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A Collaborative Tuna Tagging Program off the West Coast of Sumatra, Indonesia: A Feasibility Investigation and an Initial Operational Plan

Craig Proctor¹, Kusno Susanto², and Tom Polacheck¹

¹CSIRO Marine Research, PO Box 1538, Hobart, Tasmania 7001, Australia

²Research Centre for Capture Fisheries, Jl. Pasir Putih I, Ancol Timur, Jakarta 14430, Indonesia

Background

In early March 2004, IOTC provided funds to enable fisheries scientists Craig Proctor (CSIRO) and Kusno Susanto (RCCF) to do investigations at Padang and the nearby (16km south of Padang) fishing port of Bungus on the west coast of Sumatra (Fig. 1). Padang/Bungus had previously been identified as the largest landing centre for tunas and tuna-like species within the artisanal and small-scale fisheries of the region (Proctor et al. 2003). The intention was to explore the feasibility of developing and implementing a pilot collaborative tagging (conventional tags) program for tunas caught by artisanal and small-scale commercial fisheries in western Indonesia (eastern Indian Ocean).

The aims of the investigation were to:

1. Obtain information from Provincial and District Fisheries Offices, Port Authorities, and fishing boat owners about the dynamics of the fisheries, with emphasis on key fishing grounds and peak fishing seasons
2. Establish whether there were any suitable vessels for pole and line fishing charter at Padang/Bungus, and if none were found, investigate other options for tagging operations.
3. Establish whether there were any vessels suitable for use as ‘mother vessel’ during proposed tagging operations
4. Identify possible sources of live-bait
5. Discuss with senior staff within West Sumatra Provincial Fisheries Office and Bungus Port Authority about collaborating on the proposed tagging program

Outcomes

The 3 days (1 – 3 March) of investigations were highly productive. The following is a summary of the key findings and outcomes, resulting from discussions with West Sumatra Provincial Fisheries¹, Bungus Fishing Port Authority², and two fishing boat owner/operators:

- Skipjack and tongkol (eastern little tuna, frigate tuna, bullet tuna, longtail tuna) make up the majority of the catch landed in West Sumatra (approx 40 % each of total pelagics). “Tuna” (mostly juvenile yellowfin up to 55 cm FL) make up around 20 - 30% of the catch. We were told that bigeye tuna were occasionally landed in Bungus but none were seen in troll-line catches unloaded during our visit.

¹ Dinas Perikanan dan Kelautan Propinsi Sumatra Barat = Office of Fisheries and Marine Affairs for Province of West Sumatra)

² Pelabuhan Perikanan Samudera Bungus = Port Authority for Fisheries Port of Bungus

- Other species making up a small proportion of pelagic species landed include kembung (short bodied and striped mackerels), dolphinfish, tenggiri (narrow-barred king mackerel, Indo-Pacific mackerel), and rainbow runner (*Elagatis*).
- FADs (“rumpon”) are the focus of fishing activity for the troll-line and hand-line vessels. There are at least 12 FADs in the southern half of the Mentawai Strait, between South Pagai Island and Nias Island (Fig. 1), which are owned by Provincial Fisheries and the Bungus Port Authority and are made available to fishermen. There are also many more FADs further north in the Mentawai Strait that are apparently privately owned by fishermen. The FADs generally consist of a steel frame supported by steel barrels.
- Tunas are landed all year round at Bungus, with no obvious “peak season”. However, the fishing vessel operators indicated the period August – December as the best period for tuna fishing in the Mentawai Strait (more because of calmer sea conditions rather than availability of fish)
- There are no pole & line vessels in Padang/Bungus or anywhere along the West Sumatra coast. The majority of fishing vessels in Padang/Bungus are troll-line, some hand-line, and the remainder lift-net vessels.
- The ‘average’ troll-line vessel in Bungus is 16 – 17m in length, constructed of wood, and powered by a 30 – 40 HP inboard motor. The average length of their fishing trip is 14 days and they carry 4 – 5 crew. They routinely land 3 – 4 tonnes of fish at each landing.
- The lift-net vessel fishery operating out of Padang/Bungus offers strong possibilities as a source of live-baitfish (e.g. anchovy, sprat, and sardine species) for tagging operations
- Both West Sumatra Provincial Fisheries Office and Bungus Port Authority expressed strong support for collaborating with RCCF/IOTC/CSIRO in developing and implementing a trial tagging program, based at Padang/Bungus. They view such a program as a valuable capacity building opportunity for local fishers. They currently run one such capacity building program where deepwater handline fishers have been ‘imported’ from Gorontalo in northern Sulawesi to provide training to local hand-line fishers for catching larger pelagics (primarily adult yellowfin) around the FADs
- Several options for a ‘mother vessel’ - to fulfill the role as accommodation and office for tagging staff during tagging operations - have been explored. It may be possible to charter a patrol vessel in collaboration with the Directorate of Marine and Fisheries Resources Surveillance (DGMFRS), or one of the many motor vessels operated by privately owned surfing charter companies based in Padang (the former being the preferred option). RCCF’s research vessels were investigated as mother-vessel options, but none were found to be suitable.

Suggested methodology for developing and implementing a tagging program off West Sumatra

The following plan of operation is included to initiate further discussion about a pilot tagging program. This should not be viewed as the only option. However, based on our preliminary investigations and from discussions with tropical tuna tagging expert, Dr David Itano (University of Hawaii, Pelagic fisheries Research Program) it appears to be perhaps both the most feasible and readily achievable at a reasonable cost:

1. Develop a formal proposal in full collaboration with West Sumatra Provincial Fisheries Office and Bungus Port Authority. RCCF/RIMF have already voiced strong support for a trial program and are keen to have their scientific staff involved. Similarly DGMFRS and the Directorate General of Capture Fisheries (DGCF) have previously expressed³ strong support.
2. Charter one or two 'good quality' local troll-line vessels, modified to enable pole and line fishing. This would involve 1. Addition of projecting platform at the bow or insertion of a false deck in the bow area, 2. Conversion of the below deck catch hold into a flow through live-bait holding tank. Discussions with the vessel owner/operators suggested this relatively easily achievable. Upgrade safety equipment on these vessels to meet international marine safety standards. The vessels would have local skippers and crew, familiar with local fishing conditions and geography of the region.
3. Charter a 'mother vessel' to act as a floating base during tagging operations. The distance between this vessel and the tagging vessels would vary depending on prevailing weather conditions. Facility for radio communication between all the vessels is essential.
4. Charter the services of one or more lift-net vessels to catch species suitable for live-bait and construct a floating pen(s) for holding the bait during the tagging period i.e. tagging vessels would visit the pen regularly to replenish their bait supply. The holding pen could be positioned either close to Padang/Bungus or off the east coast of the Mentawai Islands.
5. 'Import' at least two skilled pole and line fishers from eastern Indonesia to fish on the tagging vessels, but also to provide on-board training to local fishers in pole and line operations
6. Man each tagging vessel with two scientific staff, drawn from the collaborating scientific institutions participating in the program (e.g. RCCF/RIMF, CSIRO, NIRFSF) to coordinate and participate in tagging operations.
7. Focus tagging activities on the FADs in the southern half of Mentawai Strait (FADs under control of West Sumatra Provincial Fisheries Office and Bungus Port Authority).
8. The Mentawai Islands afford ample safe anchorages in bad weather, and several locations for shore landings and refueling. Padang/Bungus would be the primary base and return point for reprovisioning.
9. The period of tagging activities will be largely funding dependent. Suggested period for this trial is 6 – 8 weeks, with one or more changes in tagging staff during that period.

³ At ACIAR Project Presentation Workshop in Jakarta, August 2003, and during visit to CSIRO by Dr Purwanto (DGCF) and Dr Heriyanto Marwoto (DGMFRS) in May 2004.

We would appreciate feedback and suggestions from the IOTC Working Party on Tuna on the above operational plan with the view to developing and implementing a full proposal for a pilot collaborative program.

Reference:

Proctor C.H., Merta G.S., Sondita M.F.A., Wahyu R.I., Davis T.L.O., Gunn J.S., and Andamari R. (2003) A Review of Indonesia's Indian Ocean Tuna Fisheries. ACIAR Project FIS/2001/079 Country Status Report. 106pp.

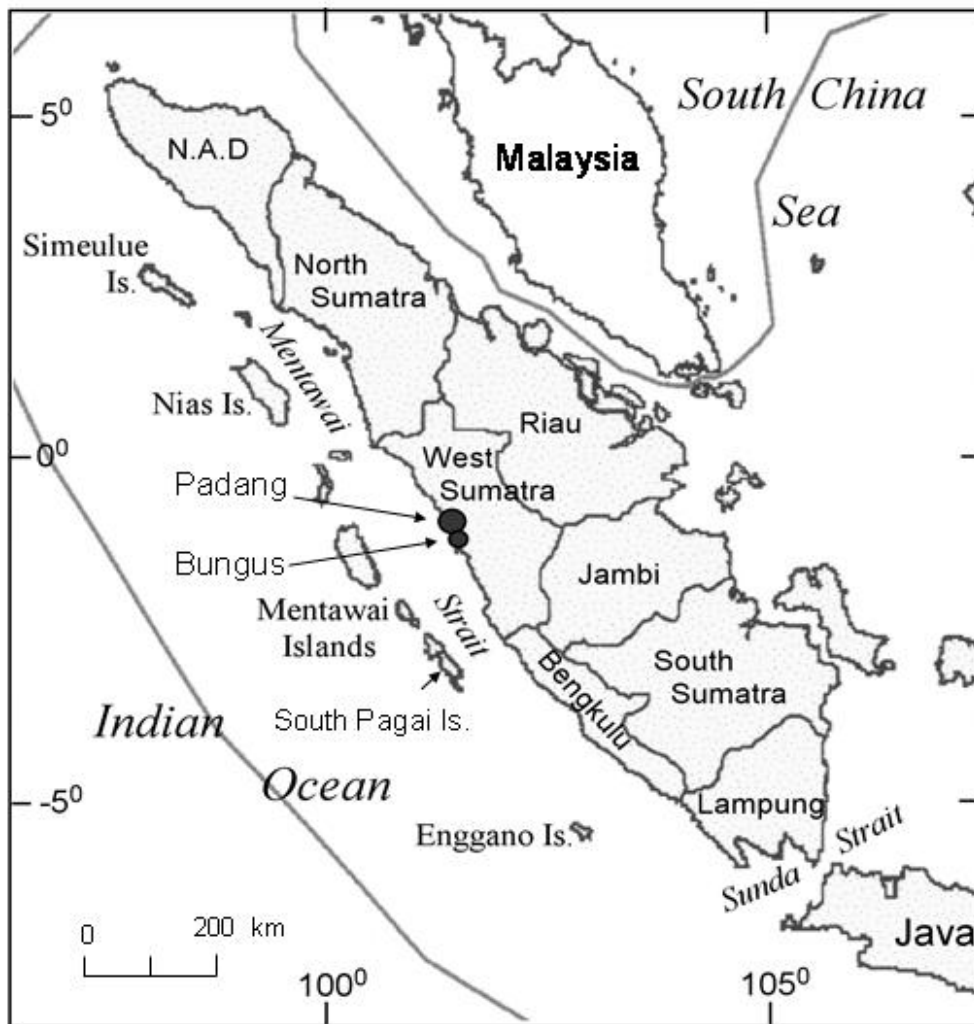


Figure 1. Mainland Sumatra and adjacent Mentawai Islands. Solid grey line marks boundary of Indonesian EEZ.

