

INTISARI

Selat Makassar merupakan area aktif untuk kegiatan komersial dan ekonomi di Indonesia. Walau demikian, Selat Makassar memiliki beberapa potensi bencana salah satunya tsunami akibat longsor dasar laut. Oleh karenanya perlu dibangun infrastruktur kabel deteksi INA-TEWS. Hal ini membuat penyelidikan kondisi bawah laut penting untuk menunjang pembangunan kabel bawah laut di area Selat Makassar. Survei kelautan dilakukan dalam Ekspedisi INA-TEWS menggunakan Kapal Baruna Jaya IV di lepas pantai Balikpapan, Paparan Mahakam, Selat Makassar. Survei ini menggunakan beberapa metode survei hidrografi berupa metode *side scan sonar*, *sub-bottom profiler*, dan *gravity core*. Berdasarkan data tersebut dapat dilakukan kajian mengenai kondisi bentuklahan di area penelitian.

Pengolahan data *side scan sonar* dan *sub-bottom profiler* menggunakan aplikasi SonarWiz untuk mengidentifikasi kondisi geologi permukaan dan lapisan geologi dangkal di area penelitian yang meliputi delapan blok. Sementara data *gravity core* dilakukan analisis granulometri pada empat titik untuk mengetahui pengaruh sedimentasi dalam genesa bentuklahan di area penelitian. Keterkaitan ketiga data inilah yang menjadi kunci interpretasi kondisi bentuklahan dan proses geologi yang berlaku di area penelitian.

Dari hasil integrasi data yang ada, telah teridentifikasi bentuklahan kawah letupan dan juga riak pasir. Proses geologi yang terjadi diidentifikasi adanya *longshore current*, sedimentasi transport dan deposisi, serta longsor. Terdapat pula tiga tren sedimentasi yang diinterpretasikan sebagai sumber deposisi sedimen yang meningkatkan pembentukan bentuklahan kawah letupan.

Kata kunci: bentuklahan, kawah letupan, sonar, granulometri, Paparan Mahakam

ABSTRACT

The Makassar Strait is an active area for commercial and economic activities in Indonesia. However, the Makassar Strait has several potential disasters, one of which is a tsunami due to seabed landslides. Therefore, it is necessary to build an INA-TEWS detection cable infrastructure. This makes investigating underwater conditions important to support the construction of submarine cables in the Makassar Strait area.. Hydrographic survey were conducted during the INA-TEWS Expedition using the Baruna Jaya IV Ship off the coast of Balikpapan, Mahakam Shelf, Makassar Strait. The survey employed several hydrographic survey methods, including side scan sonar, sub-bottom profiler, and gravity core. Based on this data, studies regarding landform conditions in the research area can be conducted.

Data processing of side scan sonar and sub bottom profiler using SonarWiz application was carried out to identify surface geological conditions and shallow geological layers in the research area covering eight blocks. Meanwhile, gravity core data analysis was performed at four points to understand the influence of sedimentation on the genesis of landforms in the research area. The integration of these three data sets is key to interpreting the landform conditions and geological processes occurring in research area.

From the integrated data results, several landforms were identified. That includes pockmarks and sediment ripple landforms. Geological processes such as longshore currents, sedimentation processes, and mass movement were identified. There were also three sedimentation trends interpreted as sediment depositions sources that enhance the formation of pockmarks.

Keywords: *landforms, pockmarks, sonar, granulometry, Mahakam Shelf.*