



Mapping of fishing areas and the effect of the moon phase on trap net catches in Pangkep District Waters, Indonesia

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Abstract. Utilization of abundant resources in coastal areas is carried out by fishermen using various types of fishing gear, both traditional and modern. The study used a survey method, the data collected consisted of primary data and secondary data. Data were analyzed using geographic information system methods and ordinary statistical regression methods. The results showed that the trap net fishing grounds in the waters of the Sigeri District, Pangkep Regency, were available in several places and were ideal for operating trap nets. There was observed a significant effect of the moon phase (tidal) on fish catches during the operation of trap net fishing gear, especially in the full moon and dead moon phases, due to the high tides. Tidal height affected most of the amount of catch and only a small part was influenced by several external factors, during the study. For every 1% increase in sea level at high tide, the catch value increased by 1,329 g. The regression coefficient shows a positive value, meaning that the tidal height variable affects the catch.

Key Words: mapping, arrest area, catch, net traps, tidal height.

Introduction. To take advantage of the abundant resources in the coastal area, fishermen use various types of fishing gear, both traditional and modern. One of them is a trap net where the fishing process consist of trapping fish during high tides and which are operated parallel to the coastline. Tides are the sea levels fluctuations, caused by a combination of gravity and the attractive force between astronomical objects, especially the sun, earth and moon. The phases of the moon in question are the full moon phase, the early moon phase, the dark moon phase (dead moon) and the late moon phase. Each phase of the moon is very influential on the high and low tides, which will affect the fish migrations closer to the shore while foraging, spawning and rearing. Furthermore, high and low tides will affect the trap net fishing area (Manan 2011). Tides are nothing but ocean currents moving towards the coast and back, away from the land. The bathymetry is strongly influenced by the mean sea level (MSL) or the average sea level at high tide. In placing the fishing gear, the trap net is installed at a distance of 50 m from the shoreline. The shallower the coastal waters, the better the placement or installation of trap net fishing gear (Ihsan 2018). The catch of fishermen using erratic trap net fishing gear is extremely fluctuating, depending on the information on the suitability of the fishing grounds and on the right timing. According to Ihsan (2018), the composition of trap net catches in the Sigeri area is of 27 species captured during an average of 13 fishing trips, operated both in the afternoon and at night. The catch relation to the moon phase has not yet been explained, in order to optimize fishermen's working time. The present study aims at assessing the effect of the moon phase on the catch of the trap net fishing gear, in the coastal waters of Sigeri, Pangkep Regency, in order to provide information to the fishermen on fishing grounds, suitable fishing times and dominant catches that have high economical value. Therefore, this study determines the map of the trap net fishing area and the production of the trap net catches, based on the moon phase in the waters of Pangkep Regency.