BAB V. KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan hasil penelitian dan analisis kinerja pertumbuhan, produksi dan pemanfaatan pakan pada pemeliharaan benih ikan gurami *Oshpronemus gouramy* dapat disimpulkan bahwa:

1. Kinerja pertumbuhan dan produksi terbaik (optimal) ditunjukkan oleh perlakuan 6C dengan kombinasi tingkat pemberian pakan (*feeding rate*) 6% dan frekuensi pemberian pakan (*feeding frequency*) 3 kali per hari berdasarkan peremeter Wt (5.74±0.32 g/ekor), DWG (82.17±5.39 mg/hari), SGR (3.25±0.00%), TGC (4.74±0.23), dan Faktor Kondisi (1.91±0.49). Dan perlakuan 6B dengan kombinasi *feeding rate* 6% dan *feeding frequency* 2 kali per hari menunjukkan kinerja terbaik pada paremeter rata-rata panjang akhir (Lt) 6.96±0.09 cm, biomassa akhir (Bt) 113.75±3.90 g, hasil panen bersih (*nett yield*) 4.87±0.19 g/L, tingkat kelangsungan hidup (SR) 100.00±0.00%, serta total konsumsi pakan 120.07±0.75 g.
2. Parameter kinerja pemanfaatan pakan seperti rasio konversi pakan (FCR) 0.83±0.02 dan efisiensi pakan (FE) 82.46±3.64% terbaik ditunjukkan oleh perlakuan 3C (kombinasi *feeding rate* 3% dan *feeding frequency* 3 kali per hari), namun ini tidak berpengaruh signifikan pada kinerja pertumbuhan dan produksinya. Hal ini dapat dilihat dari paramater Faktor Kondisi (K) perlakuan 3C yang menunjukkan nilai terendah (1.47±0.01), menandakan bahwa kondisi pemeliharaan benih ikan gurami pada perlakuan ini tidak sebaik kombinasi perlakuan lainnya.

5.2 Saran

Terdapat dua perlakuan *feeding frequency* yang menunjukkan kinerja yang tidak berbeda signifikan ($p>0.05$) pada pada penelitian ini yakni pemberian pakan tiga dan dua kali per hari dengan *feeding rate* 6% (perlakuan 6C dan 6B), sehingga penulis menyarankan agar studi ini dapat diperdalam dengan menambah masa (waktu) pemeliharaan sehingga didapat penilaian yang lebih presisi (tepat) dalam menentukan *feeding frequency* yang optimal dalam pemeliharaan benih ikan gurami *Oshpronemus gouramy.*

DAFTAR PUSTAKA

Abe HA, Dias JAR, Reis RGA, Couto MVS, Meneses JO, Fujimoto RY. 2016. Aqueous extract of cinnamon as a growth promoter for larvae of the Amazonian ornamental fish *Pyrrhulina brevis*. Boletim da Industria Animal 73 (4): 267–271.

Abe HA, Sousa NDC, Couto MVS, Paixão PEG, Filho RMN, Reis RGA, Bomfim RVS, Fujimoto RY. 2021. Growth performance and hematological parameters of banded cichlid *Heros severus* fed at different feeding rates and feeding frequencies. Journal of Applied Ichthyology 00: 1–8. DOI: https://doi.org/10.1111/jai.14283

Alabaster JS, Lloyd R. 1980. Water quality criteria for freshwater fish. Butterworth and Company Limited, London-Boston, pp. 297.

Amornsakun T, Kullai S, Hassan A. 2014. Feeding behavior of giant gourami, *Osphronemus gouramy* Lecepède larvae. Songklanakarin Journal of Science and Technology 36 (3): 261-264. https://www.sjst.psu.sc.th

APHA (American Public Health Association). 1995. Standard Methods for Examination of Water and Wastewater 19th Edn., Washington DC.

Aryani N, Azrita A, Mardiah A, Syandri H. 2017. Influence of feeding rate on the growth, feed efficiency and carcass composition of the Giant gourami (*Osphronemus gouramy*). Pakistan Journal of Zoology 49 (5): 1775–1781. DOI: http://dx.doi.org/10.17582/journal.pjz/2017.49.5.1775.1781

Aryani N, Nuraini, Nasution S. 2021. Eggs immersion with vitamin C on hatching rate, growth and mortality of giant gourami larvae. Pakistan Journal of Biological Sciences 24: 1202-1208. DOI: https://doi.org/10.3923/pjbs.2021.1202.1208

Asyhari A, Machrizal R. 2022. Length-weight relationship and condition factors of *Channa striata* in Tanjung Haloban village, Labuhanbatu. Jurnal Biolokus: Jurnal Penelitian Pendidikan Biologi dan Biologi 5 (2): 107–113.

Azrita. 2020. Gurami Sago (*Osphronemus goramy* Lac.): Komoiditi Unggulan Perikanan Air Tawar untuk Pangan dan Ikan Hias. Padang. LPPM Universitas Bung Hatta.

Azrita A, Syandri H. 2018. Effects of salinity on survival and growth of Gurami Sago (*Osphronemus gouramy*) juveniles. Pakistan Journal of Biological Sciences 21 (4): 171–178.

Azrita A, Syandri H, Adnestasia L. 2020. Effects of Feeding Frequency on Growth Performance and Feed Conversion Ratio of Gurami Sago (*Osphronemus Goramy*) Fingerlings in A Recirculating Aquaculture Pond System. IOP Conference Series: Earth and Environmental Science 430: 012029. DOI: https://doi.org/10.1088/1755-1315/430/1/012029

Azrita A, Aryani N, Mardiah A, Syandri H. 2021. Growth, production and feed conversion performance of the gurami sago (*Osphronemus gouramy* Lacepède, 1801) strain in different aquaculture systems [version 3; peer review: 2 approved, 1 approved with reservations]. F1000Research 9: 161. DOI: https://doi.org/10.12688/f1000research.22201.3

Baloi M, Sterzelecki F, Sugai J, Passini G, Carvalho C, Cerqueira V. 2017. Growth performance, body composition and metabolic response to feeding rates in juvenile Brazilian sardine *Sardinella brasiliensis*. Aquac. Nutr. 23: 1458–1466.

Bernier NJ, Peter RE. 2001. The hypothalamicpituitary-interrenal axis and the control of food intake in teleost fish. Comparative Biochemistry and Physiology: Part B. 129: 639-644.

Biswas G, Jena JK, Singh SK, Patmajhi P, Muduli HK., 2006. Effect of feeding frequency on growth, survival and feed utilization in mrigal, *Cirrhinus mrigala*, and rohu, *Labeo rohita*, during nursery rearing. Aquaculture 254: 211–218.

Biswas G, Thirunavukkarasu AR, Sundaray JK, Kailasam M. 2010. Optimization of feeding frequency of Asian seabass (*Lates calcarifer*) fry reared in net cages under brackish water environment. Aquaculture 305 (1–4): 26–31.

Blanquet I, Oliva-Teles A. 2009. Effect of feed restriction on the growth performance of turbot (*Scophthalmus maximus* L.) juveniles under commercial rearing conditions. Aquac. Res. 41: 1255–1260.

Bomfim CNC, Pessoa WVN, Oliveira RLM, Farias JL, Domingues EC, Hamilton S, Cavalli RO. 2013. The effect of feeding frequency on growth performance of juvenile cobia, *Rachycentron canadum* (Linnaeus, 1766). Journal of Applied Ichthyology (2013): 1–5. DOI: https://doi: 10.1111/jai.12339

Boyd CE, Tucker CS. 1998. Pond aquaculture quality management. Boston, MA: Kluwer Academic.

Boyd CE, Tucker CS, Somridhivej B. 2016. Alkalinity and hardness: Critical but exclusive concepts in aquaculture. Journal of World Aquaculture Society 47: 6-41. DOI: http://dx.doi.org/10.1111/jwas.12241

BSN (Badan Standarisasi Nasional). 2000a. Standar Nasional Indonesia. Benih ikan gurame (*Osphronemus gouramy*, Lac) kelas benih sebar. SNI: 01-6485.2-2000.

BSN. 2000b. Standar Nasional Indonesia. Produksi benih ikan gurame (*Osphronemus gouramy*, Lac). kelas benih sebar. SNI: 01-6485.3-2000.

CDSI (Central Data System Information). 2018. Ministry of Marine and Fisheries Republic of Indonesia. (In Indonesian).

Cho SH, Lim YS, Lee JH, Lee JK, Park S, Lee SM. 2003. Effects of feeding rate and feeding frequency on survival, growth, and body composition of Ayu

post-larvae *Plecoglossus altivelis*. Journal of the World Aquaculture Society 34 (1): 85–91.

Cho SH, Lee SM, Park BH. 2006. Effect of feeding ratio on growth and body composition of juvenile olive flounder *Paralichthys olivaceus* fed extruded pellets during the summer season. Aquaculture 251: 78–84.

Cho SH, Lee SM, Park BH, Ji SC, Choi CY, Lee JH. 2007. Effect of daily feeding ratio on growth and body composition of sub adult olive flounder (*Paralichthys olivaceus*), fed an extruded diet during the summer season. Journal of the World Aquaculture Society 38: 68-73. https://doi.org/10.1111/j.1749-7345.2006.00074.x

Cholik F, Teng G, Poernomo RPJ, Ahmad A. 2005. Aquaculture hopes the future of the nation. Kerjasama Masyarakat Perikanan Nusantara dan Taman Akuarium Air Tawar, Taman Mini Indonesia Indah, Jakarta, Indonesia.

Cleveland BM, Burr GS. 2011. Proteolytic response to feeding level in rainbow trout (*Oncorhynchus mykiss*). Aquaculture 319: 194–204.

Craig S, Kuhn DD, Schwarz MH. 2017. Understanding Fish Nutrition, Feeds, and Feeding. College of Agriculture and Life Sciences, Virginia Tech. Virginia State University. Publication 420-256. https://www.ext.vt.edu

Dieterich TG, Potrich FR, Lorenz EK, Signor AA, Feiden A, Boscolo WR. 2013. Zootechnical parameters of pacu juveniles fed at different feeding frequencies in net cages. Parâmetros zootécnicos de juvenis de pacu alimentados a diferentes frequências de arraçoamento em tanquesrede. Pesquisa Agropecuária Brasileira, Brasília, 48 (8): 1043–1048. DOI: https://doi.org/10.1590/S0100-204X2013000800033

DJPB (Direktorat Jenderal Perikanan Budidaya KKP RI). 2019. Pengembangan Komoditas Unggulan Strategis Perikanan Budidaya dan Tata Kelola Perizinan untuk Memacu Investasi. Workshop Pembangunan Perikanan budidaya berkelanjutan. Kementerian PPN/BAPPENAS, 9 September 2019. Double Tree by Hilton, Jakarta.

Du ZY, Liu YJ, Tian LX, He JG, Cao JM, Liang GY. 2005. The influence of feeding rate on growth, feed efficiency and body composition of juvenile grass carp (*Ctenopharyngodon idella*). Aquac. Int. 2005, 14, 247–257.

Duncan DB. 1955. Multiple range and multiple F tests. Biometrics 11: 1-42.

Dwyer KS, Brown JA, Parrish C, Lall SP. 2002. Feeding frequency affects food consumption, feeding pattern and growth of juvenile yellowtail flounder (*Limanda ferruginea*). Aquaculture 213 (1–4): 279–292.

Effendi I, Bugri HJ, Widanarni. 2006. Effect of different rearing density on survival rate and growth of Giant gouramy (*Osphronemus gouramy* Lac.) fry at size of 2 cm in length. Jurnal Akuakultur Indonesia 5: 127-135. DOI: https://doi.org/10.19027/jai.5.127-135

Effendi I. 2004. Pengantar Akuakultur. Penebar Swadaya. Depok.

Effendie MI. 2002. Biologi Perikanan Ed ke-2 (Edisi Revisi): Yogyakarta. Yayasan Pustaka Nusatama.

FAO (Food and Agriculture Organization). 2020. The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome. DOI: https://doi.org/10.4060/ca9229en

Frasca-Scorvo CM, Queiroz JF, Losekann ME, Filho JD, Turco PH, Luiz AJ. 2017. Efeito da Frequência Alimentar no Desempenho Produtivo de Diferentes Linhagens de Tilápia. Boletim de Pesquisa e Desenvolvimento 76/ EMBRAPA Meio Ambiente.

Froese R. 2006. Cube law, condition factor and weight-length relationships: history, metaanalysis and recommendations. Journal of Applied Ichthyology 22 (4): 241-53. DOI: https://doi:10.1111/j.1439-0426.2006.00805.x

Fuadi Z, Dewiyanti I, Purnawan S. 2016. Hubungan Panjang Berat Ikan yang Tertangkap di Krueng Simpoe, Kabupaten Bireun, Aceh. Jurnal Ilmiah Mahasiswa Kelautan dan Perikanan Unsyiah 1 (1): 169-176.

Fulton TW. 1904. The rate of growth of fishes. Twenty-second Annual Report, Part III. Fisheries Board of Scotland, Edinburgh. p.141–241.

Geheber AD, Mcmahan CD, Piller KR. 2010. First record of the non-native three spot gourami, *Trichogaster trichopterus* (Pallas 1770) (Teleostei: Osphronemidae) in Jamaica. Aquat. Invas., 5(Suppl. 1): S13-S16. DOI: https://doi.org/10.3391/ai.2010.5.S1.004

Gonçalves-Junior LP, Mendonça PP, Louzada S. 2014. Stocking density during goldfish larviculture. Densidade de estocagem durante a larvicultura do kinguio. Boletim do Instituto de Pesca, 40 (4), 597–604.

Hayashi C, Meurer F, Boscolo WR, Lacerda CHF, Kavata LCB. 2004. Feeding frequency for yellowtail lambari fingerlings *Astyanax bimaculatus*. Freqüência de arraçoamento para alevinos de lambari do rabo-amarelo (*Astyanax bimaculatus*). Revista Brasileira de Zootecnia 33 (1): 21–26. DOI: https://doi.org/10.1590/S1516-35982004000100004

Hermanto. 2000. Optimalisasi suhu media pada pemeliharan benih ikan gurami (*Osphronemus gouramy* Lac.). Tesis. Program Pascasarjana Institut Pertanian Bogor. 63 Hal.

Hugues DV, Wagdy W, Curtis EL, Marc V, Beatrice C, John AHB. 2017. Measuring individual feed efficiency and its correlations with performance traits in nile tilapia (*Oreochromis niloticus*). Aquaculture 468 (1): 489-495.

Jobling M. 2003. The thermal growth coefficient (TGC) model of fish growth: A cautionary note. Aquaculture Research 34: 581-584.

Jobling M, Baardvik BM, 1994. The influence of environmental manipulation on inter- and intra-individual variation in food acquisition and growth

performance of Arctic charr *Salvelinus alpinus*. J. Fish Biol. 44, 1069–1087

Kim YO, Oh SY, Kim T. Effects of the Feeding Rate on Growth Performance, Body Composition, and Hematological Properties of Juvenile Mandarin Fish *Siniperca scherzeri* in a Recirculating Aquaculture System. Sustainability 2021, 13, 8257. DOI: https://doi.org/10.3390/su13158257

Kodama G, Annunciação WF, Sanches EG, Gomes CHAM, Tsuzuki MY. 2011. Viabilidade econômica do cultivo do peixe palhaço, Amphiprion ocellaris, em sistema de recirculação. Boletim do Instituto da Pesca 37 (1): 61–72.

Kristanto A.H., Slembrouck J., Subagja J.,Pouil S., Arifin O.Z., Prakoso V.A., Legendre M. (2020). Egg and fry production of giant gourami (*Osphronemus goramy*): Rearing practices and recommendations for future research. Journal of the World Aquaculture Society 51: 119-138.

Lee SM, Hwang UG, Cho SH. 2000. Effects of feeding frequency and dietary moisture content on growth, body composition and gastric evacuation of juvenile Korean rockfish (*Sebastes schlegeli*). Aquaculture 187 (3–4): 399–409.

Li XF, Tian HY, Zhang DD, Jiang GZ, Liu WB. 2014. Feeding frequency affects stress, innate immunity and disease resistance of juvenile blunt snout bream *Megalobrama amblycephala*. Fish Shellfish Immunology 38 (1): 80–87.

Marimuthu K, Umah R, Muralikrishnan S, Xavier R, Kathiresan S. 2011. Effect of different feed application rate on growth, survival and cannibalism of African catfish (*Clarias gariepinus*) fingerlings. Emirates J. Fd. Agric., 23: 330-337.

Marques NR, Hayashi C, Souza SR, Soares T. 2004. Effect of different feeding levels for grass carp *Ctenopharyngodon idella* fingerlings under experimental conditions. Boletim Instituto da Pesca 30 (1): 51–56.

Mihelakakis A, Yoshimatsu T, Tsolkas C. 2001. Effect of feeding frequency on growth, feed efficiency, and body composition in young common pandora. Aquacult. Int., 9: 197-204. https://doi.org/10.1023/A:1015345224537

Mizanur RM, Bai SC. 2014. The optimum feeding frequency in growing Korean rockfish (*Sebastes schlegeli*) rearing at the temperature of 15°C and 19°C. Asian Australasian Journal of Animal Sciences 27 (9):1319–1327.

Mokoginta I, Suprayudi MA, Setiawati M. 1994. Kebutuhan nutrisi ikan gurami (*Osphronemus gouramy* Lac.) untuk pertumbuhan dan reproduksi. Laporan penelitian hibah bersaing II/2 perguruan tinggi tahun anggaran 1994/1995. Direktorat Pembinaan Penelitian dan Pengabdian Pada Masyarakat. Dirjen Pendidikan Tinggi Depdikbud. Fakultas Perikanan. Institut Pertanian Bogor.

Muchlisin ZA, Musman M, Azizah MNS. 2010. Length-Weight Relationships and Condition Factors of Two Threatened Fishies, *Rasbora tawarensis* and

Poropuntius tawarensis, endemic to Lake Laut Tawar, Aceh Province, Indonesia. Journal of Applied Ichtiology 26: 949-953.

Ng WK, Lu KS, Hashim R, Ali A. 2000. Effects of feeding rate on growth, feed utilizationand body composition of a tropical bagrid catfish. Aquac. Int. 8: 19–29.

NRC (National Research Council). 1993. Nutrient Requirement of Warm Water Fishes. National Academy of Science. Washington DC.

Nugroho E, Azrita, Syandri H, Refilza. 2016. Evaluasi Keragaman Genetik Ikan Kalui (*Osphronemus goramy*) dari Kabupaten Lima Puluh Kota, Sumatera Barat Berdasarkan Marka Random Amplified Polymorphism DNA (RAPD). Jurnal Riset Akuakultur 11 (4): 313-319. DOI: https://doi.org/1.15578/jra.11.4.2016.313-319

Nugroho II, Subandiyono, Herawati VE. 2015. Tingkat Pemanfaatan *Artemia* sp. Beku, *Artemia* sp. Awetan dan Cacing Sutera Untuk Pertumbuhan dan Kelangsungan Hidup Larva Ikan Gurami (*Osphronemus gouramy* Lac.). Journal of Aquaculture Management and Technology 4 (2): 117-124.

Oh SY, Maran BAV. 2015. Feeding frequency infuences growth, feed consumption and body composition of juvenile rock bream (*Oplegnathus fasciatus*). Aquaculture International 23 (1): 175–184.

Oh SY, Maran BAV, Park JW. 2018. Effect of Feeding Frequency on Growth, Food Consumption, Proximate Composition and Blood Chemistry of Juvenile Dark-banded Rockfish *Sebastes inermis*. Journal of World Aquaculture Society 49: 994–1001.

Oh SY, Maran BAV, Park JW. 2019. Optimum feeding frequency for juvenile short barbeled velvetchin *Hapalogenys nigripinnis* reared in foating sea cages. Japanese Society of Fisheries Science 2019. DOI: https://doi.org/10.1007/s12562-019-01288-1

Okorie O, Bae J, Kim K, Son M, Kim J, Bai S. 2012. Optimum feeding rates in juvenile olive flounder, *Paralichthys olivaceus*, at the optimum rearing temperature. Aquac. Nutr. 19: 267–277.

Paixão DJDMR, Brabo MF, Soares LMO, Campelo DAV, Veras GC. 2019. Optimal feeding frequency for *Heros severus* (Heckel, 1840), an Amazon ornamental fish. Revista Brasileira de Zootecnia 48: 20170055.

Pouil S, Samsudin R, Slembrouck JS, Sihabuddin, Sundari G, Khazaidan K, Kristanto AH, Pantjara B, Caruso D. 2019. Nutrient budgets in a small-scale freshwater fish pond system in Indonesia. Aquaculture 504: 267-274. DOI: https://doi.org/10.1016/j.aquaculture.2019.01.067

Rachmawaty. 1999. Karateristik fenotipik dan potensi tumbuh ikan gurame *Osphronemus gouramy* Lacepede. Tesis. Program Pascasarjana Institut Pertanian Bogor.

Ribeiro FAS, Preto BLE, Fernandes JBK. 2008. Breeding systems for the angelfish *Pterophyllum scalare*. Sistemas de criação para o acará-Sistemas de criação para o acará-bandeira (*Pterophyllum scalare*). Acta Scientiarum. Animal Sciences 30 (4): 459–466.

Saide M. 2022. Feeding Frequencies on the Growth of Tilapia - A review. Academia Letters, Article 4682. DOI: https://doi.org/10.20935/AL4682

Shamoushaki MM, Khari N, Eslaml Z. 2012. Determination of optimum feeding rate for growth of Caspian carp (*Cyprinus carpio*, Linnaeus, 1758) fingerling. AACL Bioflux, 3: 136-141.

Silva CR, Gomes LC, Brandão FR. 2007. Effect of feeding rate and frequency on tambaqui (*Colossoma macropomum*) growth, production and feeding costs during the first growth phase in cages. Aquaculture 264: 135–139.

Silva LE, Galício GS. 2012. Fish feeding in intensive fish farming. Alimentação de peixes em piscicultura intensiva. Enciclopédia Biosfera 8 (15): 49-62.

Steel RGD, Torrie JH. 1993. Prinsip dan Prosedur Statistika (Pendekatan Biometrik). Gramedia Pustaka Utama, Jakarta: 735-748.

Sularto, Febrianti R, Listiyowati N. 2020. Estimasi Profit Usaha Budidaya Beberapa Persilangan Ikan Gurami (*Osphronemus gouramy*). Media Akuakultur 15 (1): 47-52. http://ejournal-balitbang.kkp.go.id/ index.php/ma

Syandri H, Azrita A, Sumiarsih E, Elfiondri E. 2021. Nutrient loading and farm characteristics of giant gourami fish aquaculture systems in Lake Maninjau, Indonesia: basic knowledge of production performance [version 2; peer review: 2 approved]. F1000Research 10: 378. DOI: https://doi.org/10.12688/f1000research.52613.2

Syandri H, Azrita A. 2022. Enrichment of commercial feed with new formula product, of the giant gourami *Osphronemus gouramy*. IOP Conf. Series: Earth and Environment Science. 1062: 012007. IOP Publishing. https://doi.org/10.1088/1755-1315/1062/1/012007

Takahashi LS, Silva TV, Fernandes JBK, Biller JB, Sandre LCG. 2010. Effect of food type on the productive performance of juvenile angelfish *Pterophyllum scalare*. Efeito do tipo de alimento no desempenho produtivo de juvenis de acará-bandeira (*Pterophyllum scalare*). Boletim do Instituto da Pesca, 36(1), 1–8.

Tanjung LR, Said DS, Triyanto, Maghfiroh M. 2013. Ikan Gurami (*Osphronemus gouramy*) Strain Padang Terbukti Memiliki Ketahanan Alami terhadap Infeksi *Aeromonas*. Prosiding Konferensi Akuakultur Indonesia. Badan Penerbit Masyarakat Akuakultur Indonesia.

Trushenski J, Rombenso A, Schwarz MH, Bowzer J, Gause B, Delbos B, Sampaio LA. 2012. Feeding Rate and Frequency Affect Growth of Juvenile Atlantic Spadefish. North American Journal of Aquaculture 74 (1): 107-112. DOI: https://doi.org/10.1080/15222055.2012.655853

Yandes Z, Affandi R, Mokoginta I. 2003. Pengaruh pemberian selulosa dalam pakan terhadap biologis benih ikan gurami *Osphronemus gouramy.* Tesis. Program Pascasarjana Institut Pertanian Bogor.

Wang N, Hayward RS, Noltie DB. 1998. Effect of feeding frequency on food consumption, growth, size variation, and feeding pattern of age-0 hybrid sunfish. Aquaculture 165 (3–4): 261–267.

Wang N, Xu X, Kestemont P. 2009. Effect of temperature and feeding frequency on growth performances, feed effciency and body composition of pikeperch juveniles (*Sander lucioperca*). Aquaculture 289 (1–2): 70–73.

Wang Y, Kong LJ, Li K, Bureau DP. 2007. Effects of feeding frequency and ration level on growth, feed utilization and nitrogen waste output of cuneate drum (*Nibea miichthioides*) reared in net pens. Aquaculture 271 (1–4): 350–356.

Xie F, Ai Q, Mai K, Xu W, Ma H. 2011. The optimal feeding frequency of large yellow croaker (*Pseudosciaena crocea*, Richardson) larvae. Aquaculture 311 (1–4): 162–167.

Yuan YC, Yang HJ, Gong SY, Luo Z, Yuan HW, Chen XK. 2009. Effects of feeding levels on growth performance, feed utilization, body composition and apparent digestibility coefficients of nutrients for juvenile Chinese sucker, *Myxocyprinus asiaticus*. Aquac. Res. 41: 1030–1042.

Zuanon JAS, Assano M, Fernandes JBK. 2004. Performance of Trichogaster (*Trichogaster trichopterus*) Under Different Feeding Levels and Stocking Densities. Revista Brasileira de Zootecnia 33 (6): 1639–1645. DOI: https://doi.org/10.1590/S1516-35982004000700001