Brief Communication

Jellyfish menace in shoreseines operated off Visakhapatnam, Andhra Pradesh

Pralaya Ranjan Behera[1]*, Visal Yadav[1], P. Bhaskar Rao[1], V. Ravikant[1] and Raju Saravanan[2]
[1]Visakhapatnam Regional Centre of ICAR-Central Marine Fisheries Research Institute, Visakhapatnam -530 003, Andhra Pradesh
[2]Mandapam Regional Centre of ICAR-Central Marine Fisheries Research Institute, Mandapam Camp- 623 520, Tamil Nadu

*E-mail: beherapralaya213@gmail.com

Jellyfish form seasonal swarms that mainly negatively impact fisheries, aquaculture and tourism sectors. In recent years, mass swarming of jellyfish has increased in world oceans and has become a topic of current scientific interest and research. Recent studies link their blooms to a combination of global climate events and several local anthropogenic stressors like overexploitation of finfish, eutrophication, and an increase in marine artificial structures which provide substrate for jellyfish attachment. Menace of jellyfish often seen in coastal areas of India and impact of jellyfish swarms on coastal artisanal shore seine fisheries along the coast of Andhra Pradesh is reported. Two types of seines are operated in the coastal water one without cod end and other with cod end which are locally called 'Alivi vala' and 'Pedda vala' respectively, in calm weather conditions from October to April. During the post-monsoon season, inshore coastal waters serve as a nursery ground for shoaling fishes such as sciaenids, clupeids, anchovies, and mullets and traditional fishermen operate shore seines to catch these.

A survey was conducted at Ramakrishna Beach, Visakhapatnam during the months of October to April

Box jellyfish, *Chiropsoides buitendijki*

Jellyfish *Cyanea nozakii*

2021 from 140 units of shore seine. Altogether, 20-26 fishermen operated each shore seine without cod end by country craft at water depth 5-10 m during the day time in coastal water. The net is made of 210/2/3 nylon and the main central piece is fabricated with 10 mm mesh having 18 m length and 20 m width. Usually, a 20 mm mesh size of 175 m length and 20 m width is attached on either side of the middle piece. A total of 16 units of netting with a mesh size of 30 mm and a length of 20 m are attached. The operation of the seine net lasted between 4-5 hours per haul. Based on the survey, it was found that the shore seine net was choked with enormous quantities of jellyfish. Although several varieties of jellyfish species were caught in shore seine nets (*Carybdea* sp., *Aequorea* sp., *Lychnorhiza malayensis, Rhopilema hispidum, Lobonemoides robustus*), catches were dominated by several species of *Chrysaora* (*Chrysaora chinensis* and *Chrysaora* sp.), box jellyfish (*Chiropsoides buitendijki*) and *Cyanea nozakii*. The weight of the total catch varied from 5 kg to 801 kg per haul with a mean catch of 126.38 ± 13.11 kg. The weight of the commercially important varieties in the total catch ranged from 3 kg to 710 kg per haul with a mean catch of 69.24 ± 8.87 kg. The wet weight of jellyfish catch varied from 0.25 kg to 850 kg per haul with a mean catch of 34.35 ± 9.75 kg. The estimated biomass of total catch per haul was recorded from 33.80 kg/km^2 to 5415 kg/km^2 with a mean biomass of 854.44 ± 88.64 kg/ km^2. The biomass of commercial catch per haul varied from 20.88 kg/km^2 to 4799 kg/ km^2 with a mean biomass of 468.54 ± 60.02 kg/km^2. The biomass of jellyfish per haul ranged from 1.35 kg/km^2 to 5408 kg/ km^2 with a mean biomass of 224.89 ± 65.91 kg/km^2. Month-wise variation of mean catch rate (mean catch per haul) showed that the highest total catch was in January (142.8 ± 26.99 kg) whereas the lowest was in February (90.95 ± 26.44). The highest commercial catch was in January (100.6 ± 23.87 kg) reduced to 34.89 ± 10.43 kg in March due to jellyfish menace. The mean wet weight of the jellyfish catch was lowest in November (6.33 ± 4.60 kg) and increased to highest in March (83.57 ± 38.23 kg). This indicates the intensity of swarms in coastal water.

These jellyfish are also a great menace to artisanal fishers as their nets get clogged, reducing their filtering capacity. In addition, more efforts are required to sort the catch, which consumes much time and labour for fishermen. Some of these jellyfish, mostly box jellyfish and *Chrysaora* spp., cause skin irritation. Fishers sometimes have to discard whole catches due to difficulty sorting them from jellyfish and skin irritation. Nets get damaged due to jellyfish's weight, which comes along with water flow, necessitating repairing the nets and also losing fishing days for fishers.