

ABSTRAK

Mirdan Yusup. NPM 05192011022. **Analisis Sebaran Iluminasi Cahaya Lampu LED-RGB (*Red, Green, Blue*) dan Komposisi Hasil Tangkapan pada Rumpon di Perairan Pulau Ternate**. Program Studi Pemanfaatan Sumberdaya Perikanan, Fakultas Perikanan dan Kelautan, Universitas Khairun Ternate. Dibimbing oleh Irwan Abdul Kadir S.Pi., M.Si, Sebagai Pembimbing I dan Dr. Faizal Rumagia S.Pi., M.Si, Sebagai pembimbing II.

Penerapan rumpon di perairan sekitar Pulau Ternate dapat meningkatkan hasil tangkapan nelayan yang lebih besar. Rumpon dapat menjadi titik fokus penangkapan yang lebih efektif dan efisien serta dapat memperluas area penangkapan nelayan dan membantu meningkatkan produktivitas perikanan lokal. Tujuan penelitian ini adalah menghitung sebaran iluminasi cahaya, hubungan iluminasi cahaya terhadap *swimming ikan* dan komposisi hasil tangkapan pada rumpon yang menggunakan lampu LED-RGB di perairan Pulau Ternate. Penelitian dilaksanakan selama 1 (satu) bulan yaitu pada bulan Juli hingga bulan Agustus 2024. Lokasi penelitian bertempat di perairan Pulau Ternate, Maluku Utara. Berdasarkan hasil penelitian pengukuran iluminasi cahaya lampu LED-RGB secara vertikal yaitu 53-59 lux, 61-70 lux dan 131–142 lux. Hasil pengukuran iluminasi cahaya lampu LED-RGB secara horisontal adalah 596 lux, 780,5 lux, 1785,67 lux. Pola hubungan antara iluminasi cahaya lampu LED-RGB dengan jarak pengukuran yaitu Merah ($229,31e^{0,18x}$), Hijau ($284,58e^{0,1748x}$), Biru ($434,69e^{0,1651x}$). Sehingga semakin jauh jarak dari sumber cahaya maka semakin berkurang iluminasi cahaya dan semakin besar nilai pemudarannya. Kemudian hubungan intensitas cahaya terhadap *swimming layer* ikan untuk lampu berwarna merah menunjukkan bahwa *swimming layer* ikan berada pada kedalaman 2–4 meter dengan nilai korelasi 0,68, lampu warna hijau *swimming layer* berkisar pada kedalaman 5–11 meter, nilai korelasi 0,95 dan warna biru *swimming layer* ikan berada pada kisaran 7–12 meter, nilai korelasi 0,35. Sedangkan komposisi hasil tangkapan pada rumpon dengan menggunakan lampu LED- RGB terdapat tiga jenis ikan yang tertangkap yaitu ikan layang berjumlah 140 ekor (88%), ikan selar 17 ekor (8%), dan ikan sunglir 7 ekor (4%).

Kata kunci: *lampu LED-RGB, rumpon, swimming layer.*

ABSTRACT

Mirdan Yusup. NPM 05192011022. **Analysis of the Distribution of LED Light Illumination-RGB (Red, Green, Blue) and Composition of Catch Results on Fish Aggregating Devices in Ternate Island Waters.** Fisheries Resources Utilization Study Program, Faculty of Fisheries and Marine Sciences, Khairun University Ternate. Supervised by Irwan Abdul Kadir S.Pi., M.Si, as Supervisor I and Dr. Faizal Rumagia S.Pi., M.Si, as Supervisor II.

The application of fish aggregating devices (FADs) in the waters around Ternate Island can increase fishermen's catches. FADs can be a focal point for more effective and efficient fishing and can expand fishermen's fishing areas and help increase local fisheries productivity. The purpose of this study was to calculate the distribution of light illumination, the relationship between light illumination and fish swimming and the composition of the catch on FADs using LED-RGB lights in the waters of Ternate Island. The study was conducted for 1 (one) month, namely from July to August 2024. The research location was in the waters of Ternate Island, North Maluku. Based on the results of the study, the results of measuring the vertical LED-RGB light illumination were 53-59 lux, 61-70 lux and 131-142 lux. The results of measuring the horizontal LED-RGB light illumination were 596 lux, 780.5 lux, 1785.67 lux. The relationship pattern between LED-RGB light illumination and measurement distance is Red ($229.31e0.18x$), Green ($284.58e0.1748x$), Blue ($434.69e0.1651x$). So the further the distance from the light source, the less the light illumination and the greater the fading value. Then the relationship between light intensity and the fish swimming layer for red lights shows that the fish swimming layer is at a depth of 2-4 meters with a correlation value of 0,68, the green swimming layer light ranges from a depth of 5-11 meters, a correlation value of 0,95 and the blue swimming layer fish is in the range of 7-12 meters, a correlation value of 0,35. While the composition of the catch on fish aggregating devices using LED-RGB lights, there are three types of fish caught, namely 140 mackerel (88%), 17 scads (8%), and 7 sunglir fish (4%).

Keywords: LED-RGB lights, fish aggregating devices, swimming layer.