View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by CMFRI Digital Repository

42

# Capture process and prospects in marine island fishery with emphasis on trade: a typical paradigm of underutilized resources in Bay Islands

**Grinson George*, P. Krishnan and Shyam S Salim**
Senior Scientist,
Fisheries Resource Assessment Division,
CMFRI, Kochi
Email : grinsongeorge@yahoo.co.in

Marine fisheries in India have been managed similar to the wild life as the capture based resources have contributed to the major chunk of the resources. The mari-culture sector has contributed only to the high intensity shrimp farming and low-intensity clam, mussel, oyster and sea weed farming. Timely research interventions helped in the sustained and enhanced marine fish production from capture as well as culture sectors. Typical to the tropical condition the multi-species capture fisheries sector is studied as pelagic, demersal, crustacean and molluscan without involving much into the nitty-gritties of each species except for the major groups. Practiced as an open access management of the resource, the potential and present level of exploitation of marine fishery resources of India (Table 1) is opening up a policy debate on revalidation of the resources.

A cross-analysis of the growth rate/ fluctuations in various marine fishery resources (Table 1) due to the research interventions are analyzed below:

Table 42.1: Major marine resources of India and their estimated potential

| Fishery resources | Estimated potential (m t) | Present level exploitation (m t) |
|---|---|---|
| Pelagic | 1.67 | 1.49 |
| Demersal (including crustacean and mollusc) | 2.02 | 1.21 |
| Oceanic & others | 0.24* | 0.51 |
| Total | 3.93 | 3.21 |

*The potential estimated are so undervalued that the exploitation levels have been far better and yet indicates an underutilized fishery.

Marine fishery resources of **A**ndaman and **N**icobar **I**slands (ANI), located between $6^0$ 45' N and $13^0$ 41' N Latitude and $92^0$ 12' E and $93^0$ 57' E Longitude in the southern reaches of Bay of Bengal (BOB), are vast and abundantly diversified (Table 2). According to John *et al.*, 2005, 139000 t of pelagic, 22500 t of benthic and 82500 t of oceanic resources are estimated to be available for exploitation. The major marine fishery resources of ANI, their estimated potential and present levels of exploitation in tonnes (t) are tabulated below. The exploitation of fishery resources at present is restricted to coastal waters (Pillai and

Abdussamad, 2009). Vessel size and the gears are inadequate for operating in deep waters and there is no organized offshore fishing from Andaman base (Dam Roy and Grinson George, 2010). There are 97 fishermen villages with a population of 15,320. Around 5,617 active, full-time and 718 part-time fishermen are engaged in marine fishing activities. The registered fishing crafts in operation are about 2,808 of which 1524 are non-motorized/traditional crafts, 1279 motorized crafts and 10 mechanized boats. There are 57 beach landing centers. Drift gillnet is the main fishing gear used which contributes to over 40% of the marine fish landings. Other fishing gears commonly used are shore seine, hook and line and cast net (Nithyanandan, 2009).

Table 42.2: Major marine fishery resources of ANI and their estimated potential

| Fishery resources | Family | Estimated potential (t) |
|---|---|---|
| Pelagic | Scombrids | 10,000 |
| | Clupeids | 20,000 |
| | Engraulids | 1,000 |
| | Neritic Thunnids | 100,000 |
| | Carangids | 1,000 |
| | Pelagic Carcharhinids | 5,000 |
| | Others | 2,000 |
| Benthic | Carcharhinids | 4200 |
| | Leiognathids | 5000 |
| | Perches (serranids, lutjanids and lethrinids) | 8000 |
| | Aplolectids and Bramids | 1900 |
| | Plotosids | 1000 |
| | Nemipterids | 1500 |
| | Sciaenids | 1200 |
| | Gerrids | 1400 |
| | Upenids | 900 |
| | Pomadaysids | 100 |
| | Nomeids | 300 |
| | Synodontids | 150 |
| | Bothids | 50 |
| | Priacanthids | 100 |
| | Other deep-sea fishes | 2700 |
| | Others | 2130 |
| Oceanic | Oceanic Thunnids | 82,500 |

Table 42.3 Major fish landing cnetres of Andamna and Nicobar Islands and their locations

| Sector | FLC | GPS Coordinates |
|---|---|---|
| North Andaman | Aerial Bay | 13⁰25' N 93⁰06' E |
| | Durgapur | 13⁰16' N 93⁰03' E |
| | Kalighat | 13⁰21'N 93⁰04' E |
| | Kalipur | 13⁰13' N 93⁰02' E |
| | Machidera | 12⁰55' N 92⁰54' E |
| Middle Andaman | Rangat Bay | 12⁰30' N 92⁰57' E |
| South Andaman | Baratang | 12⁰18' N 92⁰47' E |
| | Chatham | 11⁰41' N 92⁰43' E |
| | Dignabad | 11⁰41' N 92⁰45' E |
| | Guptapara | 11⁰33' N 92⁰39' E |
| | Havelock | 12⁰03' N 92⁰59' E |
| | Junglighat | 11⁰39' N 92⁰44' E |
| | Kadamtala | 12⁰19' N 92⁰47' E |
| | Neil Island | 11⁰50' N 93⁰02' E |
| | Panighat | 11⁰42' N 92⁰44' E |
| | Wandoor | 11⁰36' N 92⁰36' E |
| Little Andaman | Hut Bay | 10⁰34' N 92⁰33' E |
| | V.K. Pur | 10⁰44' N. 92⁰34' E |
| Nancowrie | Kamorta | 08⁰02' N 92⁰33' E |
| Great Nicobar | Campbell Bay | 06⁰60' N 93⁰56' E |

Table 42.4 Technical specifications of the gears and crafts used in Andaman

| Category | OAL* (feet) | Engine (Hp) | Gear | Validations | Duration | Depth (m) |
|---|---|---|---|---|---|---|
| Gillnetters | 10-24 | 8-25 | 21-27 mm mesh (sardine) 57 mm (mackerel) | 50 | 7-9 h | >100 |
| Trawlers | 47-51 | 108-151 | 40 mm stretched mesh | 22 | 3-4 days with 4-5 trawls/day | 200-700 |
| Longliners† | 55-60 | 320- 402 | 35-60 km line, 900-1400 hooks, baskets (4-36), branchline rigged with galvanized circle hooks (14/0-16/0) | 15 | 5-6 days | < 1000 |

*OAL= Overall length of the fishing vessel.

†Whole frozen finfishes (*Sardinella* spp, *Rastrelliger* spp and *Chanos chanos*) were given as bait in longliners.

**Resources vis-à-vis pricing and trade in the islands in a globalized regime**

Presently fish is traded as a commodity without considering the ecosystem price. The operational cost prevails the price determining mechanism. But in case of a tropical Islands fishery like Andaman there is a need to improve the pricing by including the ecosystem price to the total value as a resource price. In the purview of climate change regime where islands are vulnerable heavily due to increasing MSL and extreme events, the ecosystem supporting the fishery is at doldrums. Mass coral bleaching events of 1998, 2002, 2005 and 2010 as well as Tsunami of 2004 are some recent examples which resulted in massive destruction of coastal bio-resources. Trade needs to be conceptualized in this context. There is a need for thorough evaluation of the resource economics. A pattern followed by Barbier (1993) is illustrated below:

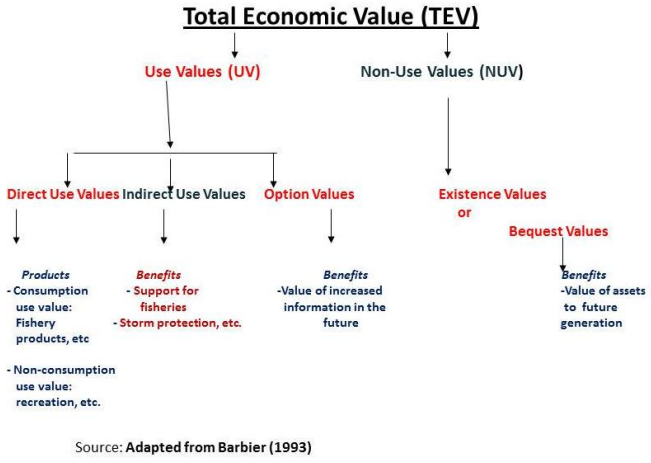


Fig 42.1 Total Economic Value ( TEV)

Few ideal interventions for improving the fishing and profitability of the sector without disturbing the ecosystem can be achieved through adoption of Potential Fishing Zone Technologies (PFZ). The advantages are as follows:

- Enhancing CPUE - Ideal intervention to harness the underutilized resources.
- This strategy to harvest more fish with the existing efforts by spending less non-renewable resources can be termed **'green fishing'.**
- Fishing activity in the islands extends from 6 h to 25 days depending upon the fishing vessel employed.
- **Potential Fishing Zones** - Minimize the time of operation
  Improve the CPUE
- With the advent of remote sensing techniques, fishing grounds could be predicted for 2-3 days in advance.

Despite being a potential area for resource exploitation, the islands are disadvantageous in terms of accessibility, infrastructure, human resource and other factors which may hamper a smooth trade. But there are immense possibilities and this can be harnessed with will. There is an in-depth study required in all fronts before addressing the island resources in a trade front. This paper may ignite some positive vibes in readily introducing the resources to potential venture's and policy planners.