

catastrophic and attributed to conventional boats can be reduced through the use of solar energy. Thus, the results of the trials showed that solar boat with electric motors which reduce carbon emission and noise during operation, can replace the conventional smaller boats powered with outboard motors (OBM). Since it is free from fossil fuel and noise, the boat is non-polluting and ideal for aqua farms for feeding and transportation purposes.

FS PO 13

Structural and operational changes in the mechanized fishing sector of Andhra Pradesh and their long term implications on fishery resources

R.RAGHU PRAKASH*, U. SREEDHAR, G. RAJESWARI, M. SWAMY KUMAR, P. DHIJU DAS

Research Center of ICAR-Central Institute of Fisheries Technology, Visakhapatnam, Andhra Pradesh, India; *draghuprakash@gmail.com

Marine fisheries sector in India has witnessed a phenomenal growth during the last five decades both quantitatively and qualitatively. The development of fish harvest technology has been in the areas of craft technology and mechanization, introduction of synthetic gear material, acoustic fish detection and provisions for on board fish preservation. Along the east coast, most of the trawlers were restricted to demersal trawling for shrimps. However, with dwindling resources coupled with increasing fuel costs, dynamic changes have taken place in the fishing craft, gear and operation. The mechanized fleet has diversified by shifting the target from shrimp to finfishes and long lining. The power of the engines increased drastically over the years. With the increasing market demand for tuna, hybrid fishing practice of trawling and long lining

during lean fishing season is now in vogue. The paper details the structural and operational changes that have taken place over the decade along the Andhra coast. The transformation of production and patterns of fisheries sector and its impact on the fisheries resources and on the long term economic growth are also addressed. Management measures to be adopted to improve employment generation and nutritional security are suggested.

FS PO 14

Hyper spectral optical discrimination of phytoplankton community structure in coastal waters, south eastern Arabian sea

P. MINU¹, A.S. SRIKANTH², S.S. SHAJU¹, V.P. SOUDA¹, P.M. ASHRAF^{1*}

¹ICAR-Central Institute of Fisheries Technology, Kochi, Kerala, India; ²Unité Mixte Internationale Takuvik, Université Laval, Québec (Québec) G1V 0A6, Canada; *ashrafp2008@gmail.com

The ability of hyper spectral optical measurements to discriminate changes in the composition of phytoplankton communities in coastal waters is well studied. The performance of spectral fourth-derivative analysis and clustering techniques to differentiate four different algal blooms is done. Phytoplankton absorption coefficient, $aph(\lambda)$, and remote-sensing reflectance, $Rrs(\lambda)$ are used in the analysis. Samples were collected on monthly basis from coastal waters off Kochi. Similarity index was applied to measured spectra of $aph(\lambda)$ and $Rrs(\lambda)$. Similarities between abundance-based and optically-based classifications were better for the optical data of $Rrs(\lambda)$ than $aph(\lambda)$. This analysis showed that, hyperspectral $Rrs(\lambda)$ can be used as a potentially suitable input data for the differentiation of phytoplankton taxonomic groups. These results suggest

using of hyperspectral optical data of $aph(\lambda)$ and $Rrs(\lambda)$ 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

DIVYA VISWAMBHARAN*, P.S. SWATHI LEKSHMI,
GEETHA SASIKUMAR, PRATHIBHA ROHIT, S.G.
NAGARAJ, ABDUL HAKEEM

Research Centre of ICAR-Central Marine Fisheries Research
Institute, Post Box No. 244, Mangalore, Karnataka, India;
*divyaarinu@gmail.com

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

JIGNESH ANJANI¹, K.K. PRAJITH^{2*}

¹Aga Khan Rural Support Programme (India), Sagarbhandhu Project, Mandavi -Kutchh, Veraval, Gujarat, India; ²Research Centre of ICAR-Central Institute of Fisheries Technology, Veraval, Gujarat, India; *prajithkk@gmail.com

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