

TITLE**Dynamics of Fish Aggregation Device (FADs) Utilization on Tuna Fisheries****RESEARCH QUESTION
SUPERVISOR
LOCATION
PERIOD**

What is the dynamics utilization of FADs on tuna fisheries?
Assoc. Prof. Ir. P.A.M. van Zwieten
Bitung-North Sulawesi, Indonesia (Southeast Asia)
September 2013-September 2015

SHORT DESCRIPTION

Fish aggregation devices (FADs) have been used by tuna fishers in Indonesian waters since the 1980s. FADs increase the efficiency of fishing activities and may lead to an increase in fishing pressure on tuna stocks and the pelagic ecosystem. The high demand on the international markets is an incentive for an increase in fishing pressure and may lead to an excessive use of FADs. This research aims to study the dynamics of FADs utilization by fishers and tuna as a basis for sustainable management of tuna. This study will describe the fishery system of tuna fishing such as the classification of FADs, the actual density of FADs and the total number fishers making use of them in an area, where these information are essential to evaluate the uncertainty of the status and characteristic as well as total fishing effort of this fishery. In order to maximize the long term catch rate, fishers go to the certain network of FADs by implementing their tactics to make the best scenario on exploiting FADs. Their knowledge of fishing patterns and practices around FADs are important factors in dealing with the catch variability. To install and place FADs in certain locations, fishers have to decide their strategies for a long-term effort allocation that may be directed more by operational constraints than by their knowledge of tuna behaviour. The information of fish behaviour around FADs is necessary to understand the role of FADs regarding the resources by (i) analysing the movement dynamics of tuna in and out of the eastern Indonesia and (ii) determining factors of the rate of tuna biomass build up around a FAD. Information of species composition and the catch amount from the fishers will be used to ascertain the fish biomass and fishing consequences toward biodiversity around FADs. All information of the research findings can be used to support the basis of sustainable management of tuna.

RESEARCH AIM/ SCOPE

The main objective of the research is to generate and evaluate the utilization of FADs by tuna fishers including fishing mechanisms (practices) and tuna behaviour around FADs. Specifically, the research aims to achieve the following four sub-objectives:

1. Classify the FADs and analyse the actual density of each type FAD in relation to the total number of fishers making use of them in an area.
2. Investigate the fishing tactics based on the fishing patterns-practices and catch amount of tuna purse seiners around FADs, and their strategies based on decision and location choice of deploying FADs.
3. Analyse the movement dynamics of tuna in and out of the eastern Indonesia based on tagging data.
4. Study the factors that determine the rate of tuna biomass build up around a FAD after fishing event.
5. Observe the fishing effect on ecosystem based on the catch composition of non-target fish and its biomass from purse seiners around FADs.

REQUIREMENTS

1. Students who are able to work under the hot scorching sun, preferably have experience(s) on marine cruise or join trip with fishermen.
2. Student should preferably can swim, dive, count and measure fish.
3. Students who are curious to know about the decision making of fishers, who have

- knowledge of participant observations and participatory techniques.
4. Students who are culturally sensitive, interested in talking to fishers without becoming obtrusive, preferably can (learn) speaking Bahasa.

OTHER INFORMATION

1. Student should find funding for himself throughout his stay in Indonesia.
2. Student should take malaria and or anti-dengue vaccine.