



9.84% PLAGIARISM
APPROXIMATELY

Report #11280084

INTRODUCTION Background Marine and Fisheries Affair (2009) said that Indonesia is a maritime country which produces a lot of maritime product such as catfish 114,371 tons, snapper 4,371 tons, eastern little tuna 421,905 tons, and other marine fishes in the total amount of 243,376 tons which being exported and shared for domestic market mainly as fillets. Fillet production leads to an increase of fish by-products such as skin, bones, and others that so far have not been efficiently utilized and only converted into fish meal products (Rawdkuen et al, 2010). Global Business Guide Indonesia (2016) said that until the end of 2015, domestic fishery production in Indonesia reached 6.2 million tons, which made Indonesia become the world's second-largest capture fishery producer after China in the world. Fish is composed of 30% of by-products which are skin, bone, and scales (Regenstein, 2010). If the production of fish in Indonesia until the end of 2015 is 6.2 million tons so its by-products are about 2 million tons. The limited uses of these fish by-products for added value products made these by-products become a pollutant to the environment and it will increase the costs to reduce impacts on environmental pollutants in line with fillet production (Abdi, 2011). The utilization of fish by-products is necessary to reduce its impacts as environmental pollutants and also can improve the quality of food products