

## Management advisory for the Bay of Bengal hilsa fishery

June 2012

### What is the BOBLME RFMAC

The BOBLME Project is supporting countries to implement an ecosystem approach to fisheries management of shared fishstocks in the Bay of Bengal. The EAFM framework has three tiers: working groups (including a Hilsa Fisheries Assessment Working Group) to provide technical information; a Regional Fisheries Management Advisory Committee (RFMAC) - to interpret the information and deliver ecosystem based fisheries management advice; and a Regional Fisheries Management Forum to deliberate on the advice and make decisions for national actions. The RFMAC comprises members from the BOBLME countries, SEAFDEC, FAO, BOBP-IGO and IUCN.



Hilsa shad (*Tenualosa ilisha*)

### Major recommendations

in Bangladesh, India and Myanmar:

1. Reduce the numbers of fishing vessels targeting hilsa to increase stock numbers.
2. Protect spawning and nursery areas to rebuild the stock by introducing seasonal closures and hilsa sanctuaries.
3. Reduce the catches of juvenile hilsa by introducing regulations to make 110 mm mesh nets the legal minimum mesh size to be used by hilsa fishers.
4. Increase compliance with hilsa fishery regulations through awareness programmes and strengthening monitoring and enforcement capacity.
5. Establish dialogue and collaboration with the water management and land use authorities to create a better understanding of fisheries requirements and increase the amount of riverine habitat, water flow and improve water quality.
6. Establish in-country multi-agency committees to monitor the implementation of the national hilsa management plans.

### Key messages

Hilsa generates employment and income for millions of people in Bangladesh, India and Myanmar and the fishery is worth over \$USD 2 billion.

Despite this, hilsa remains a subsistence food item for many poor coastal communities. It is the national fish in Bangladesh.

The regional hilsa stock is overfished; and pollution and loss of essential riverine habitats through siltation and water diversion is further reducing fish numbers.

The BOBLME countries have made a range of key decisions relating to the development of the BOBLME Strategic Action Programme which will address the major issues relating to overexploitation of marine living resources. The above recommended actions are specific to the hilsa fishery and should be implemented in conjunction with the wider ranging actions that are intended to address the (i) *decline in overall availability of fish resources*; (ii) *changes in species composition of catches*; (iii) *high proportion of juvenile fish in the catch*; and (iv) *changes in marine biodiversity*. Please refer to the back page of this document for more information



# Regional Fisheries Management Advisory Committee

## Advisory on the regional hilsa fishery

### Ecosystem Status

#### Biological status of hilsa (regional stock)

- The regional hilsa stock is overfished.
- Widespread use of small-mesh gillnets is leading to a juveniles being caught, especially in riverine areas, and this is reducing the parent population for the next generation and contributing to the population decline.

##### Management options and consequences:

*Reduce the numbers of fishing vessels targeting hilsa to increase stock numbers. Consequences: More fishers unemployed. Temporary reduction in availability of hilsa to communities depending on this species for food. Alternative livelihood programmes would need to be funded.*

*Protect spawning and nursery areas to rebuild the stock by introducing seasonal closures and hilsa sanctuaries. Consequences: This will reduce available fishing grounds and increase fishing pressure in some areas.*

*Reduce the catches of juvenile hilsa by introducing regulations to make 110 mm mesh nets the legal minimum mesh size to be used by hilsa fishers. Consequences: Fishers will complain about reduced catches and cost of new gear, but catches should improve in subsequent years. A gear swap might be considered.*

*Conduct an awareness programme on the need for management measures for hilsa - this programmes should also address the issues listed below. Consequences: Awareness programmes will need funding and coordination*

#### What impact is the fishery having on the environment

- There are no major impacts on the seabed or water column.

##### Management options and consequences:

*No immediate actions required: monitor the situation*

#### What impact is the fishery having on endangered, threatened and protected species

- The fishery also catches turtles, sharks and cetaceans - but exact numbers are unknown. Sea turtles and the Irrawaddy dolphin are considered as threatened species.

##### Management options and consequences:

*Monitor the catches of ETP species and include ETP species in an awareness programme (see above). Consequences: monitoring and awareness programmes will require funding*

#### What impact is the fishery having on other species

- Small mesh fisheries have an adverse impact on aquatic biodiversity in rivers and floodplains.

##### Management options and consequences:

*By reducing the catches of juvenile hilsa (see above), the impact on other species should also reduced. Monitor and assess bycatch for possible future regulation of fishing gear. Consequences: monitoring and awareness programmes will require funding.*

#### What external factors threaten the fishery

- Loss of the riverine habitats through siltation and water diversion is reducing the populations of hilsa.
- Pollution is degrading freshwater habitat quality and consequential recruitment. Water quality in both India and Bangladesh is typically poor.

##### Management options and consequences:

*Establish dialogue and collaboration with the water management and land use authorities to create a better understanding of fisheries requirements and increase the amount of riverine habitat, water flow and improve water quality. Consequences: effective dialogues and actions will require additional effort and monitoring of outcomes.*



## Socio-economic issues

### **The hilsa fisheries play a critical role in the generation of employment and income**

In Bangladesh, over 500,000 fishers are involved in catching hilsa and over 2,000,000 people are indirectly involved in the distribution and sale of hilsa, as well as in ancillary activities such as net and boat making, ice production, processing and export. The socio-economic status of most hilsa fishermen can be categorized as socio-economically disadvantaged in terms of access to services (education, health, banking, electricity, piped water), and income. However, given the relatively high value of hilsa given strong local demand, the hilsa fishery may provide higher daily incomes compared to fisheries for other species.

### **The hilsa catch is worth over \$USD 2 billion**

Hilsa catches in Bangladesh are valued at around Tk. 90 billion / \$USD1.3 billion. Accurate estimates of landed values are problematic to obtain given complex relationships between money lenders and fishermen which distort prices paid to fishermen, but are thought to be around Tk. 45-60 billion / \$USD640-850 million. Similar figures are unavailable for India or Myanmar. However, the export value for hilsa from Myanmar for 2009 was \$USD29.14 million for 16,744 t of fish caught.

**Hilsa is a subsistence food item for many poor coastal communities.**

## Governance issues

### **Current management**

- There is no coordinated regional management of the hilsa stock.
- Bangladesh has a National hilsa fisheries management action plan.

#### **Management options and consequences:**

*National fisheries agencies develop and implement national hilsa management plans. Consequence: this will require allocation of resources.*

*Development of a regional management plan is part of the BOBLME Project objectives and should be available in 2013.*

### **Implementation of an ecosystem approach to fisheries management**

- Supported by the BOBLME Project.
- BOBP-IGO provides training on the Code of Conduct for Responsible Fisheries (the basis of EAFM).

#### **Management options and consequences:**

*Enable fisher representation in fisheries management. Consequences: funding and resources will be required in fisheries management agencies to facilitate consultations*

*Provide further capacity development and increase broad stakeholder awareness on EAFM. Consequences: Awareness and training programmes will need funding and coordination*

### **Data and information**

- There are no integrated data management or collection activities for hilsa.
- The BOBLME hilsa working group has produced the first quantitative assessment of the regional hilsa stock.

#### **Management options and consequences:**

*Improve catch and effort statistics and the stock assessment of hilsa. Consequences: this will require the allocation of resources to national catch sampling regimes and the functioning of the BOBLME hilsa working group. And greater participation of private sector in provision of data.*



# Regional Fisheries Management Advisory Committee

## Advisory on the regional hilsa fishery

### Governance issues (continued)

#### Legal tools and compliance

- Enforcement of existing and future fishing regulations is weak in some areas.

##### Management options and consequences:

*Increase compliance with hilsa fishery regulations by awareness programmes and strengthening enforcement capacity.*

*Consequences: this will require additional resources*

#### Marine protected areas

- Bangladesh has around 1400 km<sup>2</sup> of MPA (over 0.05% of its EEZ); India has around 12,300 km<sup>2</sup> of MPA (over 0.5% of its EEZ); and Myanmar has around 340 km<sup>2</sup> of MPA (around 0.01% of its EEZ).
- Overall, the degree to which these MPAs contribute to the protection of the hilsa stock is not known.

##### Management options and consequences:

*Incorporate fisheries objectives in the design and management of MPAs by improving collaboration and dialogue between the agencies responsible for fisheries and MPAs.*

*Promote community consultation in MPA design and establishment. Consequences: consultation programmes will need funding and coordination*

#### Institutional structure

- Linkages between the main agencies that need to be involved in hilsa management (fisheries, environment water management and land use authorities) are weak.
- River management decisions impact hilsa, therefore the agencies that manage these areas in each country also need to be involved.

##### Management options and consequences:

*Establish in-country multi-agency committees to monitor the implementation of the national hilsa management plans.*

*Supported by the BOBLME Project, Bangladesh, India and Myanmar convene a trilateral regional hilsa management forum to consider the advice of the RFMAC and monitor the implementation of the Regional Hilsa Management Plan.*

### BACKGROUND



(Source: FishBase)

#### Introduction

The hilsa shad is a highly productive migratory species found mainly along the coasts of India, Bangladesh and Myanmar. It migrates into freshwater rivers to spawn and is heavily fished over the marine, brackish and freshwater phases of its life.

Hilsa feeds on plankton, mainly by filtering, but also by grubbing in muddy sediments. Spawning occurs in rivers, mainly during the southwest monsoon (May to October) but also from January to March.

The main fleets and gears catching hilsa shad are gillnets of various mesh sizes, although fishers in Myanmar also use purse seines (in marine waters only) and stow nets in rivers.

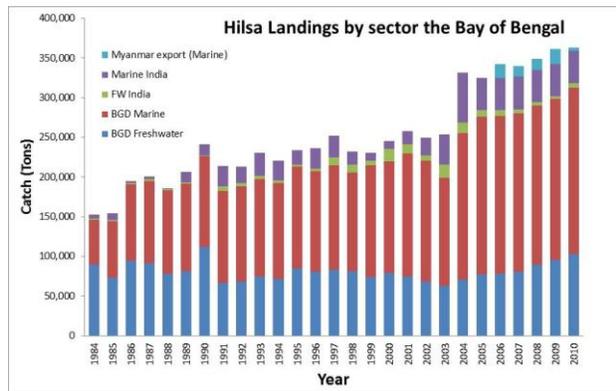


Figure 1: BOBLME Hilsa Landings by country.

#### Stock status

Catches are increasing (Figure 1) and approaching 400,000 t, while catch rates are declining in both Bangladesh and India for the non-motorized fisheries. Recent assessments using surplus production models indicate a decline in overall abundance of hilsa to below 50% of virgin biomass, indicating that overfishing is occurring (Figure 2).

#### Socio Economic Issues

The hilsa fisheries in all three countries, but especially in Bangladesh and West Bengal, India play a critical role in the generation of employment and income. In Bangladesh for example, some 500,000 fishers are estimated to be involved in catching hilsa and another 2-2.5 million people are indirectly

involved in the distribution and sale of hilsa, as well as in ancillary activities such as net and boat making, ice production, processing and export. The socio-economic status of most hilsa fishermen can be categorized as socio-economically disadvantaged in terms of access to services (education, health, banking, electricity, piped water), and income. However, given the relatively high value of hilsa given strong local demand, the hilsa fishery may provide higher daily incomes compared to fisheries for other species.

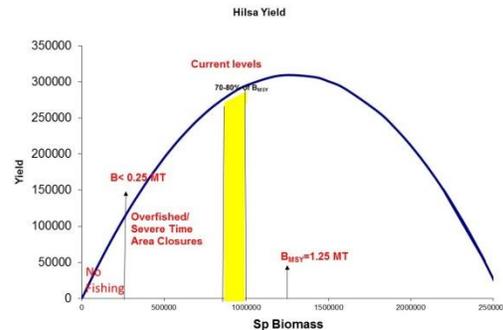


Figure 2: Yield curve and stock status of hilsa estimated from Bangladesh data. The biomass for MSY is estimated at 1,250,000 t. Current estimated biomass is shown in yellow

Hilsa catches in Bangladesh were 298,921 t in 2008-2009 (95,970 from inland waters and 202,951 t from in marine waters) and accounted for 39% of total marine catches, 4% of inland catches, and 11% of total fish production. This catch is valued at around Tk. 90 billion / \$USD1.3 billion. Accurate estimates of landed values are problematic to obtain given complex relationships between money lenders and fishermen which distort prices paid to fishermen, but are thought to be around Tk. 45-60 billion / \$USD640-850 million. Similar figures are unavailable for India or Myanmar. However, the export value for hilsa from Myanmar for 2009 was \$USD29.14 million for 16,744 t of fish caught.

#### Ecosystem Issues

The widespread use of small-mesh gillnets in all three countries, especially by subsistence fishers in riverine areas, has led to large number of juvenile fish being caught in these fisheries. The larger mesh gears used in the estuarine and marine areas are less of a concern. There are no discards in any of these fisheries. There are also some concerns over the impact of the small-mesh fisheries on aquatic biodiversity in rivers and floodplains, and the larger-mesh fisheries are also implicated in some catch of sea turtles and cetaceans. There are few habitat issues associated with these fisheries.



## Regional Fisheries Management Advisory Committee Advisory on the regional hilsa fishery

### **Recommended BOBLME Strategic Action Programme actions to address the over exploitation of living marine resources.**

Under the auspices of the BOBLME Project, the BOBLME countries have made a range of key decisions relating to the development of the BOBLME Strategic Action Programme (SAP) which will address the major issues relating to overexploitation of marine living resources; degradation of critical habitats; and pollution and water quality.

In 2012, the countries adopted a Transboundary Diagnostic Analysis (TDA) as the factual basis for the development of the Strategic Action Programme.

The Strategic Action Programme has the following objectives:

#### **Regional Environmental Objective:**

*A healthy ecosystem and sustainable use of marine living resources for the benefit of the countries of the Bay of Bengal Large Marine Ecosystem*

#### **Ecosystem Quality Objectives relating to the following themes:**

##### **1. Overexploitation of marine living resources:**

*Fisheries and other marine living resources are restored and managed sustainably.*

##### **2. Degradation of critical habitats:**

*Degraded, vulnerable and critical marine habitats are restored, conserved and maintained.*

##### **3. Pollution and water quality:**

*Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health.*

#### **Priority Objectives for the Overexploitation of marine living resources are:**

- Restore transboundary fisheries resources that have declined
- Restore and maintain species composition
- Reduce the proportion of juvenile fish caught and/ or retained
- To restore biodiversity status to 1980 level by 2020

**In order to achieve these objectives, a wide range of actions have been identified covering the following areas:**

- Institutional arrangements
- legal and policy reforms
- management measures
- enforcement and compliance
- awareness and communication
- information strengthening
- capacity development.

More information on the specific actions is available in the draft Strategic Action Programme which can be accessed on the BOBLME website ([www.boblme.org](http://www.boblme.org)) or from the BOBLME Regional Coordination Unit.