using of hyperspectral optical data of aph(λ) and Rrs(λ) with derivative spectroscopy as a promising approach to identify bloom forming phytoplankton in coastal waters.

FS PO 15

Dhowr - A revisit to the design and operation of indigenous machinery in fishery technology

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Majority of the non-motorised fishing craft in Karnataka are wooden, operated mainly from beach landing centers which hardly have any berthing facility. These boats operate on daily basis and are hauled on to the beach using human labour after the day's operation, to protect it from fouling organisms. But the change in beach profile due to changing weather conditions makes it extremely cumbersome for hauling the boat manually. A wooden winch for hauling the boat was developed by the fishermen of Dakshina Kannada, nearly five decades back. Though the device was accepted, it was not much popularized. The fishermen in *Keni* village of Uttar Kannada district worked further on this device and came out with a modified manually working wooden winch/capstan named `*Dhowr*'. The details of the materials used and cost of construction was collected from fishermen of selected fishing villages of Uttara Kannada District. Local fishermen who use this traditional winch/capstan were interviewed at random in each taluk (n=40). The exploratory case study design was used where a systemic semi-structured approach that employs a combination of methods to assess and understand a situation was used with the help of local people to document the details of the winch. The work gives the description of the winch, its different parts and the benefits to the fishermen when they use it. Effort has been taken to document and report for the first time, the use of such unique, eco-friendly wooden capstan, "*Dhowr*" which is in operation in traditional beach landing fishing villages of Karnataka.

FS PO 16

Traditional coastal bag net fishery of Kutchh, Gujarat, India

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Bag net fishing is one of the most common fishing techniques prevalent in the Gujarat coast. The mode of operation and structure of the net show great regional variations. Traditional fishers are dominant in the entire maritime fishing villages in Kutchh district. The Local Ecological Knowledge (LEK) of traditional fishers engaged in bag net fishing is documented by a scientific study lasted for two years. A total of 125 set bag net and 70 drift bag net units were surveyed during the study. Both the nets are operated by local fishers called *Pagadiyas*. Effect of moon and the resulted tidal variation had high influence on the catch rate. Monthly, *Pagadiya* fishers are engaging 20 to 22 days in bag net fishing. Based on the lunar calendar, out of 28 days, catch will be more for 20 days and in the remaining 8 days catch is generally scanty. Based on these observations, *Pagadiyas* plan their fishing

and related activities. Season wise catch analysis reveals that catch is more in winter period followed by monsoon and summer months. Average catch per day from a single unit is recorded as 6, 10.3 and 4 kg for monsoon, winter and summer seasons respectively. Catch composition shows that *Acetes* and other low valued non-penaeid shrimp contributed 24% followed by Penaeid shrimp (20.3%) and Bombay duck (17.6%). Seasonal variation in catch composition is observed. Bombay duck dominated during monsoon season (35%) whereas *Acetes* (30%) and penaeid shrimp (36%) dominated in winter and summer season respectively. Only 10% of the catch fetches high. Poaching and operational difficulties are the major problems observed during the study. The coastal population has their own understanding about the lunar periodicity and correlates that with the fishing. The traditional knowledge need to be well documented for better understanding the fishery and further management measures.

FS PO 17

Diversity of elasmobranchs in gillnet fishery of northwest coast of India

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Maharashtra, one of the major maritime states of India, contributes about 12% of Indian elasmobranch landings. Satpati, a major gillnet landing center of India situated in the Palghar district of Maharashtra was selected for the study during 2015-17. Fishers from this village operate efficient gill nets for capture of commercially important fishes such as pomfrets, seer, hilsa and sharks. The material, mesh size, dimensions of the gear, colour and depth of operation vary according to the targeted species, season and availability. The mesh size for catching elasmobranchs varied from 100 - 270 mm. Gillnets are known by their local names based on the targeted catch such as ilisha (*tarthi jal*), pomfrets (*dalda jal),* polynemids (*waghra jal*) and elasmobranchs (*magar jal*). Evaluation of the species composition of elasmobranch landings was conducted during the study period. Diverse catch composition was observed in the targeted fishery. Fifteen species of sharks, including *Scoliodon laticaudus*, *Rhizoprionodon acutus, R. oligolinx*, *Hemipristis elongate, Sphyrna lewini, Lamiopsis temminckii*, *Carcharhinus leucas, Carcharhinus macloti, Carcharhinus limbatus, Carcharhinus sorrah, Carcharhinus amblyrhynchoides, Chiloscyllium arabicum* and *Galeocerdo cuvier* were recorded. Two species of guitar fish, *Rhynchobatus djiddensis, Rhina ancylostoma*; nine species of rays such as *Himantura imbricata*, *H. leoparda, H. gerrardi*, *H. alcockii*, *Himantura* sp. *H. uarnak, Pastinachus sephen*, *Aetobatus flagellum* and *A. ocellatus* were recorded. Sharks dominated the elasmobranch fishery at Satpati and among this *S. laticaudus* contributed more than 60% followed by *Rhizoprionodon spp.* Ray landing was dominated by *H. imbricata.* The diversity of vulnerable marine fauna in small scale marine fisheries has so far been poorly estimated. Detailed account of diversity of elasmobranch in a small scale gillnet fishery is highlighted.