

## **Annex 2: Summary of relevant information extracted from the IOSEA Online Reporting Facility<sup>1</sup>, pertaining to countries that are members of both IOSEA and IOTC**

*NB: Some information may relate to fishing activities outside the IOTC convention area*

### **Australia**

- \* Impact of purse seine: none
- \* Impact of shrimp trawl, set gill nets and longline: unknown
- \* Logbook data for 2010 recorded a total of 25 interactions with turtles in the ETBF (7 green turtles, 1 hawksbill turtle, 11 leatherback turtles, 4 loggerhead turtles and 2 turtles (unclassified)). 88% (22) were released alive. There were 4 turtle interactions reported in logbooks in the WTBF during 2010 (2 leatherbacks and 2 loggerheads). All 4 were released alive
- \* Impact of Trap and Pot Fisheries: small green turtles and hawksbill turtles have been caught in collapsible crab pots. The mortality associated with crab fisheries is not quantified, but is thought to be less than 10 per year for each species
- \* **Illegal fishing** is known to occur at Scott Reef and Browse Island in the Timor Sea where foreign fishers sometimes land (illegally) and harvest nesting green turtles
- \* **Mitigation:**
  - ETBF has initiated a Marine Turtle Mitigation Strategy
  - Wire traces are not permitted in Australia's pelagic tuna and billfish longline fisheries (nylon traces are used). This increases the chances of a turtle escaping, as well as enabling easier release of turtles using line cutters without having to bring them onboard, in turn improving their post-release survival rates
  - Ghostnets Australia Programme: multi-million dollar program funded by the Government that takes place in cooperation with indigenous communities. The program works in one of the hotspots for the accumulation of derelict fishing gear on parts of the Northern Australian coastline
- \* **Research activities:**
  - Trialing of set mesh nets with break-away panels: currently underway in Queensland under funding from the Fisheries Research and Development Corporation (FRDC)
  - Results of the circle hook research trials in the ETBF: reduction of Marine Turtle interactions, however, capture rates of shark species increased. As a consequence, the use of circle hooks is not compulsory but there is substantial voluntary use of circle hooks by industry
  - FRDC project 2011/009: Assessment of novel gear designs to reduce interactions between species of conservation interest and commercial fishing nets
  - FRDC project 2011/063: Tactical Research Fund: Quantifying the ecological and economic value of short soak time for gill nets used in the small mackerel / shark fishery in southern Queensland
- \* Bycatch **education** programs in the Australian Pelagic Longline Fisheries

### **Comoros**

- \* **Illegal fishing** is frequent in Comoros waters
- \* **Mitigation:**
  - Monitoring and recovery of FADs by the "Direction Nationale des Ressources Halieutiques" (*National bureau of fishing resources*)
  - Spatial and temporal control of fishing (e.g. seasonal closures of fishing activities): until the end of 2006, just a few studies were conducted on stocks and fishery (Direction Nationale des Ressources Halieutiques, Moheli Marine Park), but data are expected to improve thanks to EU funds on fishery studies
- \* **Education** of fishermen on the implementation of measures to minimize incidental capture and

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<sup>1</sup> <http://ioseaturtles.org/report.php>

mortality of turtles in national waters and in the high seas (collaboration between a fishermen syndicate and the Direction Nationale des Ressources Halieutiques)

## France

- \* Impact of longline: responsible for 73% of turtle bycatch in Mayotte
- \* Impact of artisanal set gill nets: responsible for 33% of turtle mortality resulting from bycatch
- \* **Pirate longliners** (unknown effort to date) and some illegal seiners may have an impact on marine turtles on Îles Eparses
- \* Turtle **mitigation** measures:
  - Mayotte: Prohibition / management of fishing in the reserves of the "Passe en S" and Sazilé (created in 1991). Under development: sponsorship of turtles by fishermen, with media coverage, and appointment of one resource fisherman per village in charge of collecting information about incidental catch (with compensation)
  - La Réunion : Since 4 years, a partnership has been developed with 11 longliners based in La Réunion to reduce the impact of incidental catch and study the diving behavior of *Caretta caretta*; turtles transferred to a care center and veterinary clinic: surgical procedures to remove any fish hooks; installation of Argos transmitters before release; an information leaflet to manage by-catch of marine turtles in longline fisheries was produced in close collaboration with IOSEA and IOTC
  - Îles Eparses :from 2011 on, use of FADs with meshing that is safe for marine turtles (90% of the tuna purse seine sets allowed to fish in the French EEZs are conducted with FADs)
- \* **Research activities**:
  - Ongoing project on alternative FADs with the IRD
  - La Réunion : fishermen are already testing different types of hooks; study of diving behaviour thanks to Argos tagging of incidentally caught turtles
- \* Many **educational** activities (Informative videos, brochures, printed guidelines). Mayotte : Creation of an intervention network in 2010-2011 (REMMAT); 18 people received training for handling injured turtles; In discussion: creation of a health center, distribution of circular hooks and of hook disgorgers to facilitate the release of turtles, etc.; Designing of a fact sheet about resuscitation of turtles intended to industrial fishermen.

## India

- \* Impact of gill nets: responsible for 60-70 % of turtle mortality on the east coast of India
- \* **Mitigation** (legislation and practices highly variable according to the region):
  - TED promotion: however TEDs are not used in any of the coastal states, including Orissa
  - The MoEF, Govt. of India launched the National Sea Turtle Conservation Programme through the UNDP-supported GOI-UNDP sea turtle project. This project identified the threats and management strategies, guidelines and action plans which the maritime states, with support from the Government of India, implement
- \* **Research activities**: The Central Institute of Fisheries Technology developed a TED

## Indonesia

- \* Impact of purse seine: in Java, at least 1 turtle caught during a trip, especially where the fishing ground was near a turtle nesting beach
- \* Impact of longline: "relatively high" (from onboard observations)
- \* **Illegal** use of explosives and chemicals
- \* **Mitigation**:
  - Shrimp trawls prohibited (Presidential Decree No 39/1980). Fishing vessels operating shrimp trawls operate only in Arafura Sea (southern part of Papua) and they must be equipped with TEDs. Shrimp trawlers in Papua are familiar with TEDs, but they don't install them in their trawls because they would reduce fish by-catch (considered as additional income, sometimes higher than their monthly wages).

----- Measures to avoid encirclement of marine turtles in purse seine fisheries: definition of capture areas and depth fishing practices (Decree of the Minister of Marine Affairs and Fisheries No 2/2002 concerning Guidance on Capture Fisheries Management)

----- Regulation on gear specification and monitoring and recovery of FADs regulated by Decree of the Minister of Marine Affairs and Fisheries No. 3/2002

----- A national Action Plan "*has been documented in 2004 for further refinement*"

\* **Research activities:** WWF-Indonesia is now conducting circle hook trials in tuna longline fisheries, and the trials are showing promising results

\* **Education:** Training onboard of de-hooking methods for fishers and field officers has been undertaken by the Ministry of Marine Affairs and Fisheries. Handling manuals were provided by WWF observers

## Kenya

\* Impact of shrimp trawls: at least 3 turtles caught in trawlers per day, depending on the season

\* Impact of artisanal gill nets: up to 10000 turtles caught annually, both incidentally and intentionally (Wamukota 2005). At least half (54 to 75%) of them are slaughtered or traded by fishermen (Nzuki 2004)

\* Impact of beach seine netting: estimated "relatively high"

\* **Illegal fishing:**

----- Longline: 7 commercial vessels have been reported to operate in a single night in the KMNR

----- Harpooning and spear fishing: Traditional fishing gear such as these is being used by villagers in Gazi-Msambweni and Funzi-Bodo, and has been used to hunt turtles (Church and Palin 2003; KESCOM 2005). The extent to which turtles are being hunted in this way is uncertain

----- Poison was reported to be used in Ngomeni, Funzi-Bodo (KESCOM 2005), in the Msambweni area

\* Observers lack sufficient training and the technical expertise to deal with faulty TEDs (FAO 2007)

\* **Mitigation:**

----- Shrimp trawlers are required by law to have TEDs, however trawler operators consider TEDs to be ineffective (Okemwa et al. 2004; FAO 2007)

----- In some areas, a net-release programme provides for a monetary reward for artisanal fishermen releasing turtles from their nets (Zanre 2005)

----- Undersized meshed nets are prohibited

\* **Training** programmes / workshops to educate fishers organized by the Fisheries Department

## Madagascar

\* Impact of gill netting: used by artisanal shark-fishermen, who reportedly catch turtles incidentally when they ascend beaches (Metcalf et al. 2007). This fishery is seasonal, with no or limited fishing taking place from April to September (Walker and Roberts 2005)

\* **Illegal** purse seine fishing (tuna)

\* **Mitigation:**

----- A national workshop on Marine turtles Conservation and Management was held in Antananarivo, Madagascar ( 9-11February 2011)

----- Draft National Conservation and Management Plan for implementing the IOSEA MoU

----- Since 2005, the use of TEDs has been successfully enforced

----- Measures taken by prawn fisheries: longer closed season, smaller sizes of trawl towing warp, increased legal mesh size, abolition of twin trawls, spatial and time-bound closures of activities in sensitive or overexploited areas

----- Deployed FADs are monitored by Blue Venture Conservation (UK NGO)

\* **Research activities:** research was conducted to determine the most appropriate specifications for TEDs to be used by prawn trawlers

## Malaysia

- \* High fishing effort by shrimp trawlers and moderate effort by set gill nets and drifnets, with moderate impact on marine turtles for both fisheries
- \* **Illegal fisheries:**
  - Use of large-meshed bottom gill-nets (more than 10 inches) for catching stingrays, which also frequently catch turtles
  - Illegal harvesting of marine turtles by foreign fishing vessels (especially from Hainan and Vietnam) in the territorial waters of Malaysia
- \* **Mitigation:**
  - Monitoring and recovery of FADs conducted regularly
  - A series of marine parks have been established in the coastal waters
- \* **Awareness program** intended to train net fishermen for proper handling of incidental caught turtles was conducted actively in some areas such in Sabah and Terengganu States of Malaysia

## Maldives

- \* FADs are in use to catch tuna
- \* Ghost nets from foreign fisheries kill turtles in the waters of the Maldives
- \* **Illegal** purse seiners poaching marine turtles from Maldivian waters
- \* Marine Research Center has conducted data collection surveys on selected islands to determine the number of nesting islands and foraging areas

## Mauritius

- \* **Mitigation:**
  - A National Action Plan for stranded marine mammals / turtles has been introduced in 2007 for the geographical area surrounding the lagoonal waters of Mauritius
  - A National Plan of Action to prevent, deter and eliminate IUU Fishing has been developed with the assistance of the Government of Norway, which is based on the International Plan of Action to combat IUU Fishing
  - Circular hooks are being used
  - Seasonal closure of fishing activities
- \* **Education:** the DVD obtained from IOSEA on the marine turtle conservation is being shown on television and at the Albion Fisheries Research Centre during open days and visits at the centre by students and other visitors

## Mozambique

- \* Impact of trawling: one of the most important causes of turtle mortality (Louro et al. 2006): between 1932 and 5436 turtles per annum during the prawn fishery season, in Sofala Bank (Gove et al. 2001). A large proportion of these turtles are killed by fishermen for consumption.
- \* Impact of beach seining using tractors in the Inhassoro area (Inhambane): 20-35 marine turtles estimated killed every month, for eight months of fishing activity (Gove & Magane 1996; Hughes 1971; Magane et al. 1998)
- \* **Illegal fishing:**
  - Asian longline fishing vessels, which target tuna and sharks, are posing a new threat to turtles in Mozambique. Turtle by-catch, predominantly green turtles, are not released alive but simply beheaded during collection of the longline to increase the efficiency of the process (Lorou et al. 2006). In one incidence, 42 beheaded green turtles were reported by tourists from the beach between Inhassoro and Bartolomeu Dias
  - Capture of marine turtles for food and subsequent sale of carapace, (in trawling or gill nets, on the beach during nesting or using spear guns)
- \* **Mitigation:** Use of TED mandatory since 2003, in any trawling fishery aided by a motor. However, none of the trawlers operating in Mozambique is thought to have implemented TEDs

(Pereira et al. 2008)

\* **Education:** A number of marine turtle programmes; awareness campaigns aimed at local communities, and often at fishers specifically. Such initiatives include the Mozambique Marine Turtle Working Group (MMTWG) Project in Primeiras and Segundas Islands, and the ZSL (Costa et al. 2007; Garnier and Silva 2007)

## Oman

\* Fishing gear: a lot of drifted gill nets, set gill nets and traps are used by local fishermen. Trawling nets and longlines are used by companies

\* **Mitigation:**

----- 2 turtle reserves at Ras al Hadd and Demaniyat Islands' beaches. Rangers units are covering most of Oman's terrestrial and coastal areas

----- "Fishermen release live turtles if they are caught in their nets or lines"

## Philippines

\* Impact of gillnets: moderate

\* Impact of bottom set longlines: moderate (when set in shallow waters)

\* **Illegal fishing:**

----- Illegal trawl fishing (with the exception of the province of Palawan): low estimated impact

----- Set gill net used by mainland Chinese fishermen, who illegally enter Philippine waters and target sea turtles in southern Palawan

----- Use of explosive (dynamite) and obnoxious devices

\* Observer programme: the Philippines has a Fisheries Observer Program, part of which is by-catch monitoring of cetaceans and marine turtles. Includes promotion of circle hooks in longline fisheries, and provides for public awareness in set net operations for release of incidentally caught sea turtles

\* Port sampling: there is inspection of fishing boats in port and landing sites conducted by maritime police and the Philippine Coast Guard

\* **Mitigation:**

----- To implement the ban on use of explosive devices, the local government in collaboration with the Philippine Coast Guard and the Bureau of Fisheries and Aquatic Resources, established "Bantay Dagat" (Guard Sea) in many municipalities. However, due to lack of logistics and manpower in some areas, and lack of political will by some Local Government Officials, the Bantay Dagat is not effective

----- Spatial and temporal control of fishing: Closure of active fishing gear in municipal waters (0-15 km from shore), including boats more than 3 gross ton

----- TEDs: As part of the Philippine-Sabah TIHPA activities TEDs were introduced in 2009 to Sabah trawl fishers and currently some companies use TEDs in their fishing operations

----- MoA among 6 government agencies with WWF to build capacity to enforce fishery and relevant environmental laws in national waters

\* **Information** materials provided by Pawikan (Sea Turtle) Project, Protected Area and Wildlife Bureau (c/o Mr Renato Cruz). A new set of information materials was produced in collaboration with Conservation International Philippines

\* **Research activities:**

----- In 2009, TEDs were pilot-tested in western Philippines by the Bureau of Fisheries and Aquatic Resources

----- Bureau of Fisheries and Aquatic Resources: field survey for comparison between J-hook and circle hook in tuna longline fishery (catch efficiency, incidental catch of sea turtles)

## Seychelles

\* Impact of trawling outside of Seychelles EEZ, for example in the Mozambique Channel: "likely to negatively impact turtle populations of Seychelles during their regional migrations"

\* Impact of purse seine (without FADs): some reports of incidental capture of large numbers of juvenile hawksbill turtles (Mortimer 1998a; Domingue and Mortimer 2001)

\* **Mitigation:**

----- Switch to circle hooks for longliners has been successful in mitigating the few cases of by-catch previously reported

----- A National Strategy and Action Plan was developed and adopted in 2005 through a series of stakeholder workshops after which it was endorsed by MENRT, under the BHC/MCSSS Strategic Management of Turtles Programme (2003-2005)

\* **Illegal fishing:**

----- Harpooning of turtles on nesting beaches. A few offenders have been arrested and prosecuted; there is however, an institutional gap to fully address those poaching incidents

----- Driftnet for shark fishing: "problematic" for turtles in Seychelles waters. Although this practice is banned (Fisheries Amendment regulation S.I. 5 of 1998), enforcement of the ban is not effective

\* **Research activities:** Trials were done in 2004-2005 with FADs designed so that they would not catch turtles (strap bands were used instead of a net under the float)

## South Africa

\* Impact of shrimp trawls: relatively low. 8 National permits issued, only 2 to 3 vessels operating periodically (due to droughts). Estimated ~ 50 turtles caught /yr

\* Impact of gillnets: moderate, used as bather protection nets against shark attacks in KwaZulu-Natal. They are set outside of protected areas, and checked ~ 20 times per month. 50 turtles/yr caught, of which about half are released alive.

\* Impact of purse seine: relatively low. 100 vessels, of which most are pelagic

\* Impact of longline: relatively high, 164 estimated turtles/yr (0.04 turtles /1000 hooks)

\* **Illegal fishing:**

----- Illegal use of FADs in commercial ski-boat line-fishery to attract pelagic fish

----- Poaching in protected areas by foreign longliners, trawlers and beach poaching

\* Observer programme: coverage of 10 - 20 % of the SA fishing fleet. However, few of the observers have been trained to deal with turtle bycatch especially in dehooking techniques etc.

\* Port sampling: 80% coverage. Limited at-sea inspections and no high-seas monitoring

\* **Mitigation:**

----- On the east coast: all FADs encountered are removed

----- Since 2007: up to half of the 27km of gillnets has been replaced with baited drum lines, more targeted to predatory sharks

----- A National Conservation and Management Plan is being drafted, outlining best practices as well as providing guidelines for data collection

----- An excellent network of marine protected areas exists

\* **Booklets & training courses:** A practical guide to understanding and reducing vulnerable bycatch and a brochure "Keeping or endangered marine life off the hook: Benefits to fishers and marine life" by Samantha Petersen (BirdLife/WWF Responsible Fisheries Programme SA) have been produced

\* **Research activities:**

----- Birdlife SA & WWF have been experimenting circle hooks on some of the SA longliners (however, lack of buy-in from industry)

----- Grids to exclude elasmobranchs and turtles are likely to be introduced on an experimental basis in 2006

----- A postgraduate project at the Nelson Mandela Metropolitan University (NMMU) is currently investigating the effect of shark nets on marine turtles in KZN. Natal Sharks Board is collecting data on an ongoing basis to evaluate the impacts of shark nets on target and non-target species

## Sri Lanka

**Mitigation:**

\* Sri Lanka's Monitoring, Control and Surveillance (MCS) capabilities are rudimentary and leave its waters exposed to poaching by foreign fishing boats



- \* Resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets
- \* Ban on dynamite fishing and use of explosives and chemicals; trammel netting in coral reef areas; and temporary ban on encircling nets in both coastal and offshore areas (2003)
- \* Marine Protected Areas: Hikkaduwa and Pegoon island Marine National Parks and Barreef Sanctuary (under the DWC)
- \* The National Marine Turtle Conservation Action Plan (NMTCAP) has been developed by the DWC in collaboration with IUCN-SL (through a consultative process with all stakeholders)

## Thailand

- \* Impact of set gill nets: moderate: Wounded turtles have been treated and released back to the sea. The percentage of sea turtles accidentally caught by gillnet is around 58% compared to other fishing gears
- \* Impact of longline: relatively low
- \* Impact of purse seine: moderate: The percentage of sea turtles accidentally caught by purse seine is around 5% compared to other fishing gears
- \* Impact of squid traps: relatively low: the percentage of sea turtles accidentally caught by squid trap is around 6% compared to other fishing gears
- \* **Illegal** fishing:
  - Boats often invade within 3 km of coastal zone, even though fisheries patrol is set up to guard the 3 km coastal area (ineffective enforcement)
  - Pair trawlers fishing illegally in the area within 3 km of the shoreline (moderate impact)
- \* **Mitigation:**
  - Very few mitigation measures are periodically reviewed and evaluated for their efficacy
  - Thailand is developing a National Plan for Sea Turtle Conservation and Management, in which DMCR is participating (on behalf of Government) along with and Thailand Wildlife Foundation (NGO representation)
- \* **Trainings** have been conducted for appropriate handling of incidentally caught turtles, but not frequently. Information on TEDs available, however fishermen don't use them because they think that no turtles are caught by small shrimp trawlers

## United Kingdom (British Indian Ocean Territory BIOT)

- \* **Illegal** inshore fishing, including catches of marine turtles. Measures taken: tougher fines and sentences imposed on the illegal fishermen caught
- \* In 2000, **educational** signboards were produced under an FFI project to inform people visiting Turtle Cove about the importance of the foraging hawksbill population in the Cove (Mortimer, 2000). Those signs were still there in 2006. Independently, the management of BIOT erected viewing platforms adjacent to Turtle Cove, so that visiting base personnel could view the turtles without getting into the water. Base personnel are not allowed to swim in Turtle Cove