Fishing for space: Socio-spatial relations of Indian trawl fishers in the Palk Bay, South Asia, in the context of trans-boundary fishing

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Appendix 1 - Questions for Trawl Owners

1. Name of trawl owner:
   mobile phone number:
2. Caste, religion and place of birth:
3. How many boats and nets do you own?
4. Trawler Registration Number(s):
5. Date of trawler registration:
6. Berthing Place:
7. Length of the trawler(s):
8. Engine Horse Power:
9. How long have you been fishing?
10. Are you a member of a boat owner association? Y/N
11. Which boat owner association? If no why?
12. Do you pay a membership fee for being a member? Y/N
13. If yes, how much is the membership fee?
14. What benefits do you get from being part of a boat owner association?
15. How many crew members do you have?
16. Mode of crew recruitment: (DESCRIPTIVE)
17. Crew details. Details from where they come, caste etc.: (DESCRIPTIVE)
18. Do you also go fishing? Why and why not (DESCRIPTIVE)
20. What are the other main expenses with regard to a trawling? (percentage of each cost to total cost)
21. What are the main species you catch?
22. Seasonal variations in main fish species caught
23. Seasonal variations in average quantity caught.
24. What are the main nets you use?
25. Which seasons do you use this net?
26. Where do you fish? (or at what depth or distance) GPS coordinates, if possible.
27. How do you sell your fish? (auctioning, markets, middlemen)
28. How often do you cross the International Boundary line to fish and the reasons:- (DESCRIPTIVE)
29. What solution do you suggest for the conflict-(IBML crossing): (DESCRIPTIVE)
30. Some of the major issues you face in running your boat. (DESCRIPTIVE)
Appendix 2 - Rameswaram and Mandapam mechanized boat owner’s survey

Survey conducted by Madras Institute of Development Studies, Chennai- collected information used only for research purpose

1. Name of the boat owner Association:
2. Name of trawl owner:
   mobile number:
3. Caste:
4. Education:
5. Spouse:
6. Education of the spouse:
7. Number of children:
8. Education of the children:
9. How many boats do you own?
10. Registration Number(s):
11. Anchorage?
12. Length of the trawler(s):
13. Engine Horse /Power type:
14. How long have you been fishing?
15. How many crew members do you have?
16. Do you also go fishing?
17. How do you pay your crew?
18. What are the main nets you use?
19. Where do you fish? (or at what depth or distance) GPS coordinates, if possible
20. How do you sell your fish? (auctioning, markets, middlemen)
Appendix 3 - Profiling Major Actors and Institutions of the Trawl Fishery in the Palk Bay

Methodology

The team spent a minimum of 10 days in each of the trawling centres of Palk Bay. This would include both the major and minor centres. In each of the centres the team interviewed the various stake holders based on the below sets of questions. The answers required to be verified with other actors, so that one obtained more or less very clear picture of the ground realities.

Mandatory details to be collected before each interview:

1. Name:
2. Place:
3. Date and time of interview:
4. Type of stake holder: (this requires an elaborate note on the person interviewed.

Categorisation/Profiling of Stake holders

Pre harvest
1. Identify actors involved prior to the boat setting sail apart from the owners and the crew? Labour, crew, labour/crew
2. Where are these actors from.? Locality,
3. Which caste do they belong? If multi-caste, percentage of each caste
4. Why have they chosen to do this business?
5. How does their economics work? Wages/days of work
6. Important question common for pre harvesters is what they do during the ban season.

Harvest
Crew /labour
Categorise between labours/ crew
a. A total estimate on the number of crew-labourers working in each of the centres
b. Caste wise breakup of the crew -see Marieke’s thesis for Jegathapattinam
c. Where do this crew come from?
d. Are there any associations for the crew? If so what kind of association and how do they function? Any distinction between the associations based on political activities
e. Do they choose their owners based on caste or other factors?
f. During off season what other occupations do these crew members do?
g. Where do their families stay?
h. Rough estimate on the number of people dependent on each crew/labourer.
i. Rough labour calendar of the crew labour.

Post harvest
1. Identify actors involved after the boat has come back from fishing?
2. Where are these actors from?
3. Which caste do they belong to?
4. Why have they chosen to do this business?
5. How does their economics work?
6. Important question common for post harvesters is what they do during the ban season
   Vallam owners (who bring the catch from boat to land)
   a. In landing centres such as Rameswaram and Madapam vallams are used to transport fish from the boat to the shore
   b. Who are these vallam owner? Caste locality
   c. What do they do when trawl fishing does not take place?
   d. How much do they earn?

Auctioneers
Define the auctioneers
   a. What is the system of auctioning?
   b. Who are these auctioneers? Caste/locality
   c. Numbers of auctioneers in the landing centre

Middle Men
   a. Define middle men
   b. How many of them are there?
   c. Who are these middle men – caste and other details?
d. How do the fishermen choose their middle men?

  e. How do the middle men choose the fishers?

  f. How do they operate?

_Marketers/Vendors_

_Local Market:_

a. Who are the people who do local marketing?

b. How many of them are involved and at what levels?

c. What type of fish do they sell? – Important to know the quality type

d. What are the markets to which they sell their fish?

_Export Market:_

a. Who are the exporters?

b. How many of them are there?

c. How many people are involved in the export business?

d. What type of fish are exported- various grades?

_Dry Fish/Poultry feed_

a. How many dry fish merchants are there?

b. How many sheds are there?

c. How many people work in these sheds?

d. Wages for the workers?

e. Whom do they sell their catch?

f. Who are the owners of the sheds? Which caste? Where are they from?

g. Who are the workers and where are they from?

h. What do they do during off season?

_Miscellaneous:_

a. Identify other actors, such as head loaders/truckers in each landing centre

b. Where are these actors from and their profile

c. Numbers/percentage of heterogeneity of each of these actors

_Ice factory owners_

a. How many ice factories are there? List them

b. Who owns these factories?

c. Where are they from? Caste/locality
d. What is their production? And how many fishers buy from them?
e. How many workers do they employ?
f. Where do these workers come from?
g. How does their economics work?

**Other actors in post harvest whose details require to be collected:**
- Nets mentors
- Craft manufacturer
- Motor repairs
- Diesel suppliers
- Craft repairers: welders, lathe

**Institutional profile**

**No of boats:**
**No of Operational Boats:**
**No of Owners:**

**Associations:**
1. How many trawl owner associations are there in the centre?
2. If there is more than one, then why is there more than one? - Is caste/religion a criteria for an association?
3. Are the associations or their leaders affiliated to any of the political parties?
4. How do the associations function? Mode of selecting leaders?
5. Name of the present leaders and their tenure?
6. What are the functions of the association: each of the function requires to be detailed.
7. Do the boat association deal with conflict resolution?

Are there any other association apart from the trawl owner association like the viyabarigal sangams? Then the above questions need to be repeated

**Cooperatives:**
We are aware that most of the cooperatives are only namesake organisations, we would however require to document these
1. How many cooperatives are functional in each of the centre?
2. How many members for each of the cooperatives?
3. Who is the leader of the cooperative?
4. How are leaders chosen?
5. Schemes of the cooperatives? important

**Fisheries Department:**
1. How does the fisheries department function in each of the centre?
2. How many offices, their location and the number of persons involved?
3. What are the schemes of the department which directly affects the fishers?

**Panchayat:**
1. Which is the panchayat?
2. What is the role of the panchayat in fishing if any?
3. Dynamics of the local ward representative with the fishing community.
# Appendix 4 - Fish Species, Scientific and Tamil Names

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific name</th>
<th>Tamil Names in Rameswaram- other centres have more or less the same names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flower Prawn</td>
<td><em>Melicertus canaliculatus</em></td>
<td>Poochi Eraal</td>
</tr>
<tr>
<td>Kiddi (Karaikudi) Shrimp</td>
<td><em>Parapenaeopsis stylifera</em></td>
<td>Kar Kaddi</td>
</tr>
<tr>
<td>Sand Lobster</td>
<td><em>Thenus orientalis</em></td>
<td>Matta Singhi</td>
</tr>
<tr>
<td>Mud Crab</td>
<td><em>Scyilla serrata</em></td>
<td>Kali Nandu</td>
</tr>
<tr>
<td>Three spot swimming crab</td>
<td><em>Portunus sanguinolentus</em></td>
<td>Kan Nandu</td>
</tr>
<tr>
<td>Blue Swimming crab</td>
<td><em>Portunus pelagicus</em></td>
<td>Nandu</td>
</tr>
<tr>
<td>Crucifix crab</td>
<td><em>Charybdis feriatus</em></td>
<td>Siluvai Nandu</td>
</tr>
<tr>
<td>Pharaoh Cuttlefish</td>
<td><em>Sepia pharaonis</em></td>
<td>Ottu Kanava</td>
</tr>
<tr>
<td>Indian Squid</td>
<td><em>Loligo duvauceli</em></td>
<td>Squid</td>
</tr>
<tr>
<td>Needle Squid</td>
<td><em>Loligo singbalensis</em></td>
<td>Tube Kanava / Peeli Kanava</td>
</tr>
<tr>
<td>Octopus</td>
<td><em>Octopus dollfusi</em></td>
<td>Peai Kanava</td>
</tr>
<tr>
<td>Milk shark</td>
<td><em>Rhizoprionodon acutus</em></td>
<td>Paal Sura</td>
</tr>
<tr>
<td>Smooth Hammer Head Shark</td>
<td><em>Sphyra zygaena</em></td>
<td>Kombhan Sura</td>
</tr>
<tr>
<td>Cow tail string ray</td>
<td><em>Pastinachus sephen</em></td>
<td>Mana Thirukai</td>
</tr>
<tr>
<td>Javanese cow nose ray</td>
<td><em>Rhinoptera javanica</em></td>
<td>Kurwai Sura</td>
</tr>
<tr>
<td>Silver Pomfret</td>
<td><em>Pampus argentus</em></td>
<td>Vaaval (vellai)</td>
</tr>
<tr>
<td>Chinese Pomfret</td>
<td><em>Pampus chinensis</em></td>
<td>i Vaval</td>
</tr>
<tr>
<td>Black Pomfret</td>
<td><em>Formeo niger</em></td>
<td>Kuru Vaval</td>
</tr>
<tr>
<td>Indian Mackerel</td>
<td><em>Rasterliger kanagurta</em></td>
<td>Kumula</td>
</tr>
<tr>
<td>Seer fish</td>
<td><em>Scomberomorus commerson</em></td>
<td>Seela</td>
</tr>
<tr>
<td>Spanish Mackerel</td>
<td><em>Scomberomorus lineolatus</em></td>
<td>Kattiyan Seela</td>
</tr>
<tr>
<td>Little Tunny</td>
<td><em>Enthynus affinis</em></td>
<td>Soorai</td>
</tr>
<tr>
<td>Fish Name</td>
<td>Scientific Name</td>
<td>Common Name</td>
</tr>
<tr>
<td>---------------------------</td>
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</tr>
<tr>
<td>Snapper</td>
<td><em>Lutjanus Spp</em></td>
<td>Sepuli</td>
</tr>
<tr>
<td>Dory Snapper</td>
<td><em>L. fulviflamma</em></td>
<td>Majal Killi</td>
</tr>
<tr>
<td>Brown lined Reef cod</td>
<td><em>Ephinephalus longispinus</em></td>
<td>Kalava (pulli)</td>
</tr>
<tr>
<td>Banded Grouper</td>
<td><em>Ephinephalus lacifasciatus</em></td>
<td>Panji Kalava</td>
</tr>
<tr>
<td>Black Spotted Croaker</td>
<td><em>Protonotus diacanthus</em></td>
<td>Kaura Panna</td>
</tr>
<tr>
<td>Panna Croaker</td>
<td><em>Panna microdon</em></td>
<td>Panna</td>
</tr>
<tr>
<td>Sin Croaker</td>
<td><em>Johnius dussumieri</em></td>
<td>Kathalai</td>
</tr>
<tr>
<td>Leather Skin</td>
<td><em>Scopheades lysan</em></td>
<td>Katta</td>
</tr>
<tr>
<td>Malabar Trevally</td>
<td><em>Carangoides malabaricus</em></td>
<td>M. Parai</td>
</tr>
<tr>
<td>Hairtail Ribbon Fish</td>
<td><em>Leptoroccus savala</em></td>
<td>Savaalai</td>
</tr>
<tr>
<td>Cat fish</td>
<td><em>Arius maculates</em></td>
<td>Tbud Kolithu</td>
</tr>
<tr>
<td>Indian Oil sardine</td>
<td><em>Sardinella longiceps</em></td>
<td>Saalai</td>
</tr>
<tr>
<td>Deep Bodied Sardinella</td>
<td><em>Sardinella brachysoma</em></td>
<td>Kunvali</td>
</tr>
<tr>
<td>Smooth Wolf Herring</td>
<td><em>Chirocentrus nudus</em></td>
<td>Vaalai</td>
</tr>
<tr>
<td>White Bait</td>
<td><em>Stolephorus commersoni</em></td>
<td>Nethili</td>
</tr>
<tr>
<td>Indian Halibut</td>
<td><em>Psettodus erumei</em></td>
<td>Erumai Naaku</td>
</tr>
<tr>
<td>Tongue Sole</td>
<td><em>Paraplagusia bilineata</em></td>
<td>Adal</td>
</tr>
<tr>
<td>Black King Fish</td>
<td><em>Rachycentron canadum</em></td>
<td>Kadavu Eraal</td>
</tr>
<tr>
<td>White fish</td>
<td><em>Lactarius lactarius</em></td>
<td>Kuthipu</td>
</tr>
<tr>
<td>Barrakuda</td>
<td><em>Sphyraena jello</em></td>
<td>Uilla</td>
</tr>
<tr>
<td>Indian Goat fish</td>
<td><em>Parupeneus indicus</em></td>
<td>Sen Nagaraj</td>
</tr>
<tr>
<td>Dark Band Goat Fish</td>
<td><em>Upenens trigula</em></td>
<td>Nagaraj</td>
</tr>
<tr>
<td>Indian Salmon</td>
<td><em>Eleutheronema tetrataculum</em></td>
<td>Kati Kalai</td>
</tr>
<tr>
<td>Asian Sea Bass/ Barramundi</td>
<td><em>Lates calcarifer</em></td>
<td>Koduna</td>
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<tr>
<td>Yellow fin sea brim</td>
<td><em>Agathapagrus latus</em></td>
<td>Kuru Mural</td>
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<tr>
<td>Thread fin brim</td>
<td><em>Nemipterus spp</em></td>
<td>Nagaraj</td>
</tr>
<tr>
<td>Pearl Spot</td>
<td><em>Etroplus suratensis</em></td>
<td>Sadayan</td>
</tr>
<tr>
<td>Fish Type</td>
<td>Scientific Name</td>
<td>Local Name</td>
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<tr>
<td>------------------------</td>
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</tr>
<tr>
<td>Grey mullet</td>
<td><em>Mugil cephalus</em></td>
<td><em>seraya</em></td>
</tr>
<tr>
<td>Blue Spot Grey Mullet</td>
<td><em>Valamugil sebeli</em></td>
<td><em>Avuli</em></td>
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<td>Milk Fish</td>
<td><em>Chanos chanos</em></td>
<td><em>Kelanchaal</em></td>
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<tr>
<td>Silver Sillago</td>
<td><em>Sillago sihama</em></td>
<td><em>Kelangan</em></td>
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<tr>
<td>Lizard Fish</td>
<td><em>Saurida tumbil</em></td>
<td><em>Thanni Panna</em></td>
</tr>
<tr>
<td>Parrot fish</td>
<td><em>Scarus Spp</em></td>
<td><em>Kili Meen</em></td>
</tr>
<tr>
<td>White spotted foot</td>
<td><em>Siganus canaliculatus</em></td>
<td><em>Orra</em></td>
</tr>
</tbody>
</table>