RANCANGAN DAN KARYA TEKNOLOGI

JUDUL

DESAIN BUBU LAMPU UNTUK PENANGKAPAN IKAN LELE DI KOLAM PERCOBAAN

PENGUSUL

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Outline of Presentation

1. **Design and Specification of Light Trap**
2. **Trapping experiments with the lights**
3. **Data collection**

1. Design and Specification of Light Trap

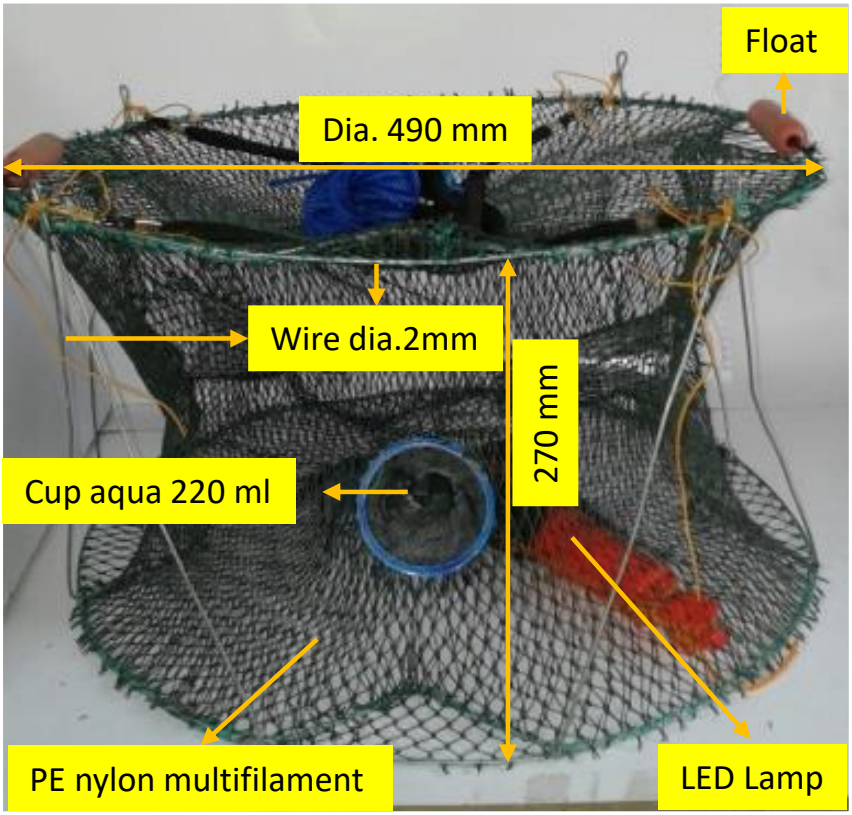

Figure 1. Light trap design used for catching African catfish in the tarpaulin pond.

Table 1. The gear and lamp specification of the light trap used for African catfish

No.	Gear and Lamp Specification	Description		
1	Shape and Material	Cirle-shaped, 1540 mm perimeter. 2 mm diameter solid wire. It is collapsible trap		
2	Size	Top and bottom panels: 490 mm diameter. 270 mm height		
3	Netting Material	Polyethylene (PE), 25 mm mesh size The upper part used for taking out the catch, The bottom part for attaching the lamp		
4	Trap Entrance	Conical-shaped of cup aqua 220 ml. 4 entry holes located on each side of trap with about 50 mm opening mesh inside		
5	Typical Lamp	0.9 W LED (Light Emitting Diode) Torpedo light (215 × 50 mm, Fishing Net Industry Co. Ltd. China), powered by 3 V dry-cell batteries		
6	Color, Intensity and wave-length	Blue	8.4 ± 1.65 lx	450-495 nm
		Green	3116 ± 342.74 lx	495-570 nm
		Yellow	332.0 ± 37.14 lx	570-590 nm
		Orange	42.5 ± 2.68 lx	950-620 nm
		Red	376.4 ± 93.40 lx	620-750 nm

2. Trapping Experiments with the lighs for African Catfish

A total of 5 circle-shaped traps were constructed with the same dimensions and materials (**Figure 2**). Four continuous light traps and a control (trap without lamp) are simultaneously tested in the tarpaulin pond. The trap was made of Polyethylene (PE) nylon multifilament, was fastened around two wire ring frames (wire dia. 2 mm); 1540 mm perimeter, was placed on the top and bottom (490 mm diameter). The net height was 270 mm. Each trap had four entry holes located on each side of the trap with about 5 cm opening mesh. The upper part used for taking out the catch, while the bottom part for attaching the lamp.

Each of the light traps was assigned with 0.9 W LED (Light Emitting Diode) Torpedo light (215 × 50 mm, Fishing Net Industry Co. Ltd. China) containing blue (8.4 ± 1.65 lx), orange (42.5 ± 2.68 lx), yellow (332.0 ± 37.14 lx), red (376.4 ± 93.40 lx), and green (3116 ± 342.74 lx), powered by 3 V dry-cell batteries, respectively. The intensity of each lamp was measured using a light-meter LX-100 (Lutron, Taiwan) at Basic Laboratory of Faculty of Mathematic and Natural Science Lambung Mangkurat University. Experiemental data were presented in **Table 2**.

Figure 2. A fish sample of African catfish, the traps and lamps used in the tarpaulin pond.

3. Data Collection

Table 2. The number of catch, weight, YPUE, CPUE and Fulton's condition factor (K) between males and females of African catfish caught during trapping experiments. YPUE = yield per unit effort, CPUE = catch per unit effort

Light Trap	Number of Catches			Weight (g)			YPUE (g/trap/trial)			CPUE (fish/trap/night)			K	
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Blue	29	48	77	4461	6614	11075	139.41	206.69	346.09	0.91	1.50	2.41	0.61±0.06	0.64±0.07
Green	38	40	78	5400	4941	10341	168.75	154.41	323.16	1.19	1.25	2.44	0.64±0.18	0.63±0.06
Yellow	23	34	57	3683	5426	9109	115.09	169.56	284.66	0.72	1.06	1.78	0.58±0.07	0.65±0.23
Red	43	57	100	5940	7969	13909	185.63	249.03	434.66	1.34	1.78	3.13	0.62±0.08	0.64±0.04
Control	19	46	65	2487	6198	8685	77.72	193.69	271.41	0.59	1.44	2.03	0.63±0.11	0.67±0.17
Total	152	225	377	21971	31148	53119	608.88	779.69	1388.56	4.75	7.03	11.78	-	-
Mean ± SD	30.40 ± 10.04	45.00 ± 8.66	75.40 ± 16.29	4394.20 ± 1373.75	6229.60 ± 1170.53	10623.80 ± 2069.40	137.32 ± 42.93	194.68 ± 36.58	331.99 ± 64.67	0.95 ± 0.31	1.41 ± 0.27	2.36 ± 0.51	0.62±0.11	0.64±0.13