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THE MARINE FISHERIES INFORMATION SERVICE: Technical and Extension Series envisages the rapid dissemination of information on marine and brackish water fishery resources and allied data available with the National Marine Living Resources Data Centre (NMLRDC) and the Research Divisions of the Institute, results of proven researches for transfer of technology to the fish farmers and industry and of other relevant information needed for Research and Development efforts in the marine fisheries sector.

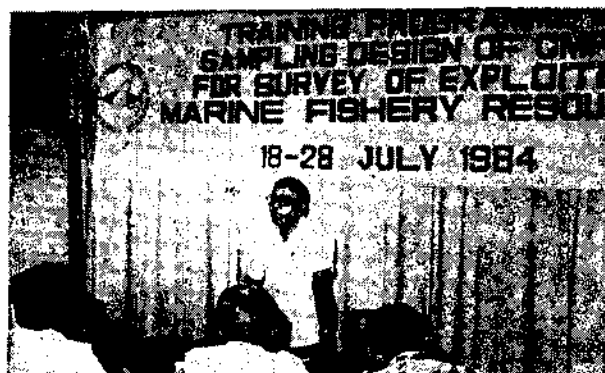
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TRAINING PROGRAMME ON SAMPLING DESIGN OF CMFRI FOR SURVEY OF EXPLOITED FISHERY RESOURCES*

Realising the potentialities of marine fishery sector in the national growth, Government of India established the Central Marine Fisheries Research Institute as early as in 1947. Since then this Institute is collecting marine fish catch statistics and other data on biological and environmental parameters as these data are required for understanding the conditions of the exploited fish stocks. Basing on its vast experience in the field of collection of marine fish catch statistics and the information obtained through pilot surveys conducted by the Indian Council of Agricultural Research during the fifties, the CMFRI has developed for this purpose a stratified multistage random sampling design.

The need for regionwise estimates for planning and development in the states was felt and the state governments have started collecting data on marine fish landings on regionwise basis to meet their plan requirements. The design of sampling for and the methods of collection of marine fish catch statistics differ from state to state. Cognising the importance of obtaining precise catch statistics for rational development and management of fishery sector a meeting of the chief ministers and ministers for fisheries of states and union territories was held in Hyderabad during 25-26 June 1983 and was presided over by the Hon'ble Minister for Agriculture and Co-operation, Government of India. In order to standardise the sampling method and streamline the process of collection of marine fish landings in India

it was suggested in that meeting that the CMFRI, Cochin should arrange for training for the officials of state departments and U.Ts on the method of collection of



* Prepared by Fisheries Resources Assessment Division, C.M.F.R.I., Cochin.

'To err is human'—a class on ways and means to reduce non sampling errors in session.

marine fish catch statistics as developed by the Institute.

Accordingly the first training programme was organised by the CMFRI in Cochin during 18-28 July 1984 and there were 20 participants representing various states and UTs. In this programme basic theory on sampling with practicals was included so as to give an insight to the trainees on the importance of sampling on scientific basis for estimation of marine fish landings. The trainees were also exposed to field experience in the actual collection of data by arranging their visits to Fisheries Harbour in Cochin and other fish landing centres. In addition, training in the preparation of field programmes, filling up of schedules and estimation of fish landings was also given to them.

On 18-7-'84, in his inaugural address Dr. E.G. Silas, the Director, CMFRI, explained the purpose for which the training was arranged, the necessity for obtaining precise catch estimates for planning and developmental purpose and the importance of having a unified system of collection of catch statistics on a sound scientific basis. Wishing all success for this programme he expressed the hope that this ten day comprehensive training programme would go a long way in meeting the requirements for which it has been organised. In the afternoon to acquaint the trainees on the various aspects of research projects of CMFRI, lectures by Heads of the Divisions of this Institute were arranged. Dr. K. Alagarswamy, Head, Molluscan Fisheries Division, Dr. P. V. Ramachandran Nair, Head, Fishery Environment Management Division, Dr. P. V. Rao, Head, Physiology, Nutrition and Pathology Division and in-charge of Centre of Advanced Studies in Mariculture and Shri M. S. Muthu, Scientist in-charge, Narakkal Prawn Culture Laboratory explained the work done under various projects in their respective Divisions. During 19-23 July '84 lectures on basic theory of sampling with practicals were arranged. Three days were devoted to visit fish landing centres for the collection of data on marine fish landings. On 27-7-'84 the data collected by the trainees were taken up for processing and analysis. On 28-7-'84 general discussions were held so as to exchange ideas to improve the system of data collection and to clear doubts if any of the trainees.

The valedictory function was arranged in the afternoon of 28-7-'84. After the welcome speech by Dr. K. Alagaraja, Scientist, CMFRI, the Chairman Dr. E. G. Silas in his remarks expressed the hope that the knowledge gained by the trainees would be made use of in

their respective states so as to improve the method of collection of marine fish catch statistics, and the purpose of the training to have a uniform method of collection of marine fish catch statistics on a sound scientific basis would be served. In his valedictory address, the chief guest Shri. K. M. Chandrasekhar, I.A.S. Director of Fisheries, Government of Kerala mentioned the importance of statistical sampling for planning and development purposes. Estimates, for short time intervals, were required for timely action particularly in the case of fisheries. Appreciating the work done by the CMFRI he indicated that more and more information were required to fill some of the gaps in the fishery statistics. While concluding he expressed his hope that this training programme would lead to improving the method of collection of catch statistics in the states and UTs and maintaining the good liaison between the scientists of CMFRI and the officials of state governments and UTs. The function came to a close with vote of thanks by Shri S. K. Dharmaraja, Scientist, CMFRI.

The schedule of the Training programme containing the topics and names of faculty members is appended. Lecture notes by the faculty members have been distributed to the trainees. The list of the names of the trainees is also appended. The statewise breakup of nominees is as follows.

State and Department	No. of nominees
1. West Bengal, Department of Fisheries	1
2. Andhra Pradesh, Commissionerate of Fisheries	2
3. Tamil Nadu, Department of Statistics	1
4. Pondicherry, Department of Fisheries	6
5. Kerala, Department of Fisheries	1
6. Goa, Department of Fisheries	2
7. Maharashtra, Department of Fisheries	2
8. Gujarat, Commissionerate of Fisheries	2
9. Andamans & Nicobar Islands, Department of Fisheries	2
10. Lakshadweep and Minicoy Islands, Department of Fisheries	1
Total	<u>20</u>

Training on Sampling Scheme adopted by the Central Marine Fisheries Research Institute, Cochin for the state department Personnel.

pilot surveys - uses of the data.
Dr. K. Alagaraja, Scientist S2.

Date	Time (hrs)	Topic and members of faculty			
			14.00-16.00		Preparation of work programmes-schedules used - uses of random number tables supplied. Shri S. K. Dharmaraja, Scientist S2.
18-7-'84	10.00	Registration.			
	10.30	Inauguration.			
	14.00-16.00	Highlighting the research programmes of the Institute by the Heads of Divisions.	23-7-'84	10.00-13.00	Non sampling errors-sources of errors- ways and means to reduce them to the minimum. Shri T. Jacob, Scientist S3.
19-7-'84	10.00-13.00	Introduction to sampling covering the items: need for sampling - units - population - frame - census vs sampling - random vs purposive sampling etc. Shri K. S. Scariah, Scientist S1.		14.00-16.00	Sampling designs followed by various state governments. The participants & Dr. K. Alagaraja, Scientist S2.
	14.00-16.00	Simple random sampling - with and without replacement - its properties - selection of units - random numbers - estimation. Shri M. Srinath, Scientist S1.	24-7-'84 to 26-7-'84		Visits to landing centres/Cochin Fisheries Harbour - collection of data in the prescribed schedules covering both mechanised and non-mechanised units.
20-7-'84	10.00-13.00	Cluster sampling and systematic sampling - their advantages and disadvantages - examples Shri. K. Balan, Scientist S1.			S/Shri G. Balakrishnan, Field Officer (T.6), U.K. Sathyavan, Field Officer (T6), Varghese Philipose, Field Officer (T5), K. C. Yohannan, Sr. Technical Assistant, (T.4), P. Karunakaran Nair, Sr. Technical Assistant (T. 4) and Joseph Andrews, Technical Assistant [T.1(3)].
	14.00-16.00	Stratified sampling and methods of estimation with suitable examples. Shri. K. Narayana Kurup, Scientist S1.			
21-7-'84	10.00-13.00	Multistage sampling and the sampling design of C.M.F.R.I. for collection of marine fish catch statistics. ICAR	27-7-'84		Processing - analysis-estimation - comparison of estimates. S/Shri K. N. Kurup, K. Balan, M. Srinath

and K. S. Scariah
Scientist (SI) and Tech-
nical staff of the Divn.

28-7-'84 10.00-13.00

Discussions on various
items of sampling -
organisation and colle-
ction of marine fish
catch statistics - adopt-
ing uniform procedure
-- all scientists.

14.00

Valedictory function.

**List of participants for the training programme on
sampling design for collecting fish catch statistics
18-28 July 1984**

1. Shri A. R. Abdul Guddoose, Inspector of Fisheries, Department of Fisheries, Pondicherry.
2. Shri S. D. Adarkar, Statistical Inspector, Department of Fisheries, Maharashtra.
3. Shri S. Q. Ahmed, Sr. Investigator, Office of the Commissioner of Fisheries, Andhra Pradesh.
4. Shri M. Amanullah, Statistical Inspector, Department of Statistics, Tamil Nadu.
5. Shri R. Appaji, Sub-Inspector of Fisheries, Department of Fisheries, Pondicherry.
6. Shri D. P. Bhise, Research Assistant, Directorate of Fisheries, Goa.
7. Shri A. Bhopal, Inspector of Fisheries, Department of Fisheries, Pondicherry.
8. Shri J. Chandrasekhar, Assistant Fisheries Development Officer, Andamans.
9. Shri P. M. Dixit, Assistant Statistician, Department of Fisheries, Maharashtra.
10. Shri A. M. Joseph, Research Officer (Statistics), Directorate of Fisheries, Kerala.
11. Shri K. Koya, Statistical Assistant, Directorate of Fisheries, Lakshadweep.
12. Shri G. C. Nedurmam, Assistant Superintendent of Fisheries, Directorate of Fisheries, Goa.
13. Shri I. C. Parekh, Fisheries Officer (Statistics), Gujarat State Fisheries.
14. Shri K. S. Prajapati, Fisheries Officer (Statistics), Gujarat State Fisheries.
15. Shri E. K. Raveendran, Fisheries Development Officer, Directorate of Fisheries, Andaman.
16. Shri X. A. Roche, Inspector of Fisheries, Department of Fisheries, Pondicherry.
17. Shri Shyamal Kumar Sengupta, Supervisor, (Field-cum-Computation), Directorate of Fisheries, West Bengal.
18. Shri C. Subbarao, Statistical Officer, Office of the Commissioner of Fisheries, Andhra Pradesh.
19. Shri K. Suryanarayana Raju, Inspector of Fisheries, Department of Fisheries, Pondicherry.
20. Shri K. K. Vijayaraghavan, Inspector of Fisheries, Department of Fisheries, Pondicherry.

