DAFTAR PUSTAKA

Abou-Saedo. F, Dadzie. S. 2004. Reproductive Cycle in the Male and Female Grey Mullet, Chelon klunzingeri in the Kuwaiti Waters of the Arabian Gulf. Cybium. 28(2); 97-104.

Affandi, R. & Tang. 2002. Fisiologi Hewan Air. Riau: University Riau Press.

Al Ghiffary, G.A.D., Rahardjo, M.F., Zahid, A., Simanjuntak, C.P.H., Asriansyah, A., & Aditriawan, R.M. 2018. Diet composition and niche breadth of mullet *Chelon subviridis* (Valenciennes, 1836) and *Moolgarda engeli* (Bleeker, 1858) in Pabean Bay, Indramayu Subdistrict, West Java Province. Jurnal Iktiologi Indonesia, 18(1): 41-56 DOI: https://doi.org/10.32491/jii.v18i1.373

Andy-Omar, S. Bin. 2013. Biologi Perikanan. Universitas Hasanuddin.

Andy Omar, S. Bin. 2014. Modul Praktikum Biologi Perikanan. Jurusan Perikanan, Fakultas Ilmu Kelautan dan Perikanan, Universitas Hasanuddin. Makassar.

Andy-Omar, S. Bin., Kariyanti., Yanuarita, D., Umar, M.T., & Lawi, Y.S.A. 2020. Length-weight relationship and condition factor of the Celebes rainbowfish *Marosatherina ladigesi*, endemic to the Maros karst region. *AACL Bioflux*, 13(6): 3384–3396. http://www.bioflux.com.ro/aacl

Andy-Omar, S. Bin, M.T. Umar, M.A. Dahlan, S. Kune, & M. Nur. 2016. Hubungan panjang-bobot dan faktor kondisi nisbi ikan layang *Decapterus macrosoma* Bleeker, 1851 di perairan Teluk Mandar dan Teluk Bone. Prosiding Seminar Nasional Ikan ke-9. Jilid 2: 623-636..

Annisa. 2021. Deskripsi Morfologi Ikan Belanak Ekor Tegak, *Ellochelon vaigiensis* (Quoy & Gaimard, 1825) Di Indonesia.(Tidak Publikasi, Thesis). Makassar; Universitas Hasanuddin.

Aprilianty, H. (2000). Beberapa Aspek Biologi Ikan Layang , *Decapterus russeli* (Ruppel) di Perairan Teluk Sibolga Sumatera Utara. Medan; Universitas Sumatra Utara.

Awatshi, M., Kashyap, A., & Serajuddin, M. 2015. Length_weight relationship and condition factor of five sub_populations of *Trichogaster lalius* (Osphronemidae) of central and eastern regions of India. Journal of Ichthyology, 55(6): 849–853. https://doi.org/10.1134/S0032945215060028

Azevedo, J.W.J., Castro, A.C.L., & Silva, M.H.L. 2015. Length-weight relation, condition factor and gonadosomatic index of the whitemouth croaker, *Micropogonias furnieri* (Desmarest, 1823) (Actinopterygii: Sciaenidae), caught in Lençóis Bay, state of Maranhão, eastern Amazon, Brazil. Brazilian Journal of Oceanography, 65(1):1-8. http://dx.doi.org/10.1590/S1679-87592017110506501

Ball, D. V. and K. V. Rao. 1984. Marine Fisheries. Mc. Graw Hill Publishing Company Limited, New Delhi, India.

Baginda, H. 2006. Biologi Reproduksi Ikan Tembang (*Sardinella fimbriata*) pada bulan januari-juni di perairan Ujung Pangkah, Gresik , Jawa Timur. {Skripsi}. Bogor : Institut Pertanian Bogor.

Baloch, A., Quratulan, A., & Qadeer, M.A. 2015. Lenght-wight relationships and condition factors of greenback mullet *Liza subviridis* (Vlanciennes, 1836) collected from Damb Harbour, Balonchistan Coast, Pakistan. Pakistan Jourbal of Marine Sciences, 24(1&2): 51–60.

Blasinaa, G.E., Izzoc, L., & Figueroa, D.. 2018. Sexual dimorphism and length–weight relationship of the hairy conger eel *Bassanago albescens* (Anguilliformes: Congridae). Journal of Ichthyology 58(3): 396–400. DOI: 10.1134/S0032945218030025

Buwono, N. R., Fariedah, F & Anesyanigrum, R. E. 2017. Komunitas ikan di Sungai Jerowan Kabupaten Madiun. Journal of Aquaculture and fush Healt 6(2): 81-87

Dahlan, M.A., Budiman, Y., Moc, T. U. 2018. Nisbah Kelamin dan Tingkat Kematangan Gonad Ikan Tongkol Lisong (*Auxis rochei, Risso 1810*) di Perairan Majene Sulawesi Barat. Universitas Hasanuddin, Makassar. Jurnal Saintek.

Durand, J.D., Chen, W.J., Shen, K.N., Fu, C., & Borsa, P. 2012. Genus-level taxonomic changes implied by the mitochondrial phylogeny of grey mullets (Teleostei: Mugilidae). Comptes Rendus - Biologies 335(10–11): 687–697. https://doi.org/10.1016/j.crvi.2012.09.005

Effendi, M. I. 1997. Biologi Perikanan. Yayasan Pustaka Nusatama. Yogyakarta.

Effendie, M.I. 1984. Penilaian perkembangan gonad ikan beranak, Liza subvirldls valenciennis, di perairan muara sungai Cimanuk, Indramayu, bagi usaha pengadaan benih, Fakultas Pascasarjana. Institut Pertanian Bogor. Bogor.

Effendie. M. I. 1979. Metoda Biologi Perikanan. Yayasan Dewi Sri, Bogor.

Effendie, M. I. 1997. Biologi Perikanan. Yayasan Pustaka Nusantara, Yogyakarta.

Effendie, M.I. 2002. Biologi Perikanan. Yayasan Pustaka Nusantara. Yogyakarta.

Ekokotu, P.A., & Olele, N.F. 2014. Cycle of gonad maturation, condition index and spawning of *Clarotes laticeps* (Claroteidae) in the Lower River Niger. International Journal of Fisheries and Aquatic Studies 1(6): 144-150

Esmaeili, H.R., Mehraban, H., Abbasi, K., Keivany, Y., & Brian, W.C. 2017. Review and updated checklist of freshwater fishes of Iran: taxonomy, distribution and conservation status. *Iranian Journal of Ichthyology* 4(Suppl. 1): 1-114

Falaye, A.E., Opadokun, I.O., & Ajani, E.K. 2015. Seasonal variation in the length – weight relationships and condition factor of *Gymnarchus niloticus* Cuvier, 1829 in Lekki lagoon, Lagos state, Nigeria. International Journal of Fisheries and Aquatic Studies 2(6): 159-162.

FAO, 1974. FAO Species Identification Guide for Fishery Purposes, Vol 3: Eastern Indian Ocean – Fishing Area 57 and Wastern Central Pacific - Fishing Area 71. Rome 197. Edited by W. Fische and P.J.P. Whitehead.

Fischer W dan P. J. P. Whitehead (eds.) 1974. FAO species identification sheets for fishery purposes. Western Indian Ocean (Fishing Area 57). volume 3. [pag. var.]. FAO, Rome.

Fujaya Y. 2004. Fisiologi ikan. PT. Rineka Cipta, Jakarta

Flores A., Wiff, R., Díaz, E .2015. Using the gonadosomatic index to estimate the maturity ogive: application to Chilean hake (*Merluccius gayi gayi*). ICES J Mar Sci 72:508−514

Froese, R., & D. Pauly. 2022. List of fishes reported from Indonesia in FishBase. World Wide Web Electronic Publication. http://www.fishbase.org accessed 20 Feb 2022

Fowler, J., Cohen, L., & Jarvis, P. 1998. Practical Statistics for Field Biology. Second edition. John Wiley & Sons Ltd, Chichester, England. 296 p.

Fitriah, N., Rahardjo, M.F., Affandi, R., Sulistiono, Wildan, D.M., & Simanjuntak, C.P.H. 2021. Reproductive aspects of greenback mullet *Planiliza subviridis* (Valenciennes, 1836) in Cengkok coastal waters, Banten Bay Indonesia. IOP Conference Series: Earth and Environmental Science, 800(1). https://doi.org/10.1088/1755-1315/800/1/012014

Froese, R. & Pauly, D. 2023 (eds.). *Planiliza subviridis* (Valenciennes, 1836). FishBase. World Wide Web electronic publication. [accessed on 23 January 2023] Available from: http://www.fishbase.org.

Froese, R., Tsikliras, A.C. & Stergiou, K.I. 2011. Editorial note on weight–length relations of fishes. Acta Ichthyologica et Piscatoria 41(4): 261–263. doi: 10.3750/AIP2011.41.4.01

Getso, B.U., Abdullahi, J.M., & Yola, I.A. 2018. Length-weight relationship and condition factor of *Clarias gariepinus* and *Oreochromis niloticus* of Wudil river, Kano, Nigeria. Agro-Science 16(1): 1. https://doi.org/10.4314/as.v16i1.1

Gustiana, M. 2013. Hubungan Panjang-Berat dan Faktor Kondisi Belanak (*Liza subviridis*) di Estuari Opak Kabupaten Bantul. Manajemen Sumber Daya Perikanan, Universitas Gadjah Mada, Yogyakarta.

Gupta,M.V., 1967. Observation on the Fecundity of *Polynemus paradiseus* Linn from the Hoology Estuarine Syatem, Central Inland Fisheries Research Institut, Barrackpore.

Hafiluddin, Zainuri, M., & Wahyudi, S.R. 2012. Analisis kandungan gizi dan logam berat ikan belanak (*Mugil* sp.) di sekitar perairan Socah. Jurnal Kelautan *5*(2): 132–141.

Hanif, M.A., Siddik, M.A.B. & Ali, M.M. 2020. Length-weight relationships of seven cyprinid fish species from the Kaptai Lake, Bangladesh. Journal of Applied Ichthyology 2020; 00: 1–4. https://doi.org/10.1111/jai.14016.

Haqie, D.A., & Haryono, E. (2019). Kajian karakteristik habitat ikan belanak di muara Sungai Bogowonto. Jurnal Bumi Indonesia, 8(1): 1–8.

Heras, S., Roldán, M.I., & Castro, M.G. 2009. Molecular phylogeny of Mugilidae fishes revised. *Reviews in Fish Biology and Fisheries* 19(2): 217-231

Hossain, M.Y., Rahman, M.M., Fulanda, B., Jewel, M.A.S., Ahamed, F., & Ohtomi, J. 2012. Length–weight and length–length relationships of five threatened fish species from the Jamuna (Brahmaputra River tributary) River, northern Bangladesh. Journal of Applied Ichthyology 28: 275–277. doi: 10.1111/j.1439-0426.2011.01900.x

Hsu. C.C, Han. Y.S., Tseng W.N. 2007. Evidence of Flathead Mullet *Mugil cephalus L.* Spawning in Waters Northeast of Taiwan. *Zoologi Studies.*46 (6);717-725.

Ibrahim, P.S., Setyobudiandi, I., & Sulistiono, 2017. Hubungan panjang bobot dan faktor kondisi ikan selar kuning *Selaroides leptolepis* di perairan Selat Sunda. Jurnal Ilmu dan Teknologi Kelautan Tropis 9(2): 577-584

Ilahude, A. G. 1978. On The Factors Affecting The Productivity of The Southern Makassar Strait. Vol.21: 81-107.

Ismail, M.I. 2006. Beberapa Aspek Biologi Reproduksi Ikan Tembang (*Clupea platygaster*) di perairan Ujung Pangkah, Gresik , Jawa Timur. {Skripsi}. Bogor : Institut Pertanian Bogor.

Inaku, D.F. 2015. Analysis of upwelling distribution and area enlargement in the southern of Makassar Strait. Torani Journal of Fisheries and Marine Science 25(2): 67–74.

Indrawan, E.K. 2016. Studi Kebiasaan Makanan Ikan Belanak (*Mugil dussumieri*) pada Bulan Penangkapan yang Berbeda di Perairan Gresik, Jawa Timur. Universitas Airlangga, Surabaya.

Jafari, O., Hedayati, A.A., & Keivany, Y. 2016. Length-weight relationships and condition factors of *Alburnus zagrosensis* Coad, 2009, from three rivers of Tigris basin in Iran (Teleostei: Cyprinidae). Iranian Journal of Ichthyology 3(4): 316- 319. doi: 10.7508/iji.2016.02.015.

Kriswantoro, M. dan Sunyoto,Y.A. 1986. Mengenal Ikan Laut. Tirta Raga Karya. Jakarta.

Kottelat, M., Whitten, A.J., Kartikasari, S.N., & Wirjoatmodjo, S. 1993. Freshwater Fishes of Western Indonesia and Sulawesi. Periplus Eds. (HK) Ltd. And EMDI. Indonesia.

Kunlapapuk, S., Kulabtong, S. & Saipattana, P. 2015. Updated checklist of freshwater and brackish fishes of Phetchaburi Basin, northwest Gulf of Thailand drainages. *Biodiversity Journal* 6(4): 837-842.

Kurniawan, A.J., Padmarsari, F.X.W., & Hadinata, F.W. 2022. Dinamika populasi belanak (*Mugil cephalus*) hasil tangkapan nelayan di muara Sungai Kakap, Kabupaten Kubu Raya, Kalimantan Barat. Aurelia Journal 4(2): 183-192

Liu, J.Y. [Ruiyu] (ed.). 2008. Checklist of Marine Biota of China Seas. *China Science Press.* 1267 pp.

Mariskha P.R & Abdulgani N. 2012. Aspek reproduksi ikan kerapu macan (*Epinephelus sexfasciatus*) di Perairan Glondonggede Tuban. Jurnal Sains dan Seni ITS Vol. 1 (1)

Mitu, N.R., Alam, M.M., Hussain, M.A., Hasan, M.R., & Singha, A.C. 2019. Length-weight and length-length relationships, sex ratio and condition factors of the Asian striped dwarf catfish *Mystus tengara* (Hamilton, 1822) (Siluriformes: Bagridae) in the Ganges River, Northwestern Bangladesh. Iranian Journal of Ichthyology 6(1): 21-30. doi: 10.22034/iji.v6i4.334.

Mohammed, A.-R.M., & Al-Hassani, A.H. 2021. Growth, mortality and stock assessment of greenback mullet, *Planiliza subviridis* from northwest Arabian Gulf, Iraq. Archives of Agriculture and Environmental Science 6(2): 142–148. https://doi.org/10.26832/24566632.2021.060205

Muchlisin, Z.A., Musman, M., & Siti Azizah, M.N. 2010. Length-weight relationships and condition factors of two threatened fishes, *Rasbora tawarensis* and *Poropuntius tawarensis*, endemic to Lake Laut Tawar, Aceh Province, Indonesia. Journal of Applied Ichthyology 26(6): 949–953. https://doi.org/10.1111/j.1439-0426.2010.01524.x

Muhasin, M., Hengbin, Y & Nisar, U. 2020. Accessing The Risk of overfishing faced by mullet fisheries and its ongoing ecomics in Pakistan. Indian Journal of geo Marine sciences 49 (8): 1416-1429.

Murua, H. Kraus, G. Sabarido-Rey, F. Witthames, P. R. Thorsen, A. and Junquera, S. 2003. Procedure to estimate fecundity of marine fish Species in Relation to their Reproductive Strategy. Journal. Northw. Atl. Fish Sci. (33): 33-54.

Muttaqin, Z., Dewiyanti, I., & Aliza, D. 2016. Kajian hubungan panjang berat dan faktor kondisi ikan nila (*Oreochromis niloticus*) dan ikan belanak (*Mugil cephalus*) yang tertangkap di Sungai Matang Guru, Kecamatan Madat, Kabupaten Aceh Timur. Jurnal Ilmiah Mahasiswa Kelautan dan Perikanan Unsyiah 1(3): 397-403.

Nelson, J.S., Grande, T.C. & Wilson, M.V.H. 2016. *Fishes of the World.* Fifth edition. John Wiley & Sons, Hoboken, New Jersey.

Nikolsky, G.V. 1963. *The Ecology of Fishes* London: Academic Press.

Nurhayati., Fausiyah & Bernas, S.M. 2016. Hubungan panjang berat dan pola pertumbuhan ikan di muara Sungai Musi Kabupaten Bayuasin Sumatera Selatan. Maspari Jurnal 8(2); 111-118.

Okfan, A., M. R. Musananfola., dan Djuwito. 2015. Studi Ekologi dan Aspek Biologi Ikan Belanak (Mugil sp) di Perairan Muara Sungai Banjar Kota Pekalongan. Diponegoro Journal of Fisheries and Hydrobiology. 3(1): 22-23.

Olii, A.H., Wonneberger, E., & Pasisingi, N. 2022. Growth performance of layang (scad) fish (*Decapterus russelli,* Ruppell 1830) caught from Tomini Bay, Indonesia. Ilmu Kelautan: Indonesian Journal of Marine Sciences. 27(2): 181-188.

Olopade, O.A., Dienye, H.E., & Eyekpegha, A. 2018. Length frequency distribution, length-weight relationship and condition factor of cichlid fishes (Teleostei: Cichlidae) from the New Calabar River, Nigeria. Iranian Journal of Ichthyology 5(1): 74-80. doi: 10.22034/iji.v5i1.251

Padriana. 2017. Pertumbuhan dan Kebiasaan Makanan Ikan Belanak *Planiliza subviridis* (Valenciennes, 1838) yang didaratkan di Pangkalan Ikan Maccini Baji, Kecamatan Labakkang, Kabupaten pangkajene dan Kepulauan. Universitas Hasanuddin, Makassar.

Parawansa, B.S., Andy-Omar, S. Bin, Rappe, R.A., Nessa, M.N., & Umar, M.T. 2020. Length-weight relationship and condition factor of orange-spotted spine foot, *Siganus guttatus* (Bloch, 1787), in Takalar, South Sulawesi, Indonesia. International Journal of Advanced Science and Technology 29(4): 5259 – 5276

Pulungan, C. P., 2015. Nisbah Kelamin dan Nilai Kemontokan Ikan Tabingal (*Puntioplites Bulu* Blkr) dari Sungai Siak, Riau. Jurnal Perikanan dan Ilmu Kelautan. 20(1);12.

Putra, D.A.K., Restu, I.W. & Kartika, I.W.D. 2021. Length-weight relationship and condition factors of mullet fish (*Mugil cephalus*) caught at the waters of Ngurah Rai Grand Forest Park, Bali. Advances in Tropical Biodiversity and Environmental Sciences 5(1): 12-16, DOI: 10.24843/ATBES.2021.v05.i01.p02

Raharjo. M.F.2006. Biologi Reproduksi ikan blama *Nibea soldado (Lac)* (Famili Scinidae) di perairan Pantai Mayangan Jawa Barat, *Ichthyos,* 5(2);63-68.

Rahman, M.A., Ajmal, K., Layla, P., Kadharsa, K., Chander, M., & Johan, A. 2013. Length-weight relationship and condition factor of *Liza subviridis* (Valenciennes, 1836) of Parangipettai waters, southeast coast of India. Pakistan Journal of Biological Sciences 16(7): 345-350. https://doi.org/10.3923/pjbs.2013.345.350.

Ramses, Ramli, A., Agustina, F., & Syamsi, F. 2020. Hubungan panjang-berat dan faktor kondisi ikan belanak (Mugilidae) di perairan Pulau Panjang, Kota Batam. Jurnal Penelitian Sains 22(3): 144-152.

Ratnaningsih, S., Sulistiono, S., Kamal, M.M., Wildan, D.M., & Ervinia, A. 2022. Biologi reproduksi ikan belanak *(Planiliza subviridis*) yang tertangkap di perairan pantai Karangsong, Indramayu, Jawa Barat. Jurnal Teknologi Perikanan dan Kelautan 12(1): 61–72. https://doi.org/10.24319/jtpk.12.61-72.

Siby, L. S., Raharjo, M.F. dan Sjafei, D. S. 2009 Biologi Reproduksi Ikan Pelangi Merah (Glossolepis incises Waber, 1907) di Danau Sentani. Journal Ikhtiologi Indonesia. 9(1): 49-61

Silva and de Silva. 1981. Aspect of the biological of Grey Mullet, Mugil dussuntieri L., adult population ofa Coastal Lagoon in Sri Langka. Department of Zoologi. Ruhuna University College. Matara. Sri Langka.

Sjafei, D. S., C. P. H. Simanjuntak dan M. F., Raharjo. 2008. Perkembangan Kematangan Gonad dan Tipe Pemijahan Ikan Sekais (Ompak hypophthalmus) di Rawai Bajiran Sungai Kampar Kiri, Riau. Jurnal Ikhtiologi Indonesia 8 (2).

Sikoki, F.D., Ilart, S.A., Hart Al., Aleleye-Wokoma, I.P.1996. Aspects of The Reproductive Biology of *Mugil cephalus* (Linnaeus, 1857) in Bonny Estuary. 82-88.

Shalloof, K.A.Sh., & El-Far, A.M. 2017. Length-weight relationship and condition factor of some fishes from the River Nile in Egypt with special reference to four *Tilapia*

species. Egyptian Journal of Aquatic Biology & Fisheries 21(2): 33-46.

Sudarno, S., La Anadi & Asriyana, A., 2020. Biologi reproduksi ikan kembung (*Rastrelliger brachysoma* Bleeker, 1851) di Teluk Staring, Sulawesi Tenggara. Jurnal Biologi Tropis. 20 (1): 59-68

Sulistiono, Arwani, M., & Aziz, K.A. 2001. Growth of mullet, (*Mugil dussumieri*) in Ujung Pangkah, East Java. Jurnal Iktiologi Indonesia I(2): 39-47.

Sulistiono, T. H. K., E. Riani, dan S. Watanabe. 2001. Kematangan Gonad Beberapa Jenis Ikan Buntal (*Tetraodon lunaris, T. fluviatilis, T. reticularis*) di Perairan Ujung Pangkah, Jawa Timur. Jurnal Iktiologi Indonesia. 1 (2) : 25-30. ISSN 1693-0339.

Sutriana, Yasidi, F., & Nadia, L.O.A.R. 2020. Growth patterns and condition factors of mullet fish (*Mugil dussumieri*) in Balu Island water, District of North Tiworo, Regency of West Muna. Jurnal Manajemen Sumber Daya Perairan 5(3): 210-219.

Tang U.M & Affandi R. 2017. Biologi Reproduksi Ikan. Intimedia. Malang

Vidyastari, O., Luh Watniasih, N. Ayu angga Pebriani., D., Kampus Unud Bukit Jimbaran, J., & Selatan, K, 2020. The reproduktive biology of scad fish (Decapterus sp) at Pelabuhan Perikanan Nusantara Pengabangan Jembrana Bali. *Advances in Tropical Biodiversity and Environmental Sciences,* 4(1) 26-29, https;//doi.org/10.24834/atbes.vo4.i01.p06.

Vincentini, RN and Araujo, FG. 2003. Sex Ratio and Size Structure of Micropogonias (Desmarest, 1823) (Percifomes, Scianidae) in Sepetiba bay, Rio de Janiero, Brazil Braz J. Biol 3;559-566.

Wahyudewantoro, G. & Haryono. 2013. Hubungan panjang berat dan faktor kondisi ikan belanak *Liza Subviridis* di perairan Taman Nasional Ujung Kulon-Pandeglang, Banten. Bionatura-Jurnal Ilmu-ilmu Hayati dan Fisik 15(3): 175-178.

White, W.T., Last, P.R., Dharmadi, Faizah, R., Chodrijah, U., Prisantoso, B.I., Pogonoski, J.J., Puckridge, M., & Blaber, S.J.M. 2013 Market fishes of Indonesia. ACIAR Monograph No. 155. Australian Centre for International Agricultural Research: Canberra. 438 pp.

Whitifieled, A. K., Parifili, J & Durand, J. D. 2012. A. Global review of the cosmopolitian flathead mullet Mugil cephalus Linnaeus 1758 (Taleostei; Mugilidae) with emphasis on the biology, genetics, ecology and fisheries aspects of this apparent species complex. Reviewsin Fish Biology and Biology and Fisheries 22 (3): 641-681.

Wigati, K.N., & Syafei, L.S. 2013. Reproduction and spawning patterns of the mullet (*Moolgarda engeli*, Bleeker 1858) in Mayangan Coastal Waters, West Java. Jurnal Iktiologi Indonesia 13(2): 125-132.

Wujdi, A., Suwarso, dan Wudianto. 2012. Hubungan Panjang – Bobot, Faktor Kondisi, dan Struktur Ukuran Ikan Lemuru (*Sardinella lemuru* Bleeker, 1853) di Perairan Selat Bali. *J. Bawal.* Vol 4(1):83-89

Yulianto, D., Indra, I., Batubara, A.S., Efizon, D., Nur, F.M., Rizal, S., Elvyra, R., &

Muchlisin, Z.A. 2020. Length-weight relationships and condition factors of mullets *Liza macrolepis* and M*oolgarda engeli* (Pisces: Mugilidae) harvested from Lambada Lhok waters in Aceh Besar, Indonesia. *F1000Research*, *9*, 259. https://doi.org/10.12688/f1000research.22562.1

Zairon. 2015. Pengelolaan berkelanjutan perikanan rajungan (*Portunus pelagicus*) di Lampung Timur. {Disertasi} ID: Sekolah Pacasarjana Institut Pertanian Bogor.

Zar, J.H. 2014. Biostatistical Analysis. Fifth Edition. Pearson Education Limited, Edinburgh Gate, Harlow, Essex. 756 p.

Zargar, U.R., Yousuf, A.R., Mustaq, B., & Jain, D. 2012. Length–weight relationship of the crucian carp, *Carassius carassius* in relation to water quality, sex and season in some lentic water bodies of Kashmir Himalayas. Turkish Journal of Fisheries and Aquatic Sciences 12: 683–689. DOI: 10.4194/1303-2712-v12_3_17.

LAMPIRAN

Lampiran 1. Analisis pola pertumbuhan ikan belanak *P. subviridis* ikan jantan (Valenciannes, 1836) di perairan Pangkep

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.965382
R Square	0.932001
Adjusted R Square	0.933162
Standard Error	0.076632
Observations	124

ANOVA

	df	SS	MS	F	Significance F
Regression	1	10.17256	10.17256	1732.228	2.47E-74
Residual	123	0.722321	0.005873		
Total	124	10.89488			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-2.5557	0.139083	-28.4633	5.8E-56	-4.23407	-3.68346	-4.23407	-3.68346
X Variable 1	2.53096	0.061451	41.62004	2.47E-74	2.435957	2.679235	2.435957	2.679235

$$T_{hitung} = \frac{3-b}{Sb}$$

$$= \frac{3-2,5309}{0,0614}$$

$$= 7,6400$$

T tabel = TINV (0,05; 123)
= 1.9794

$T_{hitung} > T_{tabel}$ (P>0.0)

Lampiran 2. Analisis pola pertumbuhan ikan belanak *P. subviridis* ikan betina (Valenciannes, 1836) di perairan Pangkep

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.978846
R Square	0.958022
Adjusted R Square	0.958739
Standard Error	0.066223
Observations	225

ANOVA

	Df	SS	MS	F	Significance F	
Regression	1	22.93193	22.93193	5229.102	2.9E-157	0.000125
Residual	223	0.982339	0.004385			
Total	224	23.91427				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-2.5593	0.078042	-50.0105	1.6E-123	-4.05672	-3.74914	-4.05672	-3.74914
X Variable 1	2.56995	0.03508	72.31253	2.9E-157	2.46762	2.605879	2.46762	2.605879

$$T_{hitung} = \frac{3-b}{Sb}$$

$$= \frac{3-2{,}6995}{0{,}03508}$$

$$= 8{,}5857$$

T tabel = TINV (0,05; 223)
= 1.9706

$T_{hitung} > T_{tabel}$ (P>0.05)

Lampiran 3. Analisis koefisien regresi ikan belanak *P. subviridis* ikan betina (Valenciannes, 1836) anatara ikan jantan dan ikan betina di perairan Pangkep

SE (b₁b₂) $\quad = \sqrt{SE\ b1 + SE\ b2}$

$\qquad = \sqrt{0{,}0614 + 0{,}0351}$

$\qquad = \sqrt{0{,}0965}$

$\qquad = 0{,}3106$

T hitung $\quad = \dfrac{bi - b2}{SE\ (b1b2)}$

$\qquad = \dfrac{2.5699 - 2.5309}{0.3106}$

$\qquad = 0{,}1255$

Jadi nilai t hitung < t tabel maka kesimpulannya hubungan panjang-bobot panjang ikan betina dan ikan jantan tidak berbeda nyata.

Lampiran 5. Analisis pola pertumbuhan ikan belanak *P. subviridis* jantan (Valenciannes, 1836) di perairan Takalar

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.952412
R Square	0.90711
Adjusted R Square	0.907755
Standard Error	0.086654
Observations	93

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	6.879565	6.879565	916.1889	1.29E-49
Residual	91	0.690818	0.007509		
Total	92	7.570383			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-3.7146	0.191257	-19.422	2.61E-34	-4.09445	-3.33475	-4.09445	-3.33475
X Variable 1	2.4714	0.081935	30.26861	1.29E-49	2.317326	2.642785	2.317326	2.642785

T_{hitung} = $\frac{3-b}{Sb}$

= $\frac{3-2,4714}{0,0819}$

= 6,4542

T tabel = TINV (0,05; 91)
= 1.9863

$T_{hitung} > T_{tabel}$ (P>0.05)

Lampiran 6. Analisis pola pertumbuhan ikan belanak *P. subviridis* betina (Valenciannes, 1836) di perairan Takalar

Regression Statistics	
Multiple R	0.96639
R Square	0.93384
Adjusted R Square	0.939871
Standard Error	0.083236
Observations	81

ANOVA

	df	SS	MS	F	Significance F				
Regression	1	9.103654	9.103654	1314.005	1.18E-52				
Residual	79	0.575038	0.006928						0.000185
Total	81	9.678692							
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%	
Intercept	-3.73191	0.160546	-23.2451	4.29E-38	-4.05123	-3.41259	-4.05123	-3.41259	
X Variable 1	2.46268	0.06885	36.24921	1.18E-52	2.358827	2.632708	2.358827	2.632708	

$$T_{hitung} = \frac{3-b}{Sb}$$

$$= \frac{3-2,4626}{0,0688}$$

$$= 7,8110$$

T tabel = TINV (0,05; 79)
= 1.9904

$T_{hitung} > T_{tabel}$ (P>0.05)

Lampiran 7. Analisis pola pertumbuhan ikan belanak *P. subviridis* betina (Valenciannes, 1836) di perairan Takalar

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.940966
R Square	0.885417
Adjusted R Square	0.88475
Standard Error	27.08377
Observations	174

ANOVA

	df	SS	MS	F	Significance F
Regression	1	974927.8	974927.8	1329.09	7.84E-83
Residual	172	126167.3	733.5305		
Total	173	1101095			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-162.339	8.539311	-19.0107	3.94E-44	-179.194	-145.483	-179.194	-145.483
X Variable 1	1.383275	0.037943	36.45668	7.84E-83	1.308381	1.458169	1.308381	1.458169

T_{hitung} = $\frac{3-b}{Sb}$

= $\frac{3-1,3832}{0,0379}$

= 42,6596

T tabel = TINV (0,05; 172)

= 1.9378

$T_{hitung} > T_{tabel}$ (P>0.05)

Lampiran 8. Analisis koefisien regresi ikan belanak *P. subviridis* ikan betina (Valenciannes, 1836) anatara ikan jantan dan ikan betina di perairan Takalar

SE (b_1b_2) $= \sqrt{SE\ b1 + SE\ b2}$

$= \sqrt{0,0819 + 0,0688}$

$= \sqrt{0,1507}$

$= 0,3882$

T hitung $= \dfrac{bi - b2}{SE\ (b1b2)}$

$= \dfrac{2.4714 - 2.4626}{0,3882}$

$= 0,0226$

Jadi nilai t hitung < t tabel maka kesimpulannya hubungan panjang-bobot panjang ikan betina dan ikan jantan tidak berbeda nyata.

Lampiran 9. Uji Chi-square terhadap rasio kelamin ikan belanak (*P.subviridis*) di Perairan Kabupaten Pangkajene dan Kepulauan

Waktu Pengambilan Sampel	J	%	B	%	Nisbah Kelamin	X^2_{hitung}	X_{tabel}	Significant or not at 5% level
Jun 2022	40	32.00	27	11.95	0,50:1,00	2.52	3.84	S
Jul. 2022	10	8.00	34	15.04	1,40:1,00	13.09	3.84	NS
Agus. 2022	30	24.00	72	31.86	1,00:1,00	17.29	3.84	NS
Sep. 2022	19	15.20	47	20.80	3,50:1,00	11.88	3.84	NS
Okt. 2022	15	12.00	21	9.29	13,00:1,00	1.00	3.84	S
Nov-22	11	8.80	25	11.06	3,60:1,00	5.44	3.84	NS
Jumlah	124		225					

X^2_{tabel} (0.05 : 5) = 3.84

X^2_{hitung} > X^2_{tabel} maka jumlah ikan belanak jantan dan betina yang tertangkap selama penelitiaan berdsarkan waktu pengambilan sampel di Perairan Pangkajene dan Kepulauan adalah berbeda nyata

Lampiran 10. Uji Chi-square terhadap rasio kelamin ikan belanak (*P.subviridis*) di Perairan Takalar

Waktu Pengambilan Sampel	J	%	B	%	Nisbah Kelamin	X^2 hitung	Xtabel	Significant or not at 5% level
Jun 2022	20	21.28	17	20.00	0,50:1,00	0.24	3.84	S
Jul. 2022	17	18.09	7	8.24	1,40:1,00	4.17	3.84	NS
Agus. 2022	16	17.02	22	25.88	1,00:1,00	0.95	3.84	S
Sep. 2022	9	9.57	13	15.29	3,50:1,00	0.73	3.84	S
Okt. 2022	11	11.70	15	17.65	13,00:1,00	0.62	3.84	S
Nov-22	21	22.34	11	12.94	3,60:1,00	3.13	3.84	S
	93		81					

X^2 tabel (0.05 : 5) = 3.84

X^2 hitung < X^2 tabel maka jumlah ikan belanak jantan dan betina yang tertangkap selama penelitiaan berdsarkan waktu pengambilan sampel di Perairan Pangkajene dan Kepulauan adalah berbeda nyata

Lampiran 11. Uji statistik fekunditas ikan belanak *P.subviridis* di perairan Pangkep

a. uji statistik hubungan antara fekunditas dan panjang total ikan belanak (*P.subviridis*)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.424902
R Square	0.180542
Adjusted R Square	0.166165
Standard Error	43.474
Observations	59

ANOVA

	df	SS	MS	F	Significance F
Regression	1	23734.76	23734.76	12.55814	0.000795
Residual	57	107729.4	1889.989		
Total	58	131464.1			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	153.3912	7.03879	21.79226	2.52E-29	139.2962	167.4861	139.2962	167.4861
X Variable 1	9.23E-05	2.6E-05	3.543747	0.000795	4.01E-05	0.000144	4.01E-05	0.000144

b. uji statistik hubungan antara fekunditas dan berat tubuh ikan belanak (*P.subviridis*)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.638412
R Square	0.40757
Adjusted R Square	0.397177
Standard Error	41.722
Observations	59

ANOVA

	df	SS	MS	F	Significance F
Regression	1	68260.64	68260.64	39.21391	5.33E-08
Residual	57	99221.35	1740.725		
Total	58	167482			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	40.10048	6.755127	5.936303	1.83E-07	26.57357	53.62739	26.57357	53.62739
X Variable 1	0.000156	2.5E-05	6.262101	5.33E-08	0.000106	0.000207	0.000106	0.000207

c. uji statistik hubungan antara fekunditas dan berat gonad ikan belanak (*P.subviridis*)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.777219
R Square	0.60407
Adjusted R Square	0.597123
Standard Error	2.410796
Observations	59

ANOVA

	df	SS	MS	F	Significance F
Regression	1	505.4333	505.4333	86.96471	4.56E-13
Residual	57	331.2803	5.811936		
Total	58	836.7137			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.78143	0.390327	4.563941	2.72E-05	0.999813	2.563047	0.999813	2.563047
X Variable 1	1.35E-05	1.44E-06	9.325487	4.56E-13	1.06E-05	1.64E-05	1.06E-05	1.64E-05

Lampiran 12. Uji statistik fekunditas ikan belanak *P.subviridis* di perairan Takalar
a. uji statistik hubungan antara fekunditas dan panjang total ikan belanak (*P.subviridis*)
  SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.668111
R Square	0.446373
Adjusted R Square	0.432177
Standard Error	43.85677
Observations	41

ANOVA

	df	SS	MS	F	Significance F
Regression	1	60480.85	60480.85	31.44449	1.82E-06
Residual	39	75013.24	1923.417		
Total	40	135494.1			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	196.2341	10.0612	19.50404	1.02E-21	175.8834	216.5848	175.8834	216.5848
X Variable 1	0.000353	6.3E-05	5.607539	1.82E-06	0.000226	0.000481	0.000226	0.000481

b. uji statistik hubungan antara fekunditas dan berat tubuh ikan belanak (*P.subviridis*)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.739806
R Square	0.547313
Adjusted R Square	0.535705
Standard Error	73.93763
Observations	41

ANOVA

	df	SS	MS	F	Significance F
Regression	1	257770.3	257770.3	47.15218	3.27E-08
Residual	39	213204.2	5466.773		
Total	40	470974.4			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	87.8757	16.96207	5.180719	7.07E-06	53.56668	122.1847	53.56668	122.1847
X Variable 1	0.00073	0.000106	6.866744	3.27E-08	0.000515	0.000945	0.000515	0.000945

c. uji statistik hubungan antara fekunditas dan berat gonad ikan belanak (*P.subviridis*)
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.838397
R Square	0.702909
Adjusted R Square	0.695291
Standard Error	3.472535
Observations	41

ANOVA

	df	SS	MS	F	Significance F
Regression	1	1112.673	1112.673	92.27288	7.89E-12
Residual	39	470.2815	12.0585		
Total	40	1582.954			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.89298	0.796636	-1.12093	0.269171	-2.50432	0.718373	-2.50432	0.718373
X Variable 1	4.79E-05	4.99E-06	9.605877	7.89E-12	3.78E-05	5.8E-05	3.78E-05	5.8E-05