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FEEDING HABITS, LENGTH-WEIGHT RELATION, AND GROWTH PATTERN OF SNAKEHEAD FISH (*Channa striata*) FROM RICE FIELD IN JEJANGKIT MUARA VILLAGE, BARITO KUALA REGENCY, KALIMANTAN SELATAN

Kebiasaan Makan, Hubungan Panjang Bobot, dan Pola Pertumbuhan Ikan Gabus (*Channa striata*) dari Lahan Sawah di Desa Jejangkit Muara, Kabupaten Barito Kuala, Kalimantan Selatan

Junius Akbar*, Eka Iriadenta
Fakultas Perikanan dan Kelautan, Universitas Lambung Mangkurat, Banjarbaru, Kalimantan Selatan, Indonesia, Telp (0511) 4772124
*Corresponding author: juniusakbar86@gmail.com

Abstrak

Penelitian ini bertujuan untuk mengetahui kebiasaan makan, hubungan panjang bobot, dan pola pertumbuhan ikan gabus *Channa striata* yang tertangkap di sawah Desa Jejangkit Muara, Kabupaten Barito Kuala, Kalimantan Selatan yang dilaksanakan dari bulan Juni sampai dengan Agustus 2017. Penelitian menggunakan metode survey lapangan dan pengambilan contoh dilakukan secara *purposive* di sawah Desa Jejangkit Muara. Hasil penelitian menunjukkan bahwa ikan gabus yang didapatkan di sawah Desa Jejangkit Muara bersifat karnivora dengan makanan utamanya ikan (89,28%), makrofita (2,6%), dan tidak teridentifikasi (8,12%). Berdasarkan hubungan panjang-bobot dengan rumus $W = 0{,}8191\ L^{0{,}7762}$ dengan nilai r = 0,321092 yang berarti bahwa pola pertumbuhan ikan gabus tersebut alometrik negatif sebab nilai b di bawah nilai 3 (b < 3).

Kata Kunci: ikan gabus, sawah, kebiasaan makan, hubungan panjang bobot, pola pertumbuhan

1. INTRODUCTION

The snakehead fish (*Channa striata*) known as Gabus or Haruan is a common freshwater fish species in South Kalimantan-Indonesia. This species is commonly found in small rivers, slow flowing streams, flood plains, rice fields, irrigation canals or agricultural canal, ponds, swamps, lakes, marshes, ditches, and estuaries (Sarowar *et al*. 2010; Rahman *et al.* 2012; Rahman *et al*. 2013; Fahmi *et al*. 2013; Akbar 2017). It is ability to breathe atmospheric air and that can survive in harsh environments with high water temperature, low dissolved oxygen and high ammonia contents (Qin *et al*. 1997; Qin & Fast 1998; Marimuthu & Haniffa 2007; Muntaziana *et al*. 2012). It can stay alive without water as long as its gills remain moist. Rice fields have traditionally been the largest source of snakehead fish production. It is one of commercial important, freshwater fish, usually sold fresh in the markets and highly priced because of its good and delicate taste (Qin & Fast 1998). Its high demand and market price make the species a good aquaculture candidate to culture (Sarowar *et al*. 2010).

The fish is widely distributed include China, Pakistan, India, Nepal, Sri Langka, Banglades, Myanmar, Vietnam, Laos, Thailand, Philippines, Cambodia, Malaysia, Singapura, and Indonesia. In Indonesia this species found in the Sumatera, Kalimantan, Jawa, Bali, Sulawesi, Madura, Flores, Maluku, Nusa Tenggara, and Papua (Kottelat *et al*. 1993; Courtenay & James 2004; Akbar 2017).

However in South Kalimantan Province-Indonesia, the culture of snakehead fish is still not common due to the lack of seed supply and knowledge of their feeding and breeding techniques. Niskolsky (1963), found that the primary problems posed in the study of the fish feeding habits, is to have a broad knowledge of the different species of prey in order to understand the qualitative and quantitative bridge between fish and their food organism. Based on Effendie (1979), one of the factor which is determines for fish growth and population is the food.

The fish feeding habits is one of fundamental in fish domestication before the fish is cultured (Effendie 1979). For that reason, this research had been done to analyzing the relation between feeding habits of snakehead fish (*Channa striata*) and

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lenght-weight body of snakehead fish in Jejangkit Muara waters, South Kalimantan.

The aim of the present study is to determina the length-weight relationship and feeding habit of snakehead, the species caught in rice field at Jejangkit Muara, Barito Kuala, South Kalimantan.

2. METHODS

The research had been done during June to August 2017, which was divided into two steps, that was fish sampling at Jejangkit Muara water, South Kalimantan, and where as identification of fish food species in gastric of snakehead fish was done in Fish Nutriton Laboratory, Aquaculture Departement, Faculty of Fisheries and Marine, Lambung Mangkurat University, Banjarbaru, South Kalimantan Province, Indonesia

The equipments used in this research were writing tools, disecting set, ice box, digital camera, transparent plastic bag, ruler, analytic bean and 1 kg beam. The materials used in this research were alcohol 70%, distilled water, and formalin 4%, snakehead fish (*Channa striata*).

Snakehead fish (*Channa striata*) were collected from caught Jejangkit Muara water, South Kalimantan. After collecting, the fish were measured on lenght-weight body, and then the fish were dissected to get gastric, and then be stored in formalin 4%.

The gastric samples were stored in formalin 4%, and then stored for 10 minutes by using running water and replaced twice to reduce formalin odor. The cleaned gastric samples which were cleaned, were stored in alcohol 70% so it can be stored for along time and can be identified in laboratory. Each gastric sample was dissected to know kind of food containing in the gastric.

Data was analysed to obtain composition and feeding habits analyzes and lenght-weight relation of fish. Food composition was included for everything in snakehead fish gastric, where as. Snakehead fish food were analyzed as follows: the gastric was opened, the contents was measured for the weight, and then the kind of food was grouped. Each kind of food was measured for the weight and be writed for the frequency in the gastric. To know the kind/species eated by snakehead fish was used Index of Preponderance by Effendie (1979).

$$IPi = \frac{Vi \times Oi}{\sum(Vi \times Oi)} \times 100\%$$

Where
IPi = Index of Preponderance one food kind
Vi = Persentage of volume of one food kind
Oi = Persentage of frekuency of one food kind
∑(Vi x Oi) = Total Vi x Oi of food kind

Based on Khan *et al*, (2012), the relation of lenght-weight was analyzed by formula, as follow:

$$W = a L^{b}$$

Where
W The total weight (gram)
L The total length (cm)
a The intercept
b The regression coefficient

Based on Effendie (1979), there are 3 criteria of fish growth, that is:

a) If score b < 3, the fish weight growth is slower that the lenght growth (allometric growth, thin)
b) If score b = 3, the fish lenght growth and the fish weigh growth are ballance (symmetrically isometric growth, ideal)
c) If score b > 3, the fish lenght growth is slower than fish weigh growth (allometric growth, fatty)

3. RESULTS AND DISCUSSION

During the research, 22 specimens of snakehead fish had been collected with total lenght about 15-31 cm and weight about 50-310 g. The dominant total lenght was 23-26 cm with 8 specimens or 36,36% (Table 1). This respect was not different with the result of research by Dwirastina, (2007) which got snakehead fish specimens with total lenght about 15.2-32.4 cm in Musi river of South Sumatera and research results by Nurdawati *et al*, (2014) which report snakehead fish coughed in flood plain of Musi river with total lenght about 11-49,5 cm.

Table 1. Total Lenght of Snakehead Fish

Total Lenght (cm)	Length Range (g)	Frequency	Percentage (%)
15-18	16.5	3	13.64
19-22	20.5	5	22.73
23-26	24.5	8	36.36
27-30	28.5	3	13.64
31-34	32.5	3	13.64
Total		22	100

3.1 Feeding Habits of Snakehead Fish

The observation results to 22 gastric samples of snakehead fish showed that the food composition of snakehead fish which was coughed in rice field Jejangkit Muara village was fish (89.28%), macrophyta (2.6%) and materilas which can not be determined (8.12%). The undetermined materilas

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were exist because of the content of fish gastrict had been broken by digestive process and time catching which was not on enough good time.

Based on Burnawi & Yanu (2015) fish (97.15%), prawn (1.73%), detritus (1.10%), and undetermined materilas (0.02%). The catching results in the night were bigger than in the noon because of feeding habits of snakehead fish and there was the food in the night.

The food kinds which were gotten in gastric of snakehead fish were fish, macrophyta, and undetermined materials. The research by Marimuthu & Haniffa (2007) also got the frogs, fish, insects, tadpole, and earthworms in gastric of snakehead fish.

The fish dominated gastric content of snakehead fish. This respect because the habitat of snakehead fish in rice field Jejangkir Muara village. Condition factor of *Channa striata* fluctuated affected by the difference of age, maturity, environment and food aviability in those area (Makmur, 2004).

3.2 Length-Weight Relation of Fish

The result of calculation from 22 samples collected and this was calculated for lenght-weight relation, this got the formula as follow:

$W = a L^b$

$W = 0.8191 L^{0,7762}$ with value of r = 0.321092

If r value with average more than 90% in correlation grade, so lenght-weight relation of snakehead fish is very closed.

Based on the formula above, so it can be known that b value is 0.7762 (lower than 3) which means that the fish grow as allometric growth, thin (the fish weight growth is slower that the lenght growth). Muthmainnah (2013) stated that snakehead fish in swamp (Sekayu swamp and Manana swamp) South Sumatera grew with allometric growth negative with b value was 2,812 and 2,543. But, that was different with research result of Khan *et al*, (2012), that snakehead fish from Ganga river allometric fatty growth that b value is 3.1210.

4. CONCLUSION

Based on the research result, it was concluded that feeding habits of snakehead fish caughed in rice field Jejangkit Muara village were fish (89,28%), macrophyta (2,6%), and materials which can not be identified (8,12%). The fish was major food of snakehead fish. Growth pattern of snakehead fish is allometric growth, thin.

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