



Fourth NATIONAL MISSION ON CONSERVATION OF SHARKS-INDIA NMCSI-4

22nd January, 2015 Conference hall, CIFE, Mumbai
Proceedings

Introduction

The fourth meeting of the National Mission Meeting on Conservation of Sharks-India was held at CIFE, Mumbai on 22nd January 2015. The discussions at the meeting were conducted in both English and Hindi, with relevant translations being provided as and when needed.

The meeting was presided over by Dr. W.S. Lakra, Director, CIFE. There were more than 130 participants including representatives from DAHDF, Indian Coast Guard, NGO, scientist from CMFRI, CIFE, students of CIFE and fishermen across India.

Morning session

The meeting started with a prayer song. Followed by the welcome speech of **Dr, P.S. Ananthan, Senior Scientist, CIFE**. He welcomed all the participants and he also record his gratitude for permitting the meeting to organize in the centre by the Hon. Vice Chancellor and the Director, CIFE. In his welcome speech he did not forget to appreciate the meeting, where fishermen community itself was taking the voluntary initiatives to conserve their marine resources.

Mr. Vincent Jain, core team member –NMCSI, gave consolidated report of the past three National Mission Meetings on Conservation of Sharks-India. He narrated the report and mainly focused on the following recommendations of the past three meetings.

Recommendations of the NMCSI-1

- Improve data collection and analysis. Undertake targeted research and development. Research should not be the sole responsibility of Government alone; independent researchers, NGO's and fishermen associations should be involved in the process.
- Review the existing conservation and management measures on sharks with support from community associations; document best practices followed by other countries and customise it local needs
- Identify the gaps in existing conservation measures and improve it to increase shark population
- Initiate focussed education and awareness programmes. Create awareness on fishes among community members
- Coordination and consultation among all stakeholders including traders

A **core team** comprised the below mentioned were selected for further action connected with conservation and management of sharks.

1. Dr. E. Vivekanandan
2. Dr. N.M. Ishwar
3. Dr. Y.S. Yadava

4. Mr. Jayasimha
5. Dr. Fahmeeda Hanfee
6. Mr. V. Romanse
7. Mr. J. Vincent Jain
8. Dr. Shekhar Kumar Niraj

Recommendations of the NMCSI-2

- CMFRI being a central and national level institution as well as the nodal agency which is doing research on various shark species has sufficient data of the status of the various species of sharks in India. Fishermen and CMFRI should work together on data collection.
- Review the existing conservation and management measures on sharks with support from community associations; document best practices followed by other countries and customize it to local needs.
- Encourage the agencies and groups who are involved in conservation and management efforts of sharks to discuss and consult with the scientific community, fishermen leaders and other stakeholders and also, to involve fishermen community in the protection efforts.
- Implement conservation measures in a democratic manner, consulting with the main stakeholder - the fishermen community.
- National Mission Team on Conservation of Sharks- India will be the national level apex body and there will be state level mission teams which will engage in the conservation and management of sharks.
- National Mission Team will coordinate and consult among all stakeholders including traders
- National Mission Team will initiate education and awareness programme on conservation and management on sharks among community members and others.
- State wise teams shall be formed in all the coastal states of India

Recommendations of the NMCSI-3

- Feasible conservation measures should be evolved and should be adopted for saving sharks-the health of our ocean.
- Data regarding sharks under viviparous, oviparous, and ovoviviparous categories are needed as it is important for recommending shark conservation measures.
- Modern facilities and human resource may be provided to CMFRI for identifying and assimilating information on the three categories of sharks
- Special programmes should organize for Conservation organizations, environmentalists, medias to provide field level inputs on conservation of sharks.

- Encourage fisheries college students to take up shark conservation related projects as part of their course.
- The CMFRI should initiate field level projects to work with fishing community.
- ICT and expertise of IIEEE could be tapped for conservation of sharks
- The Secretary, Government of India of the MoEF & CC will be the Chairperson for the National Mission on Conservation of Sharks-India
- Provide separate secretariat for NMCSI in the MoEF & CC, Delhi for the operation of shark conservation related activities at National level.
- The Secretaries of the Government of the respective states of the Department of Environment and Forests will be Chairpersons for the State Missions in each coastal states
- Provide separate secretariat in the particular Department for operation of shark conservation related activities at State level.
- The National Mission combined with the State Missions will be the major link between the Government and the community for shark conservation related activities.
- The present Core Team has to be strengthened
- There will be permanent members from the MoEF & CC, CMFRI, FSI, MPEDA, CITES, FAO etc other than the present members to the Core Team
- The fourth National Mission Meeting will be held at Goa and the responsibility for organizing the meeting is given to Advocate Jose Bilbin
- The fifth National Mission Meeting will be held at Andhra Pradesh and the responsibility for organizing the meeting is given to Mr. Arjalidasu
- Complete the Mission Meetings in rest of the states and submit the report in the month of August 2015

Mr. Jain record his thanks to Dr. Ananthan for building better relationship between AD SGAF and CIFE. He also thanked Dr. Lakra for providing organizational inputs for organizing the meeting programme.

Mr. N.V. Rao, Commandant, Indian Coast Guard gave his remarks on shark conservation. He said they are doing a multifaceted job as the coast guard. They are preserving marine environment, ensuring safety and prosperity at the sea; they are also involved in surveillance of the seas. They maintain regular contact with the fishermen going for deep sea fishing. He further talked about the lack of information among his officers on tools for fish identification and details of which shark species are banned.. He also added a suggestion to include an introduction to the coast guard as part of the course for fisheries graduates and encouraged fisheries students to make a career in the Coast Guard also.

Mr. D.V. Rao, Asst. Commissioner, DAHDF gave his remarks on shark conservation. He talked about his experience with the Thoothoor fishermen. He said that shark fishing is very scary and risky job. These fishermen are going beyond 300 nautical miles for fishing to run their livelihood. He further talked about the fact that fishermen livelihoods are totally dependent on the fishing. Fishers are involved in multiday fishing. Hence, banning the fishing of few species is not practical and they should be consulted before making any policy decision. There is a need for the involvement of fisher folk in all stages of planning to implement fisheries policies and any kind of regulation and conservation measures connected with fishing.

Dr. S.K. Chakraborty, HoD, FRHPHMD gave his remarks about shark conservation. He said that sharks have a very slow growth rate. Sharks have an advantage of giving birth to big adults hence chances of predation is very less. Their mouth structure is also such that they are not easily preyed upon by any other predators. But nowadays using many mechanized vessels their fishing is going on a very high rate. He further talked about the Thoothoor fishermen that this fishermen group is particularly indulge in shark fishing and not destroying any other fisheries. He further said that deliberate catching of shark fishes and simply cutting their fins and then throwing them back into the sea will destroy the population of this particular species. This type of destruction should be controlled and conservation measures should be undertaken. He further said that data collection should be encouraged from all the stakeholders, since cooperation of stakeholders is very important in the management and conservation of any species.

Presidential Address by Dr. W.S. Lakra, congratulated Mr. Vincent Jain and his organization for being involved in such a wonderful cause. He said that fishermen are our important stakeholders who are proactively participating in the conservation and management of aquatic resources. He discussed about the issues and problems faced by the fishermen community. He said that MoEF&CC is the nodal agency involved in such works. They are responsible for the conservation and management of biodiversity of country. He has discussed about the technique of DNA bar coding and how it can help to a great extent in identification of banned species of fishes. He has discussed about a similar case registered in the judiciary of Kerala. He further said that holding meetings is not sufficient. Policy makers, bureaucrats and other decision making bodies should take decision scientifically; taking inputs from all the stakeholders. Involvement of fishers group at the decision making level is very essential. It is the responsibility of scientists to give sufficient inputs to those nodal agencies and policy makers. Sharks are very important animals to conserve. But, it is equally important to protect the livelihood of fishermen going for deep fishing. Proper scientific data has to be given to the Government for policy formulation. He further talked about the interest of present Government towards the fishing sector. He encouraged and appreciated that fishers are proactively and voluntarily coming to the scientist and telling the issues related to conservation and management of marine resources. He further elaborated that this meeting should result into a kind of declaration and not just recommendations. He said that CIFE wants to organize many more meetings of such kind involving different stakeholders related to conservation and management of marine resources and also address the issues of the fishermen community. He further complemented all the representatives and participants who were present in meeting. He concluded his remarks by saying that scientists should also proactively be involved in addressing the issues and giving inputs to the policymakers.

Panel discussion:

This session was chaired by Dr. A.K. Pal, Joint Director, CIFE and co-chaired by Mr. D.V. Rao, Assistant Commissioner, DAHDF. Under their lead, there were four presenters who talked about the status of shark fishing in India with special focus on Maharashtra. The

speakers were Dr. Ananthan P.S., Dr. Latha Shenoy, Dr. S. Raje and Ms. Samyukta (HSI India), who threw ample light on the present status along with providing the audience with valuable information.

The topics presented by them and their main deliberations are as follows.

Topic: Trends in shark catch and use of IT tools for conservation.

Official speaker: Dr. Ananthan P.S.

Dr. Ananthan started off by stating India's position as the second largest catcher of sharks after Indonesia. The marine catch as well as elasmobranch catch at both India and Maharashtra level was documented and tabulated decade wise to discuss the trends which occurred right from 1960 to 2010. On observing the statistics it was deduced that there has been a fall in the elasmobranch catch in Maharashtra from the 1980's itself with a negative growth rate of -4.69 in Maharashtra marine catch and -8.68 in Maharashtra elasmobranch catch. The elasmobranch presently fall under the less abundant categories at the all-India level and under the declining category at the Maharashtra level .

Dr. Ananthan made a special attempt in correlating the use of ICT tools and fisheries in conservation. Under this, tools like sonar, GPS, mobile phone, radio programming as well as specific experts system were discussed. He talked about how the use of mobile phones has helped the fishermen to negotiate better prices and how this has bridged the market.. The PFZ advisory is well customised only for tuna but the data about shark is still scanty . An expert system like pro tuna, pro fish, fish map, aquasite, UMECORP, Case Based Reasoning should also come up for shark fishery.

Topic: Craft and gear modifications for shark conservation

Official speaker: Dr. Latha Shenoy

Dr. Latha Shenoy repeatedly stressed that a balance should be struck between sustainability of shark resources and livelihood of fishermen as these were two sides of the same coin. She discussed about the state wise landings of elasmobranch resources where Gujarat stood first followed by Tamil Nadu and Maharashtra. She also gave valuable information about how by catch in hook and lines could be reduced by use of circular hooks. She finally closed up her presentation by suggesting the adoption of flow management measures such as prohibiting marketing of juveniles, monitoring illegal trades, poaching, shark finning etc.

Topic: Shark species identification and involvement of fishers in Maharashtra

Official speaker: Dr. S. Raje

Dr. S. Raje is an expert in elasmobranch studies and has work in this field for more than 33 years. He discussed the major constraints in elasmobranch studies such as lack of biological data, lack of suitable model, targeting of species whose migratory pattern is well known etc. He also explained in brief the taxonomic characters of major elasmobranch resources of India in such a way that it could be used for on-field identification of the species. Another valuable piece of information given by him was in 1990's the catches per hours of shark in Maharashtra was 0.65 kg/hr but in 2004 it was recorded to be only 0.2 kg/hr.

Topic: CITES schedule, wild life protection act and shark conservation

Official speaker: Ms. Samyukta, HSI

Ms. Samyukta was giving a conservatory approach towards shark resources. As she was from a NGO background dedicated specially towards conservation of biodiversity. She listed out the reasons why sharks were over exploited. She stated that the current condition of implementation of Indian law in safeguarding biodiversity is at its weakest. She also discussed about the different shark protection treaties such as CITES, IPOA and NPOA for sharks, CMS etc. She finally concluded that one common platform for law makers, scientists, NGOs and fishermen was the need of the hour for the efficient implementation of shark conservation strategies.

Identification Of CITES Listed Sharks In India: Project Preparation (Mr. Vincent Jain And Mr. A. Titus, ADSGAF)

In this session Mr. Vincent Jain and Mr. A. Titus proposed a project of identification of sharks for familiarizing the fishers with both local name and scientific name. But, since this has already been done by CMFRI it did not transform into a project. Mr. Jain said that though there were work done by CMFRI similar to the proposal but the intention of the work is to create an environment where the fishers and the scientists work together. This will be the first conservation step on action. He also said let's identify the landing shark of CITES listed and not the all. Students expressed their interest in the proposed project and also raised the concern of the fund requirement. Dr. P.S. Ananthan, suggested that CIFE students can collaborate with them during the field training which will benefit both sides. Adding to this, Mr. Jain assured financial assistance to students during this fieldwork.

Molecular Tools For Identification Of Sharks (Dr. Pavan Kumar, CIFE)

Dr. Pavan Kumar started his presentation by explaining that sharks can be identified either by seeing their external morphology or by the molecular approach. External morphology includes like color, teeth and fin pattern. Molecular approach involves reading the sequence of genomic DNA. Sequences of mitochondrial and nuclear genes are used. These sequences are short, conserved regions on the animal's DNA. Molecular approach of identification is often called as DNA Barcoding.

In the conservation point of view, barcoding plays an important role. Sharks are mainly caught for their meat and fins. Either minute tissue sample or degraded tissue can be used for barcoding to identify the species.

COI (Cytochrome c Oxidase sub unit I) is used as the reference sequence. Here universal primers for the COI gene are used for PCR. These yields up to 655bp product. Gene product is eluted and the obtained sequence is compared with the related Shark COI sequence. This Shark COI sequence either acts as a new sequence to be added to database or phylogenetic relation is found out by the reference sequence. Related shark species sequence varies with the minor nucleotide sequence.

Present Status Of Shark Fishing, Shark Business And Shark Finning Policy (Mr. Jose Bilbin / Mr. S. Elkiyas, ADSGAF / Ms. Samyukta-HIS)

Mr. Jose Bilbin gave a very emotional speech in which he threw light on the dichotomy between the fishers' community and scientific world. He spoke about the reality of shark fishing and risks involved in it. He explained about the fact that no fishers willingly catch the endangered sharks but it gets caught in the hooks and during the process of hauling, it dies. Fishers due to the fear of getting caught by the concerned authorities have to dump it in sea, thereby benefitting no one. He was trying to explain that no fishers are in favor of catching the CITES enlisted endangered sharks but sometimes, sharks are accidentally get caught since

there is no scientific technique or method to avoid it. So, he requested the bureaucrats who make policies sitting in air conditioned rooms to understand this reality and have empathy for fishers while formulating policies, which concern them.

Panel discussion: Afternoon session

Panel discussion on shark conservation strategies

Chair: Dr. M. Krishnan, HOD, FEESD, CIFE

Co-chair: Dr. Purushottama, CMFRI centre

The stage was made open for the second half of the afternoon session by Dr. M. Krishnan, who guided the audience to come up with conservational strategies for shark which could be classified as social, institutional technological and punitive. He also said that India has seen as a potential market for foreign direct investment and that in 2012, around 4 million dollars worth of shark products were exported from India to China alone.

After this, an interactive session with fisheries students on future of shark conservation was conducted by Dr. Purushottama. He gave very useful statistics on shark that about 11000 sharks are caught everyday globally and that only 20% of the shark population exist today. He also said that sufficient field guides and repositories on elasmobranch for all the state will be made ready in the 12th plan through CMFRI project. He also said that the major drawbacks of working on shark biology is that it is very expensive to procure samples for research. Dr. Purushottama then encouraged a one-on-one conversation between students and fishermen. Finally he closed up the session by mentioning the valuable inputs given by them, which were as follows:

1. The consumption of shark and shark products should be discouraged at the consumer end.
2. Proper implementation of CCRF at the state fisheries level
3. Conducting regular meetings with all stakeholders
4. Creating village level awareness programmes
5. Creation of scientific and systematic working on resource mapping
6. Providing alternative livelihood methods to fishermen
7. Encourage fisheries college students to take up shark conservation related projects as part of their course.

For the formation of Maharashtra State Mission on Conservation of Sharks (MASMICS), the organizers of the programme suggested the following people from their respective agencies to be a part of the MASMICS

1. Dr. W. S. Lakra –Patron
2. Dr. P.S. Ananthan-Co-ordinator
3. Mr. Purushottama-Member
4. Mr. Akilesh-Member
5. Commandant N.V. Rao-Member
6. Representatives from NGOs
7. Representatives from Fishworkers Organization
8. Representative from MPEDA

9. Representatives from the state fisheries department of Maharashtra
10. 8 Students of boys and girls at 4:4 from CIFE

Abbreviations

ADSGAF- Association of Deep Sea Going Artisanal Fishermen

BOBP-IGO- Bay of Bengal Inter-Governmental organization

CCRF- code of conduct for responsible fisheries

CIFE- Central Institute of Fisheries Education

CITES- Convention on International Trade in Endangered Species of Wild Flora and Fauna

CMFRI- Central Institute of Fisheries Education

COI- Cytochrome c Oxidase sub unit I

CPREEC- C.P.R. Environmental Education Centre

DAHDF- Department of Animal Husbandry and Fisheries

HSI-India- Humane Society International-India

MoEF & CC- Ministry of Environment & Forest and Climate Change

NGO- Non-Governmental Organization