

Introduction

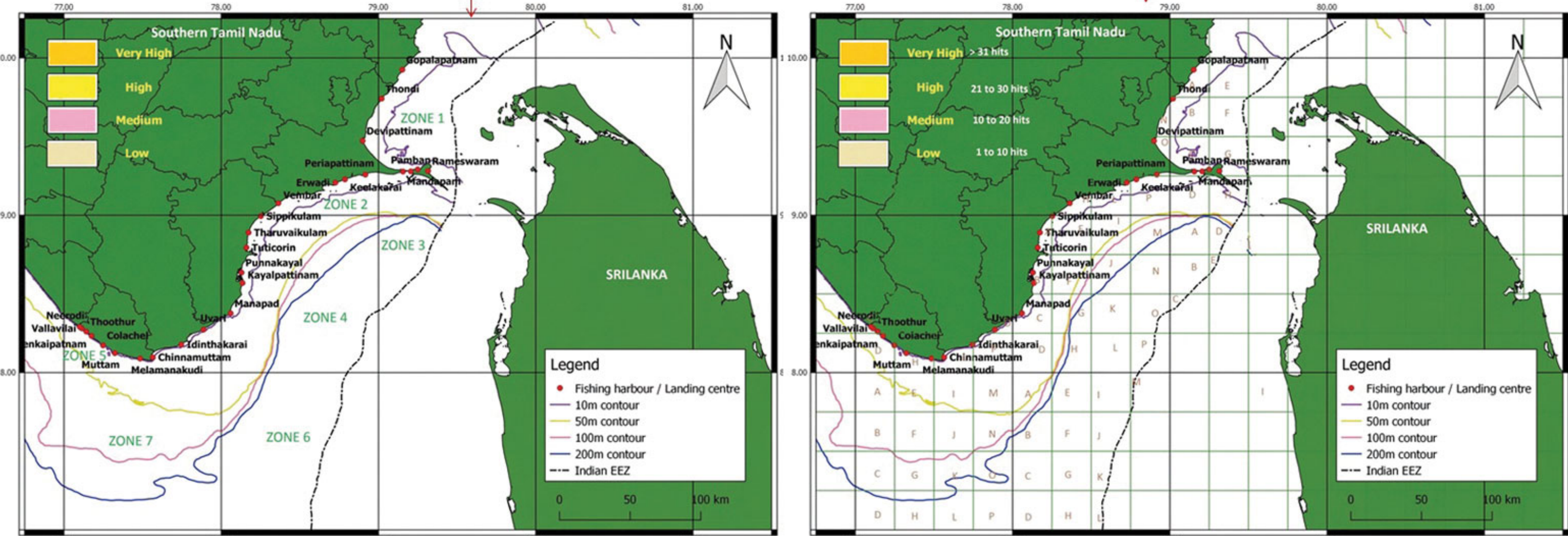
- Potential fishing zone (PFZ) advisory maps of Indian National Centre for Ocean Information Services (INCOIS) are remotely sensed satellite derived imageries with locations of special oceanic processes (SOPs) marked as curves or lines.
- In India, PFZ hits maps are areas of high biologically productive and serves as a proxy for fish shoal aggregation which helps in increasing fishermen income by reduces scouting time and higher catch.
- The study aimed to determine possible trends in PFZ hits by analyzing spatio-temporal frequency of occurrences based on depths and geo-coordinates.

Materials and methods

A total of 260 INCOIS-PFZ advisories maps was analysed for a period November, 2015 to October, 2017
Fishing areas of southern Tamil Nadu was divided into seven zones from Gopalapattinam, Pudukkottai to Neerodi, Kanyakumari

Zonation: 7 zones (1° degree grid)
Bathymetry girding (QGIS vr2.18.15) :
Near shore (NS, <50m);
Mid-continental shelf (MCS, 50-200m) &
Continental slope (CS, >200m)

Sub grid: 1° degree grid (16 sub-grid)
Classification of PFZ hits (QGIS vr2.18.15) :
Very high (>30 hits); high (21 to 30 hits);
medium (11 to 20 hits) & Low (1 to 10 hits)



Results and Discussion

- PFZ advisories were high during August to December (ranged between 12 to 18 nos per month, followed by January & February with 10 & 7 nos respectively).

Area	Zone	Latitude (N)	Longitude (E)	Sub- grids	Hits	% Hits
Rameswaram waters	1	9°00 to 10°00	79°00 to 79° 45'	9	53	4.6
	2	9°00 to 9°45'	78° 15' to 79°00	5	16	1.4
Thoothukudi waters	3	8°15' to 9°00	79° 00to 79° 30'	5	61	5.2
	4	8°00 to 9° 00	78°00 to 79° 00	16	476	40.9
Kanyakumari waters	5	8°00 to 8° 30'	77°00 to 78° 00	6	40	3.4
	6	7°00 to 8° 00	78°00 to 79° 00	13	197	16.9
	7	7°00 to 8° 00	77°00 to 78° 00	16	321	27.6

- PFZ hits was more between 8° to 9° N Lat. & 78° to 79° E Long. off Thoothukudi followed by between 7 to 8° N Lat. & 77 to 78° E Long. off Kanyakumari.
- PFZ hits was high in Kanyakumari waters followed Thoothukudi and Rameswarman waters (significant at 5 % level $P < 0.05$).
- Seasonal increasing order of PFZ hits viz., monsoon (37.1 %), post-monsoon (26.7 %), pre-monsoon (26.1%), and summer (10.1%).

Conclusion

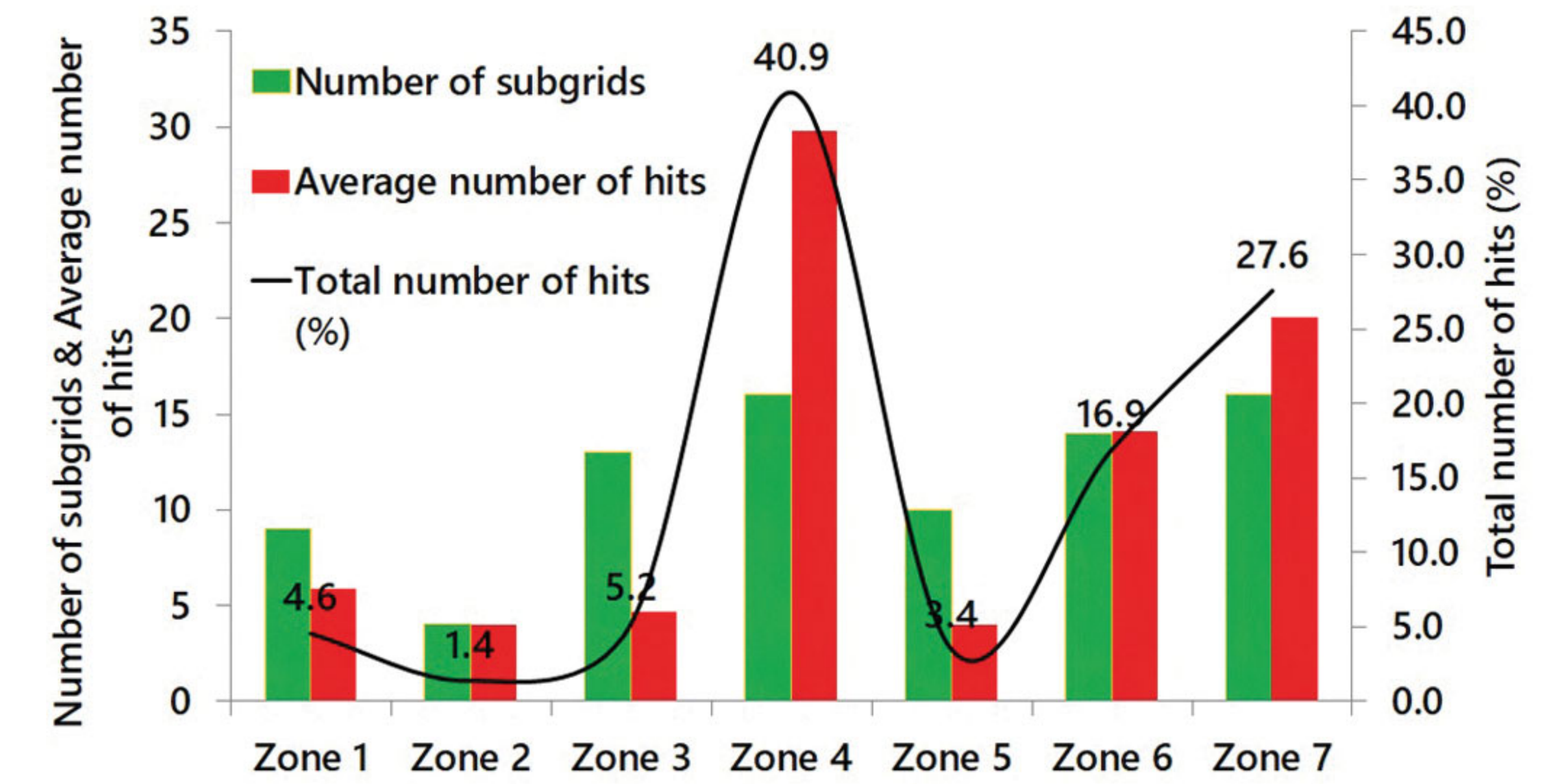
- Climatologically parameters like current, rainfall, sediment transport through river discharge etc serves as proxy for PFZ persistence.

Zones, sub-grids and their respective PFZ hits in Southern Tamil Nadu

Total PFZ hits 1164

PFZ hits max in Zone 4

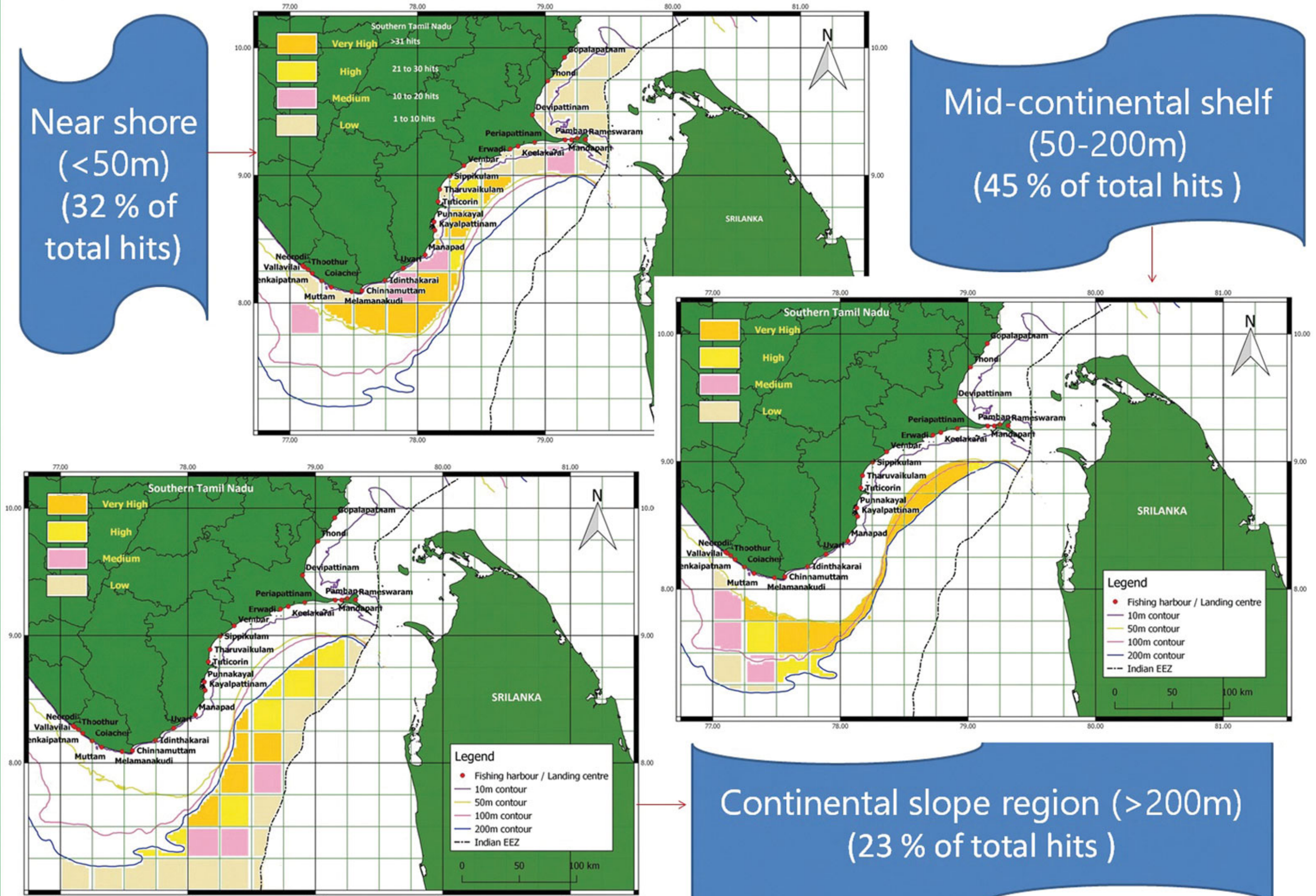
River discharge in Tuticorin waters are Thamaraparani, Vembar & Vippar



Depth-wise bathymetry grid plotting of PFZ hits in Southern Tamil Nadu

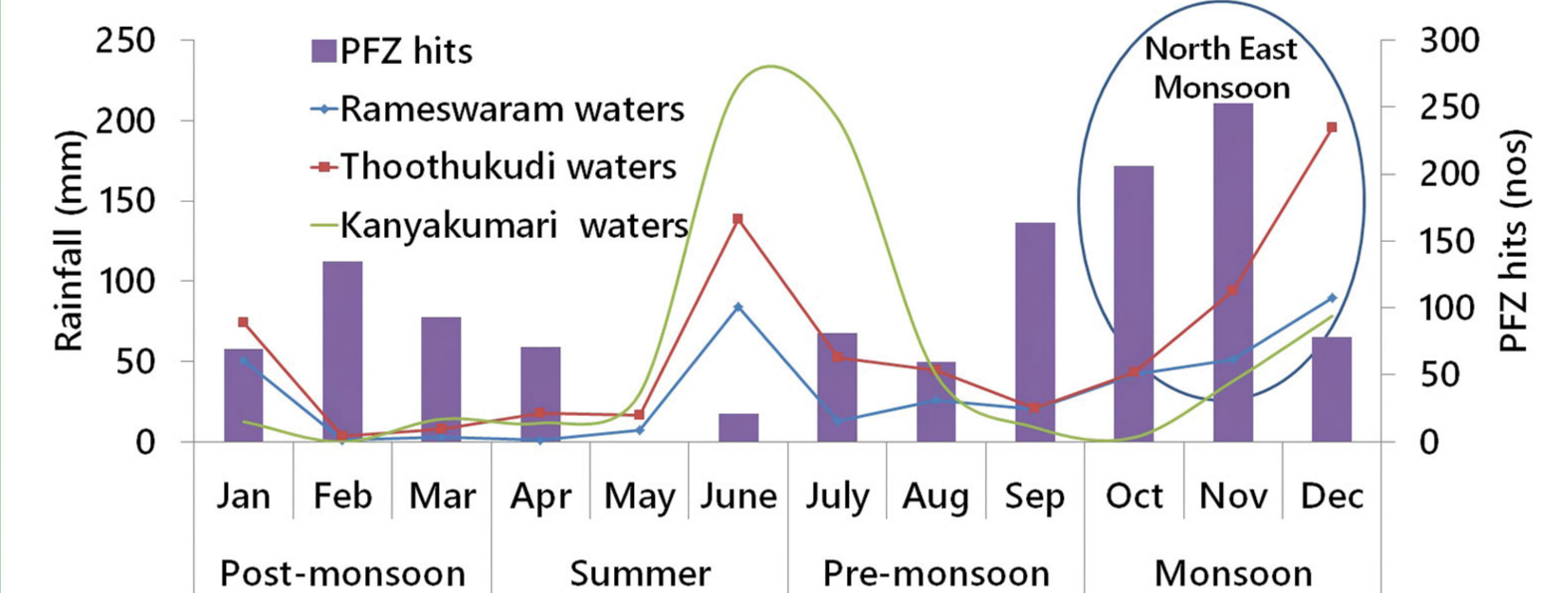
Near shore (<50m) (32 % of total hits)

Mid-continental shelf (50-200m) (45 % of total hits)



Continental slope region (>200m) (23 % of total hits)

Seasonal correlation with rainfall and PFZ hits in Southern Tamil Nadu



- PFZ persistence along Zone 4 of Thoothukudi waters was mainly due to the discharge of the nutrients from Thamirabarani River at Punnakayal 14,709.2 million cubic feet) during northeast monsoon (NEMS) which increases the SOPs (Selvin et al 2016); Kripa et al 2014).
- Further, during NEMS, the East India Coastal Current (EICC) in the western Bay of Bengal flow equator ward and the main flow turn around Sri Lanka and transports low saline waters into the Arabian Sea which makes the Kanyakumari waters productive.

Acknowledgements

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