ABSTRACT

The White Pomfret (Pampus argenteus) is one of the marine biological resources with high economic value. Damage or defects on the body of the white pomfret can affect its quality and market value. Signs of damage to the white pomfret include tears on the mouth, injuries on the fins and tail, red eyes, and an unbranched tail. The purpose of this research is to develop a damage identification system on the body of the white pomfret using the CNN method and the YOLOv5 architecture. This research develops an artificial intelligence application system with steps including inputting the dataset, data pre-processing, training, testing, and validation. The evaluation parameters applied include Mean Average Precision (mAP), Pr ecision, Recall, and accuracy. Comparisons were made on epochs 10 - 100 with batch size combinations of 10 - 80. Data processing and model training were carried out using Roboflow and Google Colab. The results of this study show that in designing an object detection system for good and defective white pomfret using the YOLOv5 model, the process is divided into four stages: data acquisition, data exploration, modeling, and evaluation. The best model was obtained at epoch 100 with a batch size of 30, producing a mAP of 0.763. In this model, the best object detection was for tail-defective fish with a mAP of 0.858, followed by fin-defective fish with a mAP of 0.756, and good fish with a mAP of 0.676. The Precision, Recall, and Accuracy results on the test data were 99%, 73%, and 68%, respectively. Fin-defective fish had the lowest accuracy at 52%, while tail-defective and good fish had accuracies of 72%.

Keywords: CNN, mAP, White Pomfret fish, YOLOv5.