implementation in Hong Kong; relevance for CITES	15 minutes
12.-12.30	Dr. Philip McGowan	Introduction to IUCN SSC conservation planning: what it is and how it can help with sustainable management	30 minutes
Lunch Break 12.30 – 13.30			
1.30 – 2.30	Dr. Philip McGowan	Presentation and discussion of the key aspects of the draft strategy developed at 2012 workshop	1 hour
2.30 – 4.30	Dr. Philip McGowan	Analysis of current information on threats to Napoleon fish and constraints sustaining populations. Consideration of new information on status and management opportunities	2 hours
4.30 – 5.00	Dr. Yvonne Sadovy	Discussion and wrap-up day 1	30 minutes
November 9 (9 am – 1.00 pm)			
9-9.15	Dr. Yvonne Sadovy	Introduction to special discussion on NDF for Napoleon fish in Anambas	15 minutes
9.15-10.15	Dr Fayakun (MMAF R&D)	Recent research results (situation and challenge for NDF for Napoleon fish) and proposed sea ranching of Napoleon in Anambas.	1 hour
10.15-11	Dr. Kim Friedman and Dr. Yvonne Sadovy	NDF approach for Anambas Napoleon fish grow-out	45 minutes
11-12	All	Discussion on NDF for Anambas and next steps for data collection and NDF modelling	1 hour
November 10 (9 am – 5 pm)			
9.00 – 11.00	Dr. Philip McGowan	Assessment of actions needs to achieve conservation strategy	2 hours
Coffee break			
11.30-12.30	Dr. Philip McGowan	How the conservation strategy can support the NPOA	1 hour
Lunch Break 12.30 – 13.30			
1.30-3.30	Dr. Philip McGowan	Implementing the conservation strategy	2 hours
3.30-4.30	Mr. Didi Sadili (Deputy Director for Species Conservation)	Introduction to NPOA and discussion	1 hour
4.30-5.30	Yvonne Sadovy Firdaus Agung	Workshop wrap up, next steps, and closing	30 mins

ANNEX 3 – CITED PUBLICATIONS

Gillett, R. 2010 Monitoring and management of the humphead wrasse, *Cheilinus undulatus*. FAO Fisheries and Aquaculture Circular. No. 1048. Rome, FAO.. 62p.
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