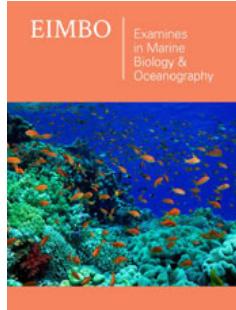


# Light Fishing in Indonesia

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## Opinion

In several fishing locations in Indonesia, many purse seine vessels use lights to lure fishes at night. Until now, it is suspected that there has been a waste of energy in the operation of the lighted purse seines. This waste occurs because the type of lamp used to lure fish is a metal halide (MH) lamp. This type of lamp is very bright but uses a large amount of electricity (1,500 watts/pc). Besides, the shape of the lamp is spherical so that most of the light energy is wasted because it spreads in all directions (omnidirectional).

Currently, it is not known the level of wastage of light energy due to the shape of the lamp. Also not known the level of wastage of fuel oil. Therefore, it is necessary to conduct research to examine the value of MH lamp light inefficiency and fuel inefficiency in MH lamp generator set. Experimental research methods can be carried out to determine the inefficiency of the MH lamp on fishing vessels and the fuel consumption of the generator set to turn on the MH lamp on the purse seines.

One method of catching fish is the use of fishing gear that relies on fish attractors in the form of light fishing. In the field, fishermen do not care about energy inefficiency and light inefficiency, which can actually save operational costs. By optimizing light energy, it is expected to use other types of lamps that are more energy efficient, such as LED lamps. By optimizing light energy on LED lights that have small electrical power but can illuminate the waters with a large light intensity.



**Figure 1:** Lamp fishing vessel at Yuwana middle java.

Research with the aim of obtaining light energy efficiency data and fuel energy on a lighted purse seines. Furthermore, data on total fuel wastage will be obtained from all lighted vessels. With the data on the operational cost savings of the lamp generator on a fishing vessel under

study, it is hoped that data can be obtained on other vessels that also use MH lamps both at the research site and in other areas. Metal halide lamps (Figure 1) are known as lamps that waste energy, cause pollution, the light produced contains ultraviolet (UV) and infrared (IR) rays and most of the electrical energy is converted into heat energy [1]. The effusion value ( $\text{lm}/\text{W}$ ) is relatively low compared to LED lamps [2]. The lighting pattern of MH lamps spreads in all directions [3]. The light needed to attract fish under the water surface is light that exposes the surface of the water [3]. MH lamps are more than 75% inefficient because they are scattered in all directions (omnidirectional) because the MH lamp is in the

form of a bulb (spherical) [4,5].

In contrast to other countries outside Indonesia, which have switched to a new type of lamp, namely light emitting diode (LED) lamps as fish lure lamps (Figure 2). This type of lamp is smaller in electrical power but has a higher light (lumen) so that it can save electrical energy and operating costs. Besides, this type of lamp is shaped as a one-way lamp so that the direction of the light can be focused forward towards the waters where there are schools of fish below the surface of the water. So that there is no light that illuminates the sky which is actually not useful for attracting fish.



**Figure 2:** Lamp fishing vessel at Vietnam and Japan.

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