under one roof. The proposed National Fisheries Action Plan 2020 aims to increase fish production and productivity to reach an 8% annual growth rate and 15 million tonnes by 2020. It also aims to double the income of farmers and fishermen by developing more land for aquaculture and assisting fishermen through welfare and training.The benefits of industrializing the fisheries and aquaculture sector includes providing subsistence for people involved in the sector, growing the country's export and GDP, and ensuring food security and nutrition in the country.India and worldwide to keep this momentum need qualified and dedicated people and current scenario is not very attractive from an industry prospective so SAU's need to focus on imparting the technical knowhow with an exposure to the industry for long term commitment.

AP IN 09

Shrimp farming - "The right way"

MANOJ M. SHARMA*

Director, Mayank Aquaculture Pvt. Ltd., 204-205 Suryadarshan Complex, Jahingirpura, Rander Road, Surat, Gujarat, India;
**mapl.shrimp@gmail.com*

India occupies the third position in the world shrimp production scenario through aquaculture after China and Indonesia. India has witnessed steep rise in total shrimp production from 70000 mt to 420000 MT following the success of vannamei shrimp farming. However, the trends from last year it's not looking promising due to WSSV and emerging diseases like RMS, EHP and WFD. The cause of diseases is mainly attributed to lack of management practices adopted by farmers while changing from monodon to vannamei farming system. The vannamei was introduced to Indian farmers as a support measure and to safeguard the shrimp farming industry from the downfall during monodon era. The lead attraction of vannamei was SPF and high production capacities; the farmers have gone for vertical production with the limited infrastructure of monodon leading to serious management issues arising from intensification of shrimp farming. Unfortunately, once again the future of shrimp farming is under severe cloud. The prevalent disease and new emergent disease is mainly due to the organic loads in shrimp culture system, present day farmers are practicing minimum or zero water exchange system to prevent disease occurrence which affects the water quality. The main contributor to organic load in shrimp farming is feed and its management, the feeding technique makes or breaks modern day shrimp farming. Through effective and practical feed management we can prevent major ongoing problems with shrimp farming. Very practical and successful feeding technique is discussed in this presentation. Though many of the directs looks very common, practically it takes a lot discipline to practice. The presentation discusses in detail the indigenous trade knowledge what the industry has acquired through 20 years of success in shrimp farming and how we have adopted to changes while transforming our farms from monodon to vannamei. We hope that our good work and success in shrimp farming through simple steps and practical approach will help and enlighten the shrimp farmer towards sustainable shrimp farming "THE RIGHT WAY".

AP OR 01

Polyaniline- nano metal oxide incorporated hydrogel coating over polyethylene to combat biofouling in aquaculture cage nettings

P. MUHAMED ASHRAF*

ICAR Central Institute of Fisheries Technology, Kochi, Kerala, India; *ashrafp2008@gmail.com

The demand for protein for feeding the growing population is on the rise. Fish is an excellent and affordable source of protein which contributes significantly to the nutritional security in India. Cage aquaculture is getting popular in India in recent years and is often considered a mitigation measure for the dwindling catches from the marine sector. The aquaculture cages often get bio fouled, which is a major problem that exhausts more than 25% of the operational cost. Biofouling is the accumulation of micro and macro foulers on the submerged surfaces. Polyethylene is the most commonly used material for construction of cages and polyethylene is non-polar in nature and hence the antifouling strategies generally fail. The present study intended to synthesise a polar molecule, polyaniline over the polyethylene and the same was treated with nano metal oxide incorporated hydrogel. Polyaniline and nano copper oxide incorporated hydrogel were synthesized in-situ over the polyethylene nettings. The presence of nano metal oxide incorporated hydrogel over polyethylene was confirmed by SEM, FTIR and AFM. The treated materials were exposed to marine and estuarine environments for three months and the results showed excellent biofouling resistance. The methodology highlights the potential application of polyaniline and nano copper oxide incorporated hydrogel in preventing biofouling under marine and estuarine aquaculture environment.

AP OR 02

Reproductive characteristics of captive grey mullet *Mugil cephalus:* Report from south-east coast of India

KRISHNA SUKUMARAN*, M.U. REKHA, DANI THOMAS, ARITRA BERA, BABITA MANDAL, M. MAKESH, K. AMBASANKAR, M. KAILASAM, K.K. VIJAYAN

ICAR-Central Institute of Brackishwater Aquaculture, 75, Santhome High Road, Raja Annamalai Puram, Chennai, Tamil Nadu, India; *krishna@ciba.res.in

In order to obtain baseline data on captive maturation of grey mullet *Mugil cephalus* reproductive characteristics of grey mullet maintained under captivity were studied. Broodfish (n=50) sourced from Kovalam, Chennai maintained in cement tanks (capacity, 100t; water exchange, 400% per day, salinity, 28±0.4 ppt, temperature, 29±0.2 ^{0}C) were observed during October to February 2016-17. The fish were fed with sinking formulated feed (2.5% of body weight twice daily) and given formalin bath treatment (100ppm) on a monthly basis as a prophylactic measure against parasites. Fish were tagged using PIT tags for establishing identity. In 2015-16 the size ranges of fish varied from 250-1300g whereas in 2016-17 it varied between 700-1500g indicating an annual weight gain of 300-400g. Natural mortality of the fish in October was 33%; 22% of the fish were females and 14% were males. For accelerating gonadal maturation, fish were given hormonal treatments in October. Male fish were treated with silastic implants of 17α-methyltestosterone, 10mg and females were administered cholesterol pellets of Luteinising Hormone-Releasing Hormone analogue (LHRHa), 200µg. A total maturity of 57.5% was attained after hormonal treatments, which included 35% females and 22.5% males. The minimum size at maturity of grey mullet males and females were 250g and 815g respectively.