(15.077%), crustacean (6.57%), and annelids (0.91%). In the present study, the observed Relative Gut Length (RGL) ranged between 0.6 and 0.67 with a mean of 0.64 suggested that the fish is carnivorous. Males predominated over females in the population and the sex ratio (M/F) of 1: 0.72 was statistically significant (χ^2 =31.63, p<0.05). There was a little seasonal variation in relative condition which ranged from 0.96 to 1.01 in males and 0.92 to 1.05 in females. Fecundity ranged from 2268 to 6058 eggs with mean of 3823±264 eggs for fish of 305 to 490 mm Total length (TL) weighing 80 to 276 g. Average monthly Gonadosomatic Index (GSI) ranged from 1.06 - 9.3% with a mean of 3.53% in females. Matured and spent individuals were recorded in all months indicating year round spawning with two peaks, one between February to April and the other between July to October.

FB OR 02

Influence of island specific environmental conditions on mangrove fishery of south Andaman islands

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Mangrove ecosystems worldwide are utilized by costal community for livelihood and food source. These fragile ecosystems are influenced by various factors including the environmental conditions prevailing in the area as well as human interface. Present investigation was conducted to understand the relationship of fishery from South Andaman mangroves and the environmental conditions prevailing in this island. The fishery fluctuated between 15.88 tonnes (Shoal Bay) and 1.13 tonnes (Beodanabad) with a total catch of 35.08 tonnes during the present study (2012-2014). Shrimps (4397 kg) were the most dominating resource followed by mud crabs (3458 kg), mullets (2370 kg), silver-biddies (1430 kg) and least (305 kg) were anchovies. The highest catch was recorded from cast net (22,226.7 kg) during the study followed by crab rod (7,684.4 kg) and least from crab net (13 kg). It was interesting to note during the study, that unlike mangrove regions of mainland India, monsoon was reported with highest fishery and lowest in pre-monsoon. The study enlightens the fact that the absence of perennial rivers, with rainfall as the only freshwater source affects the environmental variables at a significant level. Multivariate analysis viz. RELATE routine (Rho= 0.808) and Spearmen (r = 0.7) recorded correlation between fishery and environmental variables significant at 0.1%. Water temperature and salinity were found to be the best variables influencing the fishery of island mangrove ecosystem.

FB OR 03

Factors influencing the abundance of *Acetes* sp. along Gujarat coast: A preliminary analysis

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The states of Maharashtra and Gujarat together contribute about 24% of the total catches from Indian waters. Unlike the South-West coast where sardines and mackerel, are the major species, the fishery in this region is dominated by fishes higher in the tropic pyramid. More than 80% of the species in the region have Acetes as

predominant food in the guts, which shows the ecological significance of *Acetes* sp. as a link in the ecosystem. The study was taken up to determine the factors that contributed to the abundance of Acetes along the region, which will be an input for satellite based predictions of fishery resources. Fishing experiments were carried out along Veraval and Diu coasts of Gujarat which have targeted fishery for Acetes using Dept. fishing vessel. Physico-chemical parameters were collected simultaneously from the fishing grounds. The catches of Acetes were highest during post-monsoon and the immediate pre-monsoon. A good correlation (r=0.92) was observed between the Acetes catches and the total CPUE of the catches in trawl catches. The abundance of acetes correlated positively with chlorophyll content in water, which could be taken as a proxy for the plankton abundance. To find the optimum range and predict abundance, analysis based on Random Forest classifiers were used. Chlorophyll and temperature were the most important factors that determined the abundance of Acetes. But the major classification was based on the season (pre and post monsoon- node-1) and the winter season forming another node (node -2). The first node could be further divided based on the chlorophyll concentration (0.47 $mg.m^{-3}$), which was further separated based on the limiting temperature (27.25 ^{O}C). In the winter season, the abundance is seen to be based on a lower surface temperature at $25.15^{0}C$. A temperature of $27.25^{0}C$ limits the production of *Acetes* sp. and also the factor: seasons, which could be the combined effect of circulations (which were not considered in this study). A species distribution model using maximum entropy data was developed, which proved the reason for distribution of Acetes along the northwest coast and also the discontinuous distribution of Acetes reported in literature. The possibility of inclusion of the results of this study, in the potential fishing, for northwest coast using the concentration of chlorophyll, temperature, phosphate and nitrate is discussed in the paper.

FB OR 04

Biological observations on the Annandale's guitarfish *Rhinobatos annandalei* (Norman, 1926) from coastal waters off the northwest coast of India

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Biological data for the poorly known Annandale's guitarfish *Rhinobatos annandalei* (Rajiformes: Rhinobatidae) based on specimens collected from the by-catch of commercial shrimp trawlers operating in Arabian sea at depths of 40 –70 m off northwest coast of India is presented. Three hundred and fifteen individuals, ranging from 440 to 950 mm L_T, 160 to 3000 g total mass(M_T) were collected for this study. The length–mass relationships were significantly different between the sexes ($p<0.001$). The length - mass relationship (combined sexes) was derived as LogW = -8.03435+3.55958 Log L (r^2= 0.961). Co-efficients 'a', 'b' of the length-mass relationship were estimated as -7.45983, 3.43176 (r^2= 0.980) for females and -7.13177, 3.32133 (r^2=0.914) for males respectively. The size-at-maturity (L_{50}) for females and males estimated to be 622 and 641 mm L_T respectively. Number of embryos in single female ranged from 4 to 21 and size at birth estimated between 10.0 to 13.0 cm