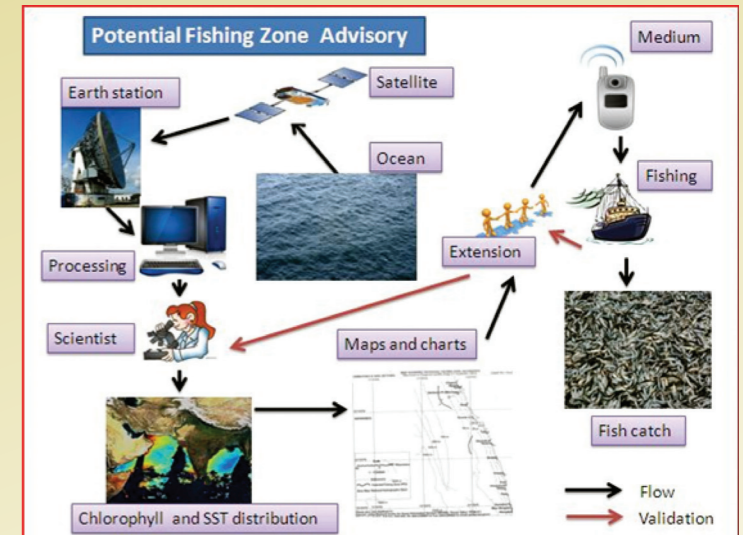




Potential Fishing Zone advisories - A promising tool for Precision fishing



ICAR RESEARCH COMPLEX FOR GOA,
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
OLD GOA 403 402, NORTH GOA, GOA, INDIA



Map of Goa showing the three major fish landing centres

Out of the 136 PFZ advisories received, 102 were validated. However, 34 PFZ advisories could not be validated because they did not have PFZ marking off or near Goa coast or were at a depth that was not possible to venture by the purse seine boats (i.e. 1000 m). The maximum and minimum CPUE (t/hr) out of the total 304 feedbacks received were 5.5 tonnes/hr and 0.9 tonne/hr for PFZ regions and 0.65 tonne/hr and 0.30 tonne/hr for non PFZ regions, respectively. Thus PFZ regions showed higher CPUE and profit in comparison with non PFZ regions.

Conclusion:

The Potential Fishing Zone advisories is a major tool in disseminating the satellite based fishery information to the beneficiary, the fishermen. Even though the scientific background and analytical platform behind the PFZ advisories is an evolving field, the anticipated results are obtained from the advisories with the participation of fishermen. The more refined PFZ advisories will be available for the fishermen in future with further advancement of the science. The validation studies have to be continued in order to have an uninterrupted data source for refining the advisories in future.

Major Fish Species observed in the validations



Indian mackerel



Indian Oil sardine



Seer fish and Tuna

Prepared by

Mr. Sreekanth G. B.,
Scientist (Fisheries Resource Management)

Dr. Subramanian S.,
Retired Principal Scientist (Fisheries Science)

Ms. N. Manju Lekshmi,
Scientist (Fisheries Resource Management)

Ms. Pastta Maria Fernandes,
Young Professional (Fisheries Science)

Dr. Narendra Pratap Singh,
Director

Published by

Dr. Narendra Pratap Singh
Director, ICAR Research Complex for Goa
Ela, Old Goa- 403 402

For details please contact

Dr. Narendra Pratap Singh
Director, ICAR Research Complex for Goa,
Old Goa-403 402, North Goa, Goa
Phone: (0832) 2284677/78/79, 2285381 (O)
Fax (0832) 2285649, E-mail: director@icargoa.res.in

Fish species	PFZ region		Non PFZ region	
	CPUE (t/hr)	Profit (Rs. lakhs)	CPUE (t/hr)	Profit (Rs. lakhs)
Indian Mackerel Highest catch	5.5	5.48	0.35	0.13
Indian Mackerel Lowest catch	0.9	0.68	0.30	0.04
Oil sardine Highest catch	4.5	2.51	0.42	0.08
Oil sardine Lowest catch	1.7	0.76	0.40	0.04
Seer fish Highest catch	4.5	11.63	0.65	1.47
Seer fish Lowest catch	1.5	4.22	0.50	1.25
Horse mackerel (single catch)	2.5	1.77	0.32	0.04

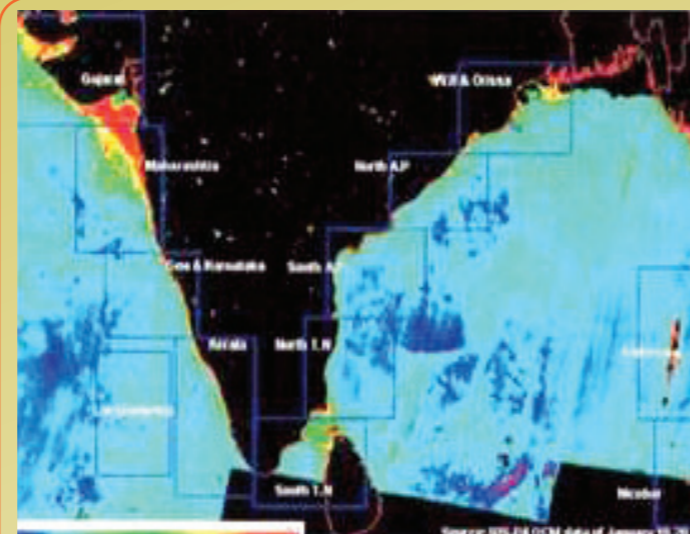
POTENTIAL Fishing Zone advisory is the dissemination of areas of fish availability provided by the Indian National Centre for Oceanic Information Services (INCOIS) through various collaborating institutes like the ICAR Research Complex for Goa is the nodal organization in Goa. This data is derived on Remote Sensing (RS) and Geographical Information System (GIS) techniques. This is based on the satellite derived Sea Surface Temperature (SST), Chlorophyll and wind pattern information. The advisories benefit the fishermen with a healthy catch and economic fishing operations.

Technology

- Indian National Centre for Oceanic Information Services (INCOIS) provides the advisories on the PFZ over Arabian Sea and Bay of Bengal from the thermal infrared channels of NOAA- AVHRR and optical bands in IRS-P4 OCM.MODIS Aqua data.

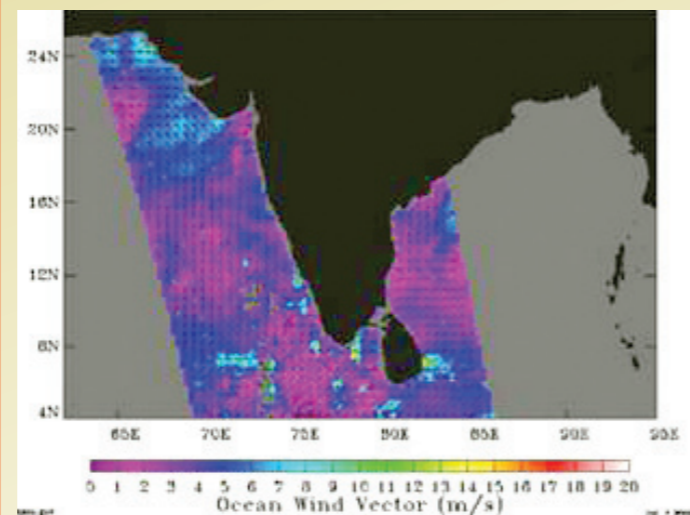


Sea surface temperature (SST) map



Chlorophyll concentration map

- The multilingual PFZ advisories are generated on every Monday, Wednesday and Friday to about 500 fish landing centres/ fishing villages covering the entire coast line of India.



Wind pattern map

Dissemination

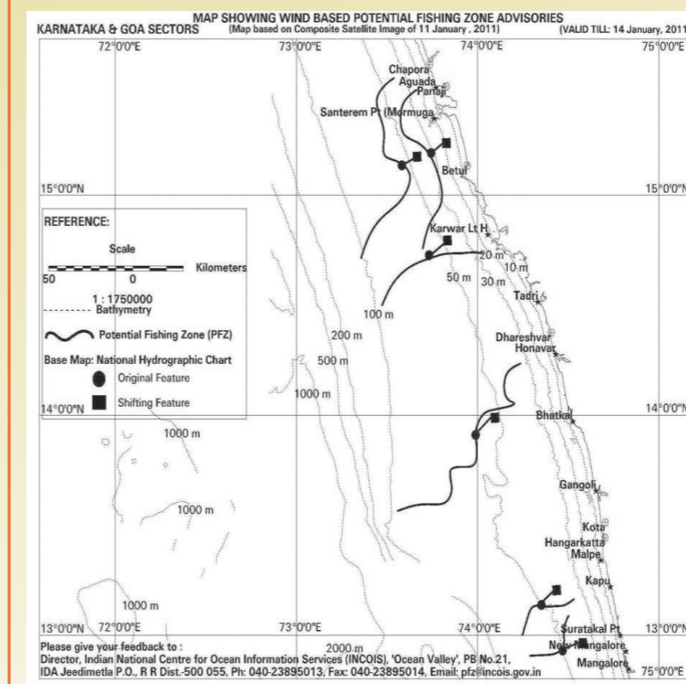
The PFZ advisories are disseminated during all over the year except during monsoon season and trawl ban periods. The entire coastline has

been covered in this dissemination programme. This is facilitated through different research organizations, fisheries departments and fishermen societies.

The mode of dissemination can be

- 1) Multilingual Electronic Display Board
- 2) Telephone
- 3) Fax
- 4) Email
- 5) Website
- 6) Doordarshan
- 7) Radio
- 8) News media

The information is given in different forms of extension like satellite images, short films, ocean state information, disaster information and disaster warning. The validity of the PFZ information is for 2-3 days.



PFZ map shows the regions of fish availability.

Beneficiaries and benefits

The services provided on PFZ advisories are utilized by the fishermen community all along Indian coast to harvest marine fishery resources. Moreover, the generated data on advisory recovered from the SST and Chlorophyll were found to be beneficial to the inshore fishermen especially the artisanal, motorized and small mechanized fishermen.

They mainly operate pelagic gears like ring seine and gill net in the inshore areas of the Sea. The benefits are the following

- 1) Reduction of searching time
- 2) Saving the fuel oil
- 3) Saving human effort
- 4) Increase in average income

In Goa, it is reported that there is a reduction of searching time by 50% for the ring seine fleets. The income generated by fishing in the PFZ was 2 times higher than the income generated in non- PFZ zones. The commercially important species are more abundant in the PFZ area.

Advisories in Goa

The ICAR research complex for Goa is the nodal organization for the dissemination of the PFZ data along Goa region. The major contribution of fish catch comes from the three main fish landing centres of Goa, viz Malim (Panjim), Marmugao (Vasco), and Cutbona (Betul). Thus the validation studies were conducted pertaining to the respective centres.