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TOURISM CARRYING CAPACITY TO SUPPORT BEACH MANAGEMENT AT TANJUNG BIRA, INDONESIA
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Jurnal SEGARA adalah Jurnal yang diasuh oleh Pusat Riset Kelautan, Badan Riset dan Sumber Daya Manusia Kelautan dan Perikanan – KKP, dengan tujuan menyebarkan informasi tentang perkembangan ilmiah bidang kelautan di Indonesia, seperti: oceanografi, akustik dan instrumentasi, inderaja,kewilayahan sumberdaya nonhayati, energi, arkeologi bawah air dan lingkungan. Naskah yang dimuat dalam jurnal ini terutama berasal dari hasil penelitian maupun kajian konseptual yang berkaitan dengan kelautan Indonesia, yang dilakukan oleh para peneliti, akademisi, mahasiswa, maupun pemerhati permasalahan kelautan baik dari dalam dan luar negeri. Terbit pertama kali tahun 2005 dengan frekuensi terbit tiga kali dalam satu tahun.

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Maryono, Hefni Effendi & Majariana Krisanti
INTRODUCTION OF EDITORIAL

Jurnal Segara is scientific journal published and funded by the Marine Research Center, The Agency for Marine & Fisheries Research & Human Resources, Indonesian Ministry of Marine Affairs & Fisheries.

Jurnal Segara Volume 15 No. 2 August 2019 is the second edition of Fiscal Year 2019. The articles contained in Jurnal Segara are the results from research and conceptual studies related to the marine and fisheries issues, conducted by researchers, academics, students, and observers from Indonesia and around the world.

In this edition, the journal features 6 scientific articles of research on: Estimation of Sediment Distribution Based on Bathymetry Alteration (2014-2016) in The Inner Bay of Ambon, Maluku, Indonesia; Coastal Landform and Its Indicative Risk of Changes Through Integrated Satellite and on Ground Observations for Coastal Development and Revitalisation in Pati, Central Java; Assessment of Mangrove Ecosystem Potency and Its Utilization in Dompu Regency Coastal Waters, West Nusa Tenggara Province Using Satellite Imagery Application; The Existence of Ornamental Coral in Different Live Coral Coverage Condition in Saleh Bay, West Nusa Tenggara; Coastal Vulnerability Index Modeling for Western Coast of Pangandaran; Tourism Carrying Capacity to Support Beach Management at Tanjung Bira, Indonesia.

It is hoped that this scientific journal can contribute to the development of Indonesia marine science and technology. Finally, the Editor would like to thank the infinite participation of the researchers in this journal.
| Title                                                                 | Authors                                                                 | Pages   |
|----------------------------------------------------------------------|------------------------------------------------------------------------|---------|
| ESTIMATION OF SEDIMENT DISTRIBUTION BASED ON BATHYMETRY ALTERATION (2014-2016) IN THE INNER BAY OF AMBON, MALUKU, INDONESIA | Guntur A. Rahmawan, Wisnu A. Gemilang, Ulung J. Wisha, Ruzana Dhiauddin & Koko Ondara | 67-78   |
| COASTAL LANDFORM AND ITS INDICATIVE RISK OF CHANGES THROUGH INTEGRATED SATELLITE AND ON GROUND OBSERVATIONS FOR COASTAL DEVELOPMENT AND REVITALISATION IN PATI, CENTRAL JAVA | Tubagus Solihuddin, Hadiwijaya Lesmana Salim, Eva Mustikasari & Aida Heriati | 79-88   |
| ASSESSMENT OF MANGROVE ECOSYSTEM POTENCY AND ITS UTILIZATION IN DOMPU REGENCY COASTAL WATERS, WEST NUSA TENGGARA PROVINCE USING SATELLITE IMAGERY APPLICATION | Yulius, Syahrial Nur Amri, August Daulat & Sari Indriani Putri | 89-98   |
| THE EXISTENCE OF ORNAMENTAL CORAL IN DIFFERENT LIVE CORAL COVERAGE CONDITION IN SALEH BAY, WEST NUSA TENGGARA | Ofri Johan, Yulius, Hadiwijaya L. Salim, Idil Ardi, Muhammad Abrar & August Daulat | 99-108  |
| COASTAL VULNERABILITY INDEX MODELING FOR WESTERN COAST OF PANGANDARAN | Ruzana Dhiauddin, Wisnu Arya Gemilang, Ulung Jantama Wisha, Koko Ondara, Guntur Adhi Rahmawan & Gunardi Kusumah | 109-117 |
| TOURISM CARRYING CAPACITY TO SUPPORT BEACH MANAGEMENT AT TANJUNG BIRA, INDONESIA | Maryono, Hefni Effendi & Majariana Krisanti | 119-127 |
ABSTRACT

The development of Ambon city is centered around Ambon Bay. As the major area of marine and social activities, changes occurred directly affect to seawater degradation. Sedimentation is the main issue that has been occurring. Marine ecosystem can be potentially hampered by the high rate of sedimentation in the Inner Bay of Ambon (TAD). This study aimed to determine the distribution of sediment volume within the bay. Bathymetry of TAD was surveyed using transducer (Echosounder Echo track CVM Teledyne Odom Hydrographic Single Beam), which the depth of certain position was connected to GPS to record all the position data accurately. The field data are then analyzed spatially modelled in the form of 2D and 3D maps, overlaid with the past bathymetry data to calculate the bathymetry alteration and sediment volume estimation during 2014-2016. The depth of TAD in 2014 ranged between 0 – 42 meters, while in 2016 the water depth slightly changed to 0 – 44 meters. The reduction of the water depth is observed in the 25 – 125 m from shoreline, where the bed thickness changes observed ranging from 0.1 - 1.4 m. Total volume of sediment augmentation reaches 13,236,182 m³ that covers about 67.67 Ha. Tidal current, that ranged averagely from 0-1.2 m/s, has a tremendous influence on sediment transport in TAD. The bay mouth, that is a semi-enclosed area, triggers sediment accumulation due to the weak tidal current transport. If ongoing, these conditions may endanger the environment and biota survival ability.

Keywords: Sediment distribution, bathymetry alteration, Inner Bay of Ambon.

COASTAL LANDFORM AND ITS INDICATIVE RISK OF CHANGES THROUGH INTEGRATED SATELLITE AND ON GROUND OBSERVATIONS FOR COASTAL DEVELOPMENT AND REVITALISATION IN PATI, CENTRAL JAVA

ABSTRACT

Pengelolaan pantai yang tepat harus mempertimbangkan proses pantai berdasarkan kondisi bio-fisik lingkungan pesisir tersebut. Penelitian ini bertujuan untuk mengetahui bentang alam pesisir dan kehidupan biota melalui penelitian citra satelit, data virtual, dan pengamatan langsung. Pelibatan Pantai Pati sebagai pusat kegiatan tersebut, menimbulkan berbagai perubahan yang menyebabkan penurunan kualitas air laut. Perkembangan kota Ambon sebagai pusat kegiatan tersebut, menimbulkan berbagai perubahan yang menyebabkan penurunan kualitas air laut. Perkembangan kota Ambon sebagai pusat kegiatan tersebut, menimbulkan berbagai perubahan yang menyebabkan penurunan kualitas air laut. Perkembangan kota Ambon sebagai pusat kegiatan tersebut, menimbulkan berbagai perubahan yang menyebabkan penurunan kualitas air laut.
ABSTRACT

Mangrove ecosystem forests are tropical coastal vegetation communities, which has the ability to grow in coastal area with tidal and muddy environment. Several functions of mangrove ecosystem forest such as ecological functions can be used for coastal protection, trapping sediment and strengthen the coastal ecosystems. Coastal waters in Dompu Regency, West Nusa Tenggara have natural mangrove ecosystem with a huge potency and advantages to the region. This study aimed to understand the condition of mangrove ecosystem based on satellite image analysis of Landsat 8 Operational Land Imager (OLI) in 2014 and assess the potency, information related to the utilization by community. Data collection in this study were combined from satellite imagery interpretation with interview and questionnaires. The results showed that the mangrove forest extent in Dompu Regency Coastal Waters were about 90,631 ha with uniformity index 0.68 (medium uniformity). Two mangrove species were found in the region namely Rhizophora stylosa and Rhizophora apiculata and used by the community for several purposes such as firewood, natural coastal protection from tidal, waves and abrasion, also for crabs and fish spawning ground.

Kata Kunci: mangrove forest ecosystem, mangrove utilization, Dompu Regency, satellite image interpretation.

Keywords: mangrove forest ecosystem, mangrove utilization, Dompu Regency, satellite image interpretation.
THE EXISTENCE OF ORNAMENTAL CORAL IN DIFFERENT LIVE CORAL COVERAGE CONDITION IN SALEH BAY, WEST NUSA TENGGARA

KEBERADAAN KARANG HIAS DALAM PERBEDAAN KONDISI TUTUPAN KARANG HIDUP DI TELUK SALEH, NUSA TENGGARA BARAT

Ofri Johan, Yulius, Hadiwijaya L. Salim, Idil Ardi, Muhammad Abrar & August Daulat

ABSTRACT

Ornamental coral is one of the trading commodities targets with high demand in all of the world because of its color and unique shape. Various types of ornamental corals are usually found in a specific area and out of reach, where one of them situated in water depth that it so difficult to find. West Nusa Tenggara Province is known as one of the ornamental coral suppliers that has not been touched much by research related to the existence of ornamental coral natural resources. This study aims to obtain preliminary data on the existence of ornamental coral, especially in Saleh Bay waters. Observations carried out from 6 to 11 May 2015 at 6 locations, determined based on distance from the mainland with respective representation, which divided into categories such as near, medium and far using the straight-line transect methods for coral reefs condition, while belt transect methods used for ornamental corals assessment. The results showed the health of coral reefs in good condition with the cover above 50% at all stations except station 4 (medium category), where Acropora coral species dominated at stations 5 and 6 (distant category). The bottom substrate dominated by coral fragments and dead corals with algae (DCA), which are found 28 genera of ornamental corals and considered as trade commodities such as Euphyllia glabrescens, Euphyllia cristata, Euphyllia ancora, Echinophora sp, Goniopora sp, Lobophyllia sp, Physogyra sp, Merulina sp, and Turbinaria sp. The research location can be used as a permanent study area for ornamental coral focus subject and as an indicator for sustainable ornamental coral management in the region.

Kata Kunci: Coral reefs condition, ornamental coral, trading target, Saleh Bay.

ABSTRACT

Karang hias adalah salah satu target komoditas perdagangan dengan permintaan tinggi di seluruh dunia karena warna dan bentuknya yang unik. Berbagai jenis karang hias biasanya ditelusuri dari daerah tertentu dan di luar jangkauan, di mana salah satunya terletak di kedalaman air sehingga sangat sulit ditemukan. Provinsi Nusa Tenggara Barat dikenal sebagai salah satu pemasok terumbu karang hias yang belum banyak tersentuh oleh penelitian terkait dengan keberadaan sumber daya alam karang hias. Penelitian ini bertujuan untuk memperoleh data awal tentang keberadaan karang hias, terutama di perairan Teluk Saleh. Pengamatan dilakukan dari 6 hingga 11 Mei 2015 di 6 lokasi, ditentukan berdasarkan jarak dari daratan dengan perwakilan masing-masing yang dibagi menjadi beberapa kategori seperti dekat, sedang dan jauh menggunakan metode transek garis lurus untuk kondisi terumbu karang, sedangkan metode transek sabuk digunakan untuk penilaian karang hias. Hasil penelitian menunjukkan kondisi terumbu karang dalam kondisi baik dengan tutupan di atas 50% di semua stasiun kecuali stasiun 4 (kategori sedang), di mana spesies karang Acropora mendominasi di stasiun 5 dan 6 (kategori jauh). Substrat dasar didominasi oleh fragmen karang dan karang mati dengan alga (DCA), yang ditemukan 28 genus karang hias dan dianggap sebagai komoditas perdagangan seperti: Euphyllia glabrescens, Euphyllia cristata, Euphyllia ancora, Echinophora sp, Goniopora sp, Lobophyllia sp, Physogyra sp, Merulina sp, dan Turbinaria sp. Lokasi penelitian dapat digunakan sebagai area studi permanen untuk subjek fokus karang hias dan sebagai indikator untuk pengelolaan karang hias berkelanjutan di wilayah tersebut.

Kata kunci: bentang alam pesisir, citra Landsat, revitalisasi pesisir, Pati, Jawa Tengah.

COASTAL VULNERABILITY INDEX MODELING FOR WESTERN COAST OF PANGANDARAN

PEMODELAN INDEX KERENTANAN PESISIR DI PANTAI BARAT PANGANDARAN

Ruzana Dhiauddin, Wisnu Arya Gemilang, Ulung Jantama Wisha, Koko Ondara, Guntur Adhi Rahmawan & Gunardi Kusumah

ABSTRAK

Western coast of Pangandaran Sub-district became a popular destination either for domestic or international tourists since it offers many attractive activities and is supported by plenty of hotels, homestays, restaurants and other facilities. However, those advantages were not related with environmental condition, which is characterized by erosional features and dilapidated semi-permanent buildings in several areas with insufficient numbers of coastal protection structures. The combination of poor protection in highly exploited beach pose a threat to local residents, tourists and also the environment. This study is aimed to assess the risk that is faced by Pangandaran Bay. We apply vulnerability assessment in western coast of Pangandaran by integrating two methods: Smartline and CVI (Coastline Vulnerability Index). The result shows the coastal vulnerability index for the study area ranges from 16.43 to 129.9 that are classified into 5 categories: 1) Very low (0.4 km,
TOURISM CARRYING CAPACITY TO SUPPORT BEACH MANAGEMENT
AT TANJUNG BIRA, INDONESIA
DAYA DUKUNG WISATA UNTUK PENGEMBANGAN MANAJEMEN PANTAI
DI TANJUNG BIRA, INDONESIA

Maryono, Hefni Effendi & Majariana Krisanti

ABSTRAK

Tourism carrying capacity assessment for the protection of coastal area was applied to Tanjung Bira beach as an attempt to assess the optimum allowable number of visitors in accordance to the PAOT (people at one time approach) without damaging the surrounding ecological, social and cultural environments. The study shows that the Real Carrying Capacity (RCC) was 202 beach user/day and the Effective Carrying Capacity (ECC) was 117 beach user/day. Although there was a significant difference between Physical-Ecological and Social-Cultural Carrying Capacity, this study suggests that the Physical-Ecological Carrying Capacity or Real Carrying Capacity may be applied for ecosystem management, whilst the Social-Cultural Carrying Capacity or Effective Carrying Capacity (ECC) may be addressed when management objectives are tourists and beach user.

Keywords: beach management, carrying capacity, Tanjung Bira.

Sodonglandak Headland - Parigi Bay), 2) Low (0.7 km of Parigi Bay), 3) Moderate (1.2 km, west - east part of Parigi Bay), 4) High (0.3 km, south of Pangandaran Village), and 5) Very High (2.1 km, Pangandaran Village - Pananjung Village). The result of this study is imperative for local governments and stakeholders as a basis for further coastal developments in the western coast of Pangandaran in term of tourism.

Keywords: Coastal vulnerability, CVI, smartline, western coast of Pangandaran.

TOURISM CARRYING CAPACITY TO SUPPORT BEACH MANAGEMENT
AT TANJUNG BIRA, INDONESIA
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DI TANJUNG BIRA, INDONESIA

Maryono, Hefni Effendi & Majariana Krisanti

ABSTRAK

Estimasi daya dukung wisata untuk perlindungan kawasan pantai untuk diterapkan ke Tanjung Bira sebagai upaya untuk menilai jumlah pengunjung yang diperbolehkan secara optimum sesuai dengan pendekatan PAOT (people at one time) tanpa merusak lingkungan ekologi, sosial dan budaya di sekitarnya. Hasil penelitian ini menunjukkan bahwa Real Carrying Capacity (RCC) adalah 202 pengguna pantai/hari dan Efektif Carrying Capacity (ECC) adalah 117 pengguna pantai/hari. Meskipun ada perbedaan yang signifikan antara Daya Dukung Fisik-Ekologi dan Sosial-Budaya, penelitian ini menunjukkan bahwa Daya Dukung Fisik-Ekologi atau Real Carrying Capacity (RCC) dapat diterapkan untuk pengelolaan ekosistem, sementara Daya Dukung Sosial-Budaya atau Efektif Carrying Capacity (ECC) dapat diatasi ketika tujuan manajemen adalah wisatawan dan pengguna pantai.

Kata kunci: manajemen pantai, daya dukung, Tanjung Bira.