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DAFTAR PUSTAKA

Abude, R. R. S., Hendrickx, M. E., Salgado-Barragán, J., Grano-Maldonado, M. I., García-Varela, M., Migotto, A. E., de Paula, J. C., Augusto, M., Moreira, D. A., Parente, T. E., Lôbo-Hajdu, G., & Cabrini, T. M. B. 2026. Ecological interactions on sandy beach Ecosystems: A global synthesis of mole crabs and new insights into *Emerita brasiliensis* and *Emerita rathbunae* (Crustacea, Decapoda, Anomura, Hippidae). Biology. 15(4): 311.

Abude, R. R. S., Lôbo-Hajdu, G., Moreira, D. A., & Cabrini, T. M. B. 2024. Sandy beach mole crabs (Decapoda: Hippidae: *Emerita*): A systematic review of the anthropic impacts, populations density, and conservation strategies. Marine Environmental Research. 202: 106745.

Ansell, A. D., & Trueman, E. R. 1973. The energy cost of migration of the bivalve Donax on tropical sandy beaches. Marine & Freshwater Behaviour & Phy. 2(1-4): 21-32.

Arisa, R. R. P., Kushartono, E. W., & Atmodjo, W. 2014. Sebaran sedimen dan kandungan bahan organik pada sedimen dasar perairan Pantai Slamaran Pekalongan. Journal of Marine Research. 3(3): 342-350.

Bakhshalizadeh, S., Abbasi, K., Rostamzadeh Liafuie, A., Bani, A., Pavithran, A., & Tiralongo, F. 2022. Morphometric analyses of phenotypic plasticity in habitat use in two Caspian sea mullets. Journal of Marine Science and Engineering. 10(10): 1398.

Barría, E. M., Sepúlveda, R. D., & Jara, C. G. 2011. Morphologic variation in Aegla leach (Decapoda: Reptantia: Aeglidae) from central-southern Chile: Interspecific differences, sexual dimorphism, and spatial segregation. Journal of Crustacean Biology. 31(2): 231-239.

Basu, A. K., & Charles, R. 2017. Ticks of Trinidad and Tobago-an overview. Academic Press, New York.

Bhaduri, R. N., Yamaguchi, T. J., Munguia, K., Sandhu, R. K., & Coffey, V. R. 2022. Impact of the acanthocephalan parasite *Profilicollis altmani* on the fecundity of its crustacean intermediate host, the Pacific mole crab, *Emerita analoga*. Invertebrate Biology. 141(1): e12362.

Bhagawati, D., Nuryanto, A., Winarni, E. T., & Pulungsari, A. E. 2022. Morphological and molecular characterization of mole crab (Genus: Emerita) in the Cilacap coastlines of Indonesia, with particular focus on genetic diversity of *Emerita* sp. nov. Biodiversitas: Journal of Biological Diversity. 23(5).

Bhagawati, D., S. Anggoro, M. Zainuri, & L. Sya'rani. 2016. Kontribusi taksonomi dalam pendayagunaan spesies: kajian atribut morfologi dan kunci dikotomi kepiting Yutuk (Crustacea: Hippoidea) dari pesisir Cilacap. Prosiding Seminar Nasional Tahunan ke V Hasil-hasil Penelitian Perikanan dan Kelautan. 550- 564.

UNIVERSITAS
GADJAH MADA
Karakteristik Morfologi dan Morfometrik Undur-Undur Laut Hippa adactyla (Fabricius, 1787) dan Emerita emeritus (Linnaeus, 1767) di Pantai Baru, Kabupaten Bantul
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Bhagawati, D., Winarni, E. T., & Nuryanto, A. 2020. Molecular barcoding reveal the existence of mole crabs *Emerita emeritus* in North Coast of Central Java. Biosaintifika: Journal of Biology & Biology Education. 12(1): 104-110.

Boonruang, P., & Phasuk, B. 1975. Species composition and abundance distribution of anomuran sand crabs and population bionomics of *Emerita emeritus* (L.) along the Indian Ocean Coast of Thailand (Decapoda: Hippidae). Research Bulletin-Phuket Marine Biological Centre (Thailand). (8).

Boyko, C. B., & Harvey, A. W. 1999. Crustacea Decapoda: Albuneidae and Hippidae of the tropical Indo-West Pacific region. Résultats des campagnes MUSORSTOM. 20: 379-406.

Silaban, B., Wattimena, M. L., Nanlohy, E. E., Lewerissa, S., & Silaban, R. 2020. Morphometric and proximate analysis of mole crabs (Hippa genus) in Maluku Province, Indonesia. Aquaculture, Aquarium, Conservation & Legislation. 13(1): 142-151.

Brown, J. 2009. Choosing the right number of components or factors in PCA and EFA. JALT Testing & Evaluation SIG Newsletter. 13(2).

Butet, N. A., Anggraeni, I., Dewi, B. P., Zairion, & Hakim, A. A. 2019. Validasi spesies undur-undur laut berdasarkan penanda molekuler 16s RRNA dari perairan Bantul dan Purworejo. Jurnal Pengelolaan Perikanan Tropis. 3(2): 28-35.

Calado, T. C. 1987. Taxonomia, biogeografia e ecologia da superfamı´lia Hippoidea na costa brasileira (Crustacea, Decapoda). Departemen Oseanografi. Universidade Federal de Pernambuco. Tesis.

Calado, T. C. D. S. 1990. Redescricao do genero Emerita scopoli, 1777 e das especies brasileiras (Decapoda, Anomura, Hippidae). Trabalhos Oceanográficos da Universidade Federal de Pernambuco. 21: 263–290.

Contreras, H., Defeo, O., & Jaramillo, E. 1999. Life history of *Emerita analoga* (Stimpson)(Anomura, Hippidae) in a sandy beach of South Central Chile. Estuarine, Coastal and Shelf Science. 48(1): 101-112.

Darusman, V., & Muskananfola, M. R. 2015. Kelimpahan undur-undur laut (Hippidae) dan sebaran sedimen di Pantai Pagak Kecamatan Ngombol, Purworejo, Jawa Tengah. Management of Aquatic Resources Journal (MAQUARES). 4(1): 9-18.

Melo, G. A. S. 1999. Manual de Identificação dos Crustacea Decapoda do Litoral Brasileiro: Anomura, Thalassinidea,. Palinuridea, Astacidea. Editora Plêiade, São Paulo.

Desi, T., Suryanti, S., & Widyorini, N. 2020. Habitat preference and abundance of mole crab based on sea tides in coastal area of Kebumen Regency. Jurnal Ilmu Perikanan dan Sumberdaya Perairan. 9(1).

Dewi, W. K., Suryanti, S., & Purnomo, P. W. 2019. Habitat preferences and abundance of mole crab at spring and neap tide in coastal area of Purworejo Central Java, Indonesia. Int J Applied Environ Sci. 14: 383-394.

UNIVERSITAS
GADJAH MADA
Karakteristik Morfologi dan Morfometrik Undur-Undur Laut Hippa adactyla (Fabricius, 1787) dan Emerita emeritus (Linnaeus, 1767) di Pantai Baru, Kabupaten Bantul
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Diaz, H. 1980. The mole crab *Emerita talpoida* (Say): A case of changing life history pattern. Ecological Monographs. 50(4): 437-456.

Diba, F., Lydia, M. S., & Sihombing, P. 2023. Analisis random forest menggunakan principal component analysis pada data berdimensi tinggi. The Indonesian Journal of Computer Science. 12(4).

Efford, I. E. 1976. Distribution of the sand crabs in the genus Emerita (Decapoda, Hippidae). Crustaceana. 169-183.

Enzellina, G., & Suhaedi, D. 2022. Penggunaan metode principal component analysis dalam menentukan faktor dominan. Jurnal Riset Matematika. 2(2): 101-110.

Felder, D. L., Lemaitre, R., & Mantelatto, F. L. 2023. Redescription of the mole crab *Emerita portoricensis* Schmitt, 1935 (Crustacea: Decapoda: Hippidae), based on Caribbean populations from Puerto Rico, Belize, Costa Rica, and Panama. Zootaxa. 5227(3): 341-354.

Haig, J. 1970. The status of *Remipes testudinarius* Latreille, and Designation of a Neotype for *Hippa adactyla* JC Fabricius (Decapoda, Hippidae). Crustaceana. 288-296.

Haig, J. 1974. A review of the Australian crabs of family Hippidae (Crustacea, Decapoda, Anomura). Memoirs of the Queensland Museum, Nature. 17(1): 175-189.

Haig, J., Murugan, T., & Nair, N. B. 1986. *Hippa indica*, a new species of mole crab (Decapoda, Anomura, Hippidae) from the south west coast of India. Crustaceana. 286-292.

Hanim, N., Farajallah, A., Putri, V. W., Wardiatno, Y., Perwitasari, D., & Suman, A. 2022. *Emerita pangandaranensis* sp. nov., a new sand crab (Anomura, Hippidae) from the South Coast of Java, Indonesia. ARPHA Preprints. 3: e81075.

Hausch, S., Shurin, J. B., & Matthews, B. 2013. Variation in body shape across species and populations in a radiation of Diaptomid Copepods. PLoS One. 8(6): e68272.

Haye, P. A., Tam, Y. K., & Kornfield, I. 2002. Molecular phylogenetics of mole crabs (Hippidae: Emerita). Journal of Crustacean Biology. 22(4): 903-915.

Hossain M. S., Kouba A., & Buřič M. 2019. Morphometry, size at maturity, and fecundity of marbled crayfish (*Procambarus virginalis*). Zoologischer Anzeiger. 281:68-75.

ITIS (Integrated Taxonomic Information System). 2023. Taxonomic Hierarchy: Hippidae Latreille, 1825. https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=98131#null. Diakses 21 Maret 2026.

Jackson, D. A. 1993. Stopping rules in principal components analysis: a comparison of heuristical and statistical approaches. Ecology. 74(8): 2204-2214.

UNIVERSITAS
GADJAH MADA
Karakteristik Morfologi dan Morfometrik Undur-Undur Laut Hippa adactyla (Fabricius, 1787) dan Emerita emeritus (Linnaeus, 1767) di Pantai Baru, Kabupaten Bantul
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Jaramillo, E., McLachlan, A. & Coetzee, P. 1993. Intertidal zonation patterns of macroinfauna over a range of exposed sandy beaches in south central Chile. Marine Ecology Progress Series 101: 105–118.

Ketaren, C. B. B., Hakim, A. A., Fahrudin, A., & Wardiyatno, Y. 2019. Kandungan logam berat Pb undur-undur laut dan implikasinya pada kesehatan manusia. Jurnal Biologi Tropis. 19(1): 90-100.

Laignel, B., Vignudelli, S., Almar, R., Becker, M., Bentamy, A., Benveniste, J., ... & Verpoorter, C. 2023. Observation of the coastal areas, estuaries and deltas from space. Surveys in Geophysics. 44(5): 1309-1356.

MacGinitie, G. E. 1938. Movements and mating habits of the sand crab, *Emerita analoga*. American Midland Naturalist. 471-481.

Mahapatro, D., Karna, S. K., Mohanty, S. K., Mohanty, B., Muduli, P. R., Pattnaik, A. K., & Nanda, S. 2018. First record of a burrowing mole crab *Emerita emeritus* (Decapoda: Anomura: Hippidae) from Chilika Lake, East coast of India. Indian Journal of Geo Marine Sciences. 47(1): 109-113.

Majeed, S., Shajahan, S., Vineetha, G., Satheesh, A., & Bindu, L. 2025. Swash zone sentinels: Unravelling microplastic pollution in selected beaches along the Southwest Coast of Peninsular India using the sand crab, *Emerita emeritus*. *Journal of Hazardous Materials*, 492: 138286.

Mantelatto, F. L., Paixão, J. M., Robles, R., Teles, J. N., & Balbino, F. C. 2023. Evidence using morphology, molecules, and biogeography clarifies the taxonomic status of mole crabs of the genus *Emerita* Scopoli, 1777 (Anomura, Hippidae) and reveals a new species from the western Atlantic. ZooKeys. 1161: 169.

Mashar, A. 2016. Biologi populasi undur-undur laut (Crustacea: Hippidae) di Pantai Selatan Jawa Tengah. Institut Pertanian Bogor, Disertasi Doktor.

Megawati, E. 2012. Studi beberapa aspek biologi kepiting pasir di Kecamatan Buluspesantren Kabupaten Kebumen. Departemen Manajemen Sumberdaya Perairan. Fakultas Perikanan dan Ilmu Kelautan. Institut Pertanian Bogor. Skripsi.

Mursyidin, D. H. 2018. Kandungan asam lemak omega 6 pada ketam pasir (*Emerita* spp) di Pantai Selatan Yogyakarta. Bioscientiae. 4(2).

Mutmainah, M. I. 2024. Analisis Data Kuantitatif Uji Instrumen, Uji Asumsi Klasik, Uji Korelasi, dan Regresi Linier Berganda. Penerbit Lakeisha, Klaten.

Pratiwi, R. 2018. Mengenal undur-undur laut (Crustacea: Decapoda: Hippidae) dan manfaatnya bagi kehidupan. International Standard of Serial Number Oseana. 14-26.

Purba, R. A., & Achmadi, A. S. 2020. Variasi ciri morfometrik dari tikus *Bunomys chrysocomus* di Sulawesi dengan metode PCA (Principal Component Analysis). Dalam Prosiding Seminar Nasional Biologi 6(1): 80-86.

UNIVERSITAS
GADJAH MADA
Karakteristik Morfologi dan Morfometrik Undur-Undur Laut Hippa adactyla (Fabricius, 1787) dan Emerita emeritus (Linnaeus, 1767) di Pantai Baru, Kabupaten Bantul
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Putri, V. W., Hanim, N., Widayati, K. A., Wardiatno, Y., & Farajallah, A. 2023. New sightings reported in western Indonesia and a preliminary study of *Hippa ovalis* distribution in Indonesian waters. Taiwania. 68(1): 116-121.

Rahmatuloh, I. H. S., Hartoko, A., & Sulardiono, B. 2020. Aspek biologi *Emerita emeritus* (Linnaeus 1767) di Pantai Glagah, Parangtritis, dan Parangkusumo. Jurnal Pasir Laut. 4(1): 42-51.

Rojas-Valverde, D., Pino-Ortega, J., Gómez-Carmona, C. D., & Rico-González, M. 2020. A systematic review of methods and criteria standard proposal for the use of principal component analysis in team's sports science. International Journal of Environmental Research and Public Health. 17(23): 8712.

Safrudin, N., Suman, A., Hanim, N., & Farajallah, A. 2023. Keanekaragaman undur-undur laut (Anomura: Hippidae) dari Kepulauan Banda. Jurnal Ilmu Pertanian Indonesia. 28(1): 155-161.

Shepherd, R. A., Knott, B., & Eliot, I. G. 1988. The relationship of juvenile southern mole crabs *Hippa australis* Hale (Crustacea: Anomura: Hippidae) to surficial swash water-circulation over several diurnal spring-tide cycles during winter conditions on a micro-tidal sandy beach. Journal of Experimental Marine Biology and Ecology. 121(3): 209-225.

Shrestha, N. 2021. Factor analysis as a tool for survey analysis. American Journal of Applied Mathematics and Statistics. 9(1): 4-11.

Simon, K. D., Bakar, Y., Temple, S. E., & Mazlan, A. G. 2010. Morphometric and meristic variation in two congeneric archer fishes *Toxotes chatareus* (Hamilton 1822) and *Toxotes jaculatrix* (Pallas 1767) inhabiting Malaysian coastal waters. Journal of Zhejiang University Science B. 11(11): 871-879.

Strauss, R. E. & Bond, C. E. 1990. Taxonomic methods: Morphology. Methods for Fish Biology. 109-140.

Sugandy, R. A. 2022. Distribusi baru *Emerita emeritus* di Tegal dan Tuban serta tingkat kekerabatannya. Fakultas Matematika dan Ilmu Pengetahuan Alam. Institut Pertanian Bogor. Skripsi.

Suryanti, M., & Rudyanti, S. 2018. Karakteristik habitat dan kelimpahan undur-undur laut (Hippoidea) di Pantai Purworejo. JFMR (Journal of Fisheries and Marine Research). 2(2): 56-67.

Susilo, V. E., Wardiatno, Y., Farajallah, A., & Wowor, D. 2023. New distribution record of Hippoid crabs on Bali strait, Indonesia. Dalam IOP Conference Series: Earth and Environmental Science 1271(1): 012029. IOP Publishing.

Tamzil, M. H., & Putra, B. W. P. 2024. Principal Component Analysis (PCA) of body measurements and its relationship with body weight in Jowo Super (Bangkok x Layer) Chicken. Jurnal Veteriner. 25(2).

UNIVERSITAS
GADJAH MADA
Karakteristik Morfologi dan Morfometrik Undur-Undur Laut Hippa adactyla (Fabricius, 1787) dan Emerita emeritus (Linnaeus, 1767) di Pantai Baru, Kabupaten Bantul
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Thorp, J. H., & Rogers, D. C. 2010. Field Guide to Freshwater Invertebrates of North America. Academic Press, New York.

Triatmodjo, B. 1999. Teknik Pantai. Beta Offset, Yogyakarta.

Tupan, J., Nanlohy, E. E. E. M., & Rahman, R. 2024. The characteristics of mole crabs (Anomura: Hippidae) and their nutritional composition from the waters of Rutah villages, Central Maluku Regency, Indonesia. Egyptian Journal of Aquatic Biology and Fisheries. (5).

Veas, R., Hernández-Miranda, E., & Quiñones, R. A. 2014. Body shape and burial behavior of the sand crab *Emerita analoga* (Stimpson 1857) in a reflective to intermediate morphodynamic range of sandy beaches. *Marine Biology*, 161(10): 2345-2357.

Wahidah, O. S., Trijuno, D. D., & Nugroho, E. 2015. Morphometric variance of South Sulawesi's freshwater prawn *Macrobrachium rosenbergii* and Macrobrachiumidae. International Journal of Scientific Research. 5(4): 1-5.

Wardiatno, Y., Ardika, P. U., Farajallah, A., Butet, N. A., Mashar, A., Kamal, M. M., Renjaan, E. A., & Sarong, M. A. 2015. Biodiversity of Indonesian sand crabs (Crustacea, Anomura, Hippidae) and assessment of their phylogenetic relationships. Aquaculture, Aquarium, Conservation & Legislation. 8(2): 224-235.

Wardiatno, Y., Nurjana, I. W., & Mashar, A. 2014. Karakteristik habitat undur-undur laut (Famili Hippidae) di pantai berpasir, Kabupaten Cilacap. Jurnal Biologi Tropis. 1-8.

Wenner, A. M. 1977. Food supply, feeding habits, and egg production in Pacific mole crabs (*Hippa pacifica* Dana). Pac Sci. 31(1): 39-47.

Weymouth, F. W., & Richardson, C. H. 1912. Observations on the habits of the crustacean *Emerita analoga*. Smithsonian Miscellaneous Collections. 59(7).

World Register of Marine Species. 2026. Hippidae Latreille, 1825. https://www.marinespecies.org/aphia.php?p=taxdetails&id=158390. Diakses tanggal 21 Maret 2026