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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Karya Ilmiah (Artikel) : *Analysis of port breakwater boundaries in optimizing fishing areas in Batang integrated industrial area*

Jumlah Penulis : 3 Penulis

Status Pengusul : **Okto R. Manullang**, Andi Prasetiawan, Paldibo A. Sitorus

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- a. Nama Jurnal : AACL Bioflux
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- e. DOI artikel (jika ada) :
- f. Alamat web jurnal : <http://www.bioflux.com.ro/home/volume-15-2-2022/>
- g. Terindeks di Thomson Reuters Scientific - ISI Web of Knowledge, **Scopus - Elsevier; Sciverse**, Scimago, EBSCO, ProQuest, dan Google Scholar

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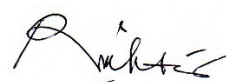
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- b. Ruang lingkup dan kedalaman pembahasan:
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Reviewer 2,



Prof. Dr. Sunarti, S.T., M.T.
NIP. 196704291994032002
Departemen PWK FT.Undip

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d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	11	11	11
Total = (100%)	35,5	35,5	35,5

Semarang,

Reviewer 1,



Dr. Ir. Rina Kurniati, M.T.
NIP. 196608221997022001
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Manullang, Okto R.^a ; **Prasetiawan, Andi**^b ; **Sitorus, Paldibo A.**^a

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^a Department of Urban and Regional Planning, Faculty of Engineering, Diponegoro University, Tembalang Central Java, Semarang, Indonesia

^b Merchant Marine Polytechnic Semarang, Central Java, Semarang, Indonesia

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Abstract

The Covid-19 pandemic has caused many changes in life situations and prompted the Indonesian Government to make a strategy by developing industrial estates in the context of national economic recovery. One of the prioritized locations to become an industrial area is the Batang Integrated Industrial Estate with the support of the Container Port. Considering that the sea side of the industrial area is an area of fishing activity, it is certain that there will be lost fishing grounds due to the construction of the port. This study aims to analyze the types of boundary breakwaters in the port that are appropriate for optimizing fishing grounds. The results show that technically the offshore breakwater design does not interfere with port activities, so that 77.19% of the total area that has the potential to be lost if using shore connected breakwater can still be used for fishing activities. © 2022, BIOFLUX SRL. All rights reserved.

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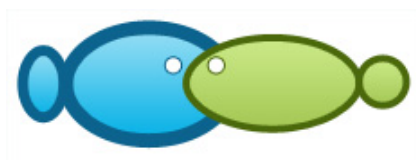
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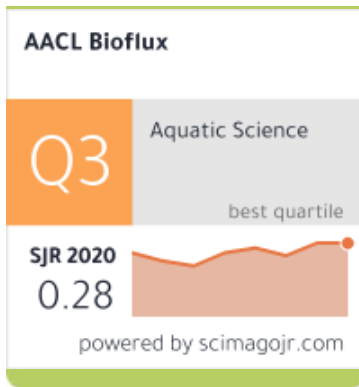
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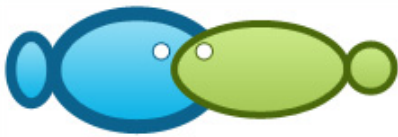
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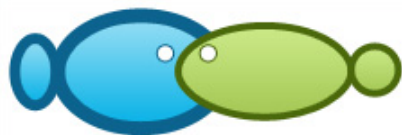
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Feeding habit and prey selection of anchovy, *Engraulis encrasicolus* (Engraulidae), from the Moroccan Atlantic coast

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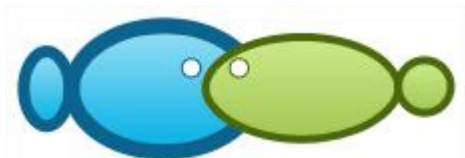
Abstract. The feeding of anchovy, *Engraulis encrasicolus* (Linnaeus, 1758) was investigated in the Moroccan Atlantic coast during the period between January and May 2017. Samples were collected onboard by the commercial purse-seine fleet. A total of 415 specimens were analyzed, with total lengths ranging from 8.37 to 14.41 cm. The diet of *E. encrasicolus* was studied through qualitative analysis of stomach contents. A total of 12 different prey groups were identified: copepods, *Evadne spinifera*, fish, diatoms, ostracods, dinoflagellates, fish eggs, crustacean pieces, Podon, Chaetognatha, mollusks and annelids. The vacuity index showed that the emptiest stomach was detected in Agadir (54%), Assilah (45%), Casablanca (40%), Laayoune (10%) and Larach (8%). According to the occurrence frequency, the dominant prey was copepods, confirming that anchovy is zooplanktivory. Graphical analysis of the feeding strategy of *E. encrasicolus* showed that copepods (Cope) are an important and dominant prey in its diet. A comparison between the diet of two nearby sites, Assilah and Larach, proved that the individuals taken from the two close areas had the same diet.

Key Words: abundance, copepods, feeding, occurrence frequency, vacuity.

Introduction. The diet of predatory fish integrates many ecological components including feeding behaviour, habitat use over time and space, diversity and availability of forage fauna, energy intake and fish condition, inter and intra-specific interactions, and environmental forcing. Food habits are therefore critical for understanding the trophic functioning of marine ecosystems and the sustainability of exploited fish populations. (Alegre et al 2015).

The European anchovy, *Engraulis encrasicolus* (Linnaeus, 1758), is a small pelagic fish that is widely distributed from the North Sea to Central Africa, and throughout the Mediterranean Sea (Pauly & Zeller 2012). *E. encrasicolus* is one of the major species of the Mediterranean pelagic fisheries, where it is heavily exploited by purse seine vessels and pelagic trawlers (Stamatopoulos 1972). This species plays an important role in transferring the energy from plankton to large predators (Cury et al 2000). Anchovies are also essential for the ecosystem given to their position in the trophic chain. Several studies on *Engraulis* species have demonstrated that anchovy can feed by filtering or by particulate feed suspension (Bulgakova 1992; James 2007; Leong & O'Connell 2011; Horton & Lingen 2019). The ability to switch between these feeding modes makes anchovy highly opportunistic and flexible foragers, which can maximize energy intake through employing the most appropriate feeding mode to a particular food environment. Given this ability, the diet of anchovy, which is composed of mesozooplanktonic prey, may also include smaller particles such as phytoplanktonic cells (King & Macleod 1976; Mikhman & Tomanovich 1978; Bulgakova 1992).

E. encrasicolus is characterized by a short life-span, and inter-annual fluctuations in its abundance could be important and more evident, in comparison with other species (Borme et al 2019). The feeding behavior of anchovies and the resulting variability or breadth in their food intake make field and laboratory studies regarding selectivity the



Multivariate analyses of microbial concentration and environmental variables in pond-based penaeid shrimp culture systems

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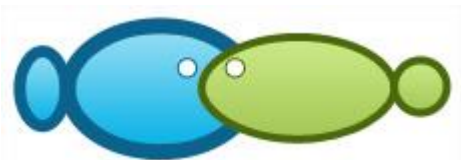
Abstract. Multivariate assessment on bacteria and water quality parameters in tropical shrimp farming are scanty, despite the critical role of these variables in culture management. This preliminary study investigated the bacterial water quality of pond water during one culture cycle, with emphasis on *Vibrio* spp. concentrations isolated from shrimp specimens. The study performed multivariate analyses on bacterial and environmental parameters in pond-based culture of penaeid shrimps in Bataan, Philippines. The bacterial assessment showed increasing total heterotrophic bacterial count and *Vibrio* concentrations in the sequence: stocking phase < mid-cycle < pre-harvest phase. Principal component analysis for bacterial and environmental data viz, temperature, salinity, and dissolved oxygen (in order of importance) identified the most important variables affecting the water quality. It also divulged the maximal correlation with ecological data resulting to the observed differences of the sampling groups (80.32% variation). *Vibrio* species detected from the shrimp culture ponds were composed of known shrimp pathogens viz., *Vibrio parahaemolyticus*, *V. vulnificus*, and *V. alginolyticus*, *V. cholerae*; and *V. panuliri*. Such findings provide baseline data for effective water management during grow-out phases.

Key Words: biosecurity, *Penaeus monodon*, PCA, *Vibrio* spp., *Vibrio panuliri*.

Introduction. Shrimp farming, mainly *Penaeus monodon* and *P. vannamei* is a very important economic activity in the Philippines. The recent total annual production of shrimp valued at Php 25 billion (1\$ = Php 50) (PSA 2018). The Central Luzon (Philippines) is also the main producer of high-valued *P. monodon* amounting to 21,000-24,000 Mt per annum whilst *P. vannamei* contributes 1,600-1,900 Mt per annum. The *P. monodon* became the country's top export earner, but has fallen due to production failures in the late 1990's as well as the high cost of its production (Yap 1999; Muegue et al 2015). The main culprit in the collapse of the shrimp industry in the early 90's was the widespread occurrence of vibriosis, luminous bacterial infections, and white spot syndrome which were all attributed to environmental degradations (Rosario & Lopez 2005; Dabu et al 2015).

The shrimp farming in Central Luzon utilizes large irregularly-shaped ponds (> 10,000 m²), implements a semi-intensive polyculture system, and is dependent on tidal influxes from rivers or estuaries for water recharging. The water management on these ponds, however, is being challenged by the polluted riverine water (Rabadon & Corpuz 2021) and poor implementation of aquaculture biosecurity measures (Flores et al 2015) which are linked to food contamination brought about by anthropogenic waste inputs and are known to cause the spread of diseases to farmed species (Pruder 2004). Furthermore, several shrimp producers overlooked the adoption of intensive closed system aquaculture, and eco-friendly protocols that may improve food safety and productivity (Flores et al 2015, 2016).

The monitoring of facultative and obligate bacteria is a vital scheme to assess the sanitary and bacterial quality of water (EPA 1986; Ashbolt et al 2001). The *Escherichia*



Otolith morphology and its relationship with the fish size in *Butis humeralis* (Valenciennes, 1837) from Mekong Delta, Vietnam

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Abstract. This study provides information on the morphology and relationship of otoliths with the body morphology in *Butis humeralis* - a fish with high economic value in the Mekong Delta. In all, 1,439 pairs of otoliths were obtained from 580 females and 859 males from six coastal locations from Duyen Hai - Tra Vinh to Dam Doi - Ca Mau. Fish samples were collected continuously once a month by trawl nets from April 2019 to March 2020. The results showed no shape differences between the left and right otoliths; both sides were oval. Similarly, the weight of the left otolith was equal to that of the right otolith. Besides, the weight of *B. humeralis* changed with the fish size, season and location but did not change by sex. The relationships of otolith weight with body weight, total length, body height and head length, all had coefficients $r^2 \geq 0.6$. Thereby, the weight of the otoliths can be seen as an indicator of the growth of this fish. The study results add to the information about the otoliths of *B. humeralis* in the study area.

Key Words: coastal region, fish measurement, otolith shape, otolith size, growth indicator.

Introduction. The otolith of fish is a calcified structure located inside the skull of bony fish (Popper & Lu 2000; Campana 2004). Otolith has the function of receiving sound and keeping the balance of the fish (Popper et al 2005). In addition, otolith also helps determining the age of the fish (Pino et al 2004; Metin et al 2011; Dinh et al 2015), taxonomy (Tuset et al 2006; Bani et al 2013), assessment of fishery reserves (Stransky et al 2008) and identifying the fish prey (Waessle et al 2003; Tarkan et al 2007). According to the research of Rodríguez Mendoza (2006), during fish growth, the otolith continuously increases in size and weight. In the Cyprinidae, the otolith is classified into elliptical, oval and triangular forms. In particular, the parts of the otolith are pretty different, namely: the lobe (Rostrum), the main object (Antirostrum) and the central groove (Sulcus) (Hung & Loi 2013). The close relationships between the fish total length and otolith length, otolith width and weight can be used to determine the age of tropical fish (Dinh et al 2015).

Butis humeralis is a fish that lives in seas, from the Indian Ocean to the Pacific Ocean (Nelson et al 2016; Froese & Pauly 2021). This fish has a wide distribution and is well adapted to brackish and freshwater (Dinh et al 2018; Tran et al 2020; Dinh et al 2021a; Froese & Pauly 2021; Tran et al 2021a). According to Thacker (2003), *B. humeralis* is classified in the genus *Butis*, family Eleotridae, order Perciformes. Tran et al (2013) described that *B. humeralis* has a flattened head, with long and pointed snout; between the two orbits, there is a pair of sharp bones; small scales evenly covered; high caudal peduncle; and can grow to 10.7 cm standard length (SL). Currently, in Vietnam and around the world, studies on ear stones of this fish have not been done. Besides, according to Nguyen (2005), *B. humeralis* is a fish of high economic value in the Mekong Delta (MD). Therefore, studies on this fish, especially the characteristics of otoliths, need to be carried out in order to supplement the information on the characteristics and shapes of otoliths and their relationship with the morphology of fish. The results provide