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## LAMPIRAN

### Lampiran 1. Karakteristik substrat di Kawasan Karst Maros



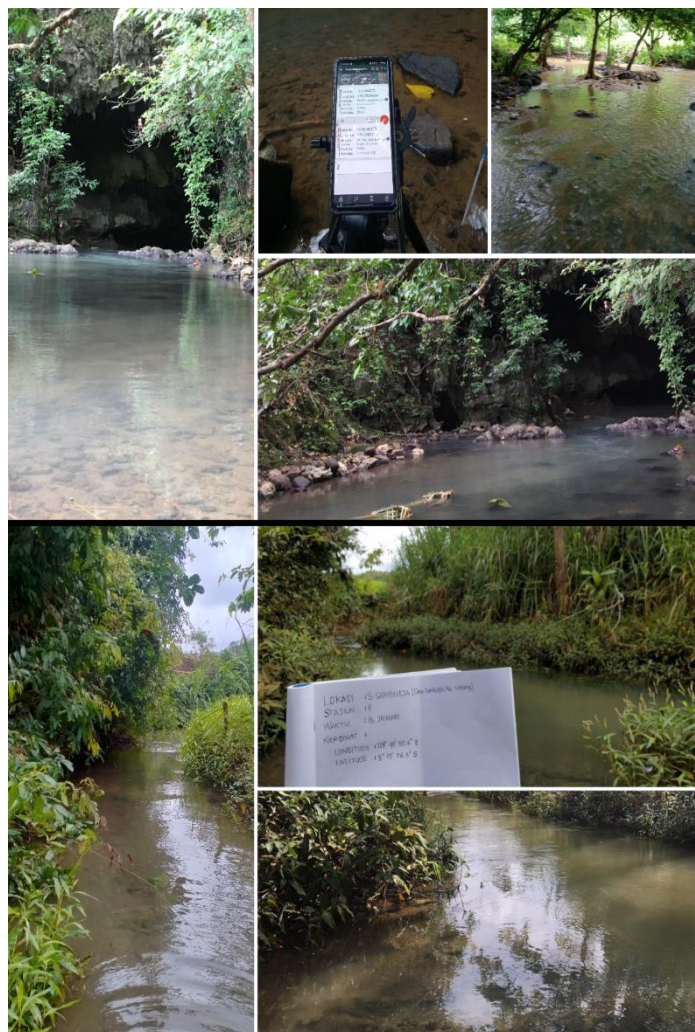
Keterangan: Sungai Bantimurung, Kawasan Karst Maros, Sulawesi Selatan.







Keterangan: Sungai Pattunuang, Kawasan Karst Maros, Sulawesi Selatan.



Keterangan: Sungai Sambueja, Kawasan Karst Maros, Sulawesi Selatan.



**Lampiran 2.** Mekanisme pengambilan sampel ikan



### Lampiran 3. Prosedur pengamatan histologi gonad ikan ancung

a) Fiksasi

Fiksasi histologi merupakan tahap awal dalam pengolahan jaringan yang merupakan proses krusial agar dapat membuat jaringan yang layak untuk diperiksa. Fiksasi dilakukan dengan menggunakan larutan fiksatif, yaitu bahan kimia yang mampu menghentikan aktivitas enzim dan mencegah kerusakan jaringan. Sampel jaringan difiksasi dalam *Buffered Neutral Formalin* atau BNF dengan konsentrasi minimal 10 kali volume jaringan. Fiksasi ini membutuhkan waktu hingga 48 jam.

b) Pemotongan Jaringan Spesimen

Pemotongan Jaringan Spesimen adalah proses dalam pembuatan sajian histologi dari spesimen jaringan. Dalam pemotongan jaringan, digunakan pisau khusus yang disebut mikrotom. Spesimen yang dipilih untuk pemeriksaan, dipotong hingga setebal 0,5 cm. Potongan spesimen kemudian dimasukkan dalam keranjang pemrosesan dengan disertai dengan label penomoran pada setiap spesimen.

c) Prossesing dan Embedding

Prossesing dan Embedding adalah teknik yang digunakan dalam untuk menyiapkan sampel jaringan untuk pemeriksaan lanjutan. Prosesnya melibatkan beberapa langkah, termasuk dehidrasi, kliring, dan infiltrasi. Pada proses tersebut, digunakan kaset penyematan (*Embedding cassette*) dalam pemrosesan, penyisipan, pemotongan, hingga penyimpanan jangka panjang dari spesimen jaringan.

*Embedding cassette* dirancang untuk menahan spesimen jaringan yang terendam dalam larutan cair dengan aman untuk diproses. *Embedding cassette* yang telah diisi oleh spesimen jaringan dimasukkan kedalam *tissue processor* dengan pengaturan waktu sebagai berikut:

| No | Proses    | Reagensia           | Waktu     |
|----|-----------|---------------------|-----------|
| 1  | Fiksasi   | Buffer formalin 10% | 120 menit |
| 2  | Fiksasi   | Buffer formalin 10% | 120 menit |
| 3  | Dehidrasi | Alkohol 70%         | 60 menit  |
| 4  | Dehidrasi | Alkohol 90%         | 60 menit  |



|             |            |              |            |
|-------------|------------|--------------|------------|
| 5           | Dehidrasi  | Alkohol 100% | 60 menit   |
| 6           | Dehidrasi  | Alkohol 100% | 120 menit  |
| 7           | Dehidrasi  | Alkohol 100% | 120 menit  |
| 8           | Clearing   | Toluen       | 60 menit   |
| 9           | Clearing   | Toluen       | 90 menit   |
| 10          | Clearing   | Toluen       | 90 menit   |
| 11          | Impregnasi | Paraffin     | 120 menit  |
| 12          | Impregnasi | Paraffin     | 180 menit  |
| Total waktu |            |              | 1200 menit |

*Embedding cassette* kemudian diambil dari *tissue processor* dan ditempatkan pada wadah yang disediakan oleh alat embedding center. Sampel spesimen diambil satu per satu di blok dengan parafin (untuk menghindari kontaminasi). Cetakan dan keranjang kemudian diletakkan pada sisi kanan dan kiri dispenser parafin. Sampel spesimen dimasukkan ke dalam cetakan, dan alat embedding center digunakan untuk mengisinya dengan parafin.

Cetakan tersebut diberi label dengan nomor sampel spesimen, yang terletak di atas keranjang yang menampung sampel spesimen. Setelah itu cetakan dipindahkan ke bagian dingin. Pisahkan cetakan dari keranjang setelah dibekukan (parafin mengeras). Setelah keranjang dipisahkan, diangkut untuk diiris menggunakan pisau mikrotom atau mikrotome knife.

d) Pematangan

Ambil blok tisu dan letakkan di atas mikrotom. Untuk mencapai permukaan yang rata, blok jaringan diiris dengan mikrotom kasar. Gunakan pisau mikrotom yang tajam untuk memotong setebal 5-6 mikron. Pilih potongan jaringan terbaik dari pita yang dibentuk.

Bagian-bagian yang dipilih diregangkan secara mengambang atau merentang pada *floating out* pada suhu kira-kira 40°C. Suhu optimal akan menyebabkan jaringan meregang sempurna dan tidak berkerut. Berikan 5 gram bubuk agar-agar dalam 100 cc aquadest dan biarkan larut sempurna. Potongan yang layak, tidak tergores atau kusut, dipilih dan difoto dengan slide kaca yang diberi nomor sesuai dengan nomor epi/patologi.

e) Pewarnaan

Sebelum pewarnaan, semua pewarna harus diuji kejernihannya dan disesuaikan dengan jadwal penggantian yang tersedia (3 kali per

penggunaan).

Setelah pewarnaan selesai, buatlah kaca penutup secukupnya sesuai dengan jumlah sediaan yang baru diwarnai, kemudian teteskan 1-2 tetes "entellan" pada setiap kaca penutup. Balikkan dan letakkan di slide yang baru diwarnai, hindari gelembung udara berkembang. Biarkan preparat mengering sepenuhnya setelah ditutup dengan kaca penutup. Bersihkan kaca objek dengan xylol, kemudian beri nomor sesuai nomor pada label kaca objek, dan siap diperiksa di bawah mikroskop cahaya.

Setelah selesai pewarnaan, siapkanlah kaca penutup, *coverslips* secukupnya sesuai dengan jumlah sediaan yang baru saja diwarnai, lalu oleskan 1-2 tetes "entellan" pada setiap kaca penutup. Balikkan dan letakkan di slide sediaan yang baru diwarnai untuk mencegah munculnya gelembung udara. Biarkan sediaan mengering sepenuhnya setelah ditutup dengan kaca penutup. Setelah kaca objek dibersihkan dengan xylol, beri nomor berdasarkan nomor pada label kaca objek, dan siap dilihat di bawah mikroskop cahaya. Adapun tahapan pewarnaan yang dilakukan adalah sebagai berikut:

| Tahapan Pewarnaan Mayers Hematoxylin Eosin |                            |                   |
|--|----------------------------|-------------------|
| No   | Reagensia                  | time              |
| 1  | Xylol I                    | 2 menit           |
| 2  | Xylol II                   | 2 menit           |
| 3  | Alkohol 100% I             | 1 menit           |
| 4  | Alkohol 100% II            | 1 menit           |
| 5  | Alkohol 95% I              | 1 menit           |
| 6  | Alkohol 95% II             | 1 menit           |
| 7  | Mayer's Haematoxylin       | 15 menit          |
| 8  | Perendaman dalam Tap Water | 20 menit          |
| 9  | Masukkan dalam Eosin       | 20 detik -2 menit |
| 10   | Alkohol 95 % III           | 2 menit           |
| 11   | Alkohol 95 % IV            | 2 menit           |
| 12   | Alkohol 100% III           | 2 menit           |
| 13   | Alkohol 100% IV            | 2 menit           |
| 14   | Akohol 100%V               | 2 menit           |
| 15   | Xylol III                  | 2 menit           |
| 16   | Xylol IV                   | 2 menit           |
| 17   | Xylol V                    | 2 menit           |

#### f) Pemeriksaan Mikroskopik

Spesimen diperiksa di bawah mikroskop untuk memeriksa apakah ada perubahan secara morfologi. Data pemeriksaan mikroskopis dicatat dan kemudian dimasukkan ke dalam perangkat lunak komputer yang dapat memberikan respon diagnosis yang jelas.

**Lampiran 4.** Uji Chi-square ikan ancung (*Dermogenys orientalis*) jantan dan betina di Sungai Bantimurung, Sungai Pattunuang dan Sungai Sambueja, Kawasan Karst Maros, Sulawesi Selatan.

**1. Sungai Bantimurung**

| Waktu Pengambilan Sampel | Jantan  | Betina  | Total |
|--------------------------|---------|---------|-------|
| Oktober 2021             | 25      | 49      | 74    |
|                          | 26.1792 | 47.8208 |       |
| November 2021            | 30      | 75      | 105   |
|                          | 37.1462 | 67.8538 |       |
| Desember 2021            | 59      | 70      | 129   |
|                          | 45.6368 | 83.3632 |       |
| Januari 2022             | 40      | 94      | 134   |
|                          | 47.4057 | 86.5943 |       |
| Februari 2022            | 35      | 47      | 82    |
|                          | 29.0094 | 52.9906 |       |
| Maret 2022               | 36      | 76      | 112   |
|                          | 39.6226 | 72.3774 |       |
| Total                    | 225     | 411     | 636   |

|         |         | nilai $\chi^2$ |        | $\chi^2$ hitung | $\chi^2$ tabel |
|---------|---------|----------------|--------|-----------------|----------------|
| Jantan  | Betina  | Jantan         | Betina |                 |                |
| 26.1792 | 47.8208 | 0.0531         | 0.0291 | 12.4818         | 11.0705        |
| 37.1462 | 67.8538 | 1.3748         | 0.7526 |                 |                |
| 45.6368 | 83.3632 | 3.9130         | 2.1421 |                 |                |
| 47.4057 | 86.5943 | 1.1569         | 0.6333 |                 |                |
| 29.0094 | 52.9906 | 1.2371         | 0.6772 |                 |                |
| 39.6226 | 72.3774 | 0.3312         | 0.1813 |                 |                |

$$\chi^2 \text{ hit} = \frac{(25-25.1792)^2}{25.1792} + \frac{(30-37.1462)^2}{37.1462} + \frac{(59-45.6368)^2}{45.6368} + \frac{(40-47.4057)^2}{47.4057} + \frac{(35-29.0094)^2}{29.0094} + \frac{(36-39.6226)^2}{39.6226} + \frac{(49-47.8208)^2}{47.8208} + \frac{(75-67.8538)^2}{67.8538} + \frac{(70-83.3632)^2}{83.3632} + \frac{(94-86.5943)^2}{86.5943} + \frac{(47-52.9906)^2}{52.9906} + \frac{(76-72.3774)^2}{72.3774}$$

$$\chi^2 \text{ hit} = 0.0531 + 1.3748 + 3.9130 + 1.1569 + 1.2371 + 0.3312 + 0.0291 + 0.7526 + 2.1421 + 0.6333 + 0.6772 + 0.1813$$

$$\chi^2 \text{ hitung} = 12.4818$$

$$\chi^2 \text{ tabel } (0,05:5) = 11,070.$$

Diketahui bahwa nilai  $\chi^2$  hitung lebih besar dari nilai  $\chi^2$  tabel. Maka, nisbah kelamin ikan ancullung jantan dan betina yang tertangkap di Sungai Bantimurung berdasarkan waktu pengambilan sampel berbeda nyata (nisbah kelamin bukan 1:1).

## 2. Sungai Pattunuang

| Waktu Pengambilan Sampel | Jantan | Betina | Total |
|--------------------------|--------|--------|-------|
| Oktober 2021             | 25     | 53     | 78    |
|                          | 27.48  | 50.52  |       |
| November 2021            | 32     | 50     | 82    |
|                          | 28.89  | 53.11  |       |
| Desember 2021            | 50     | 60     | 110   |
|                          | 38.75  | 71.25  |       |
| Januari 2022             | 17     | 59     | 76    |
|                          | 26.77  | 49.23  |       |
| Februari 2022            | 16     | 29     | 45    |
|                          | 15.85  | 29.15  |       |
| Maret 2022               | 21     | 45     | 66    |
|                          | 23.25  | 42.75  |       |
| Total                    | 161    | 296    | 457   |

| Jantan  | Betina  | nilai $\chi^2$ |        | $\chi^2$ hitung | $\chi^2$ tabel |
|---------|---------|----------------|--------|-----------------|----------------|
|         |         | Jantan         | Betina |                 |                |
| 27.4792 | 50.5208 | 0.2237         | 0.1217 | 11.7507         | 11.0705        |
| 28.8884 | 53.1116 | 0.3352         | 0.1823 |                 |                |
| 38.7527 | 71.2473 | 3.2643         | 1.7755 |                 |                |
| 26.7746 | 49.2254 | 3.5684         | 1.9409 |                 |                |
| 15.8534 | 29.1466 | 0.0014         | 0.0007 |                 |                |
| 23.2516 | 42.7484 | 0.2180         | 0.1186 |                 |                |

$$\chi^2 \text{ hit} = \frac{(25-27.48)^2}{27.48} + \frac{(32-28.89)^2}{28.89} + \frac{(50-38.75)^2}{38.75} + \frac{(17-26.77)^2}{26.77}$$

$$+ \frac{(16-15.85)^2}{15.85} + \frac{(21-23.25)^2}{23.25} + \frac{(53-50.52)^2}{50.52} + \frac{(50-53.11)^2}{53.11}$$

$$+ \frac{(60-71.25)^2}{71.25} + \frac{(59-49.23)^2}{49.23} + \frac{(29-29.15)^2}{29.15} + \frac{(45-42.75)^2}{42.75}$$

$$\chi^2 \text{ hit} = 0.2237 + 0.3352 + 3.2643 + 3.5684 + 0.0014$$

$$+ 0.2180 + 0.1217 + 0.1823 + 1.7755 + 1.9409$$

$$+ 0.0007 + 0.1186$$

$$\chi^2 \text{ hitung} = 11.75$$

$$\chi^2 \text{ tabel} (0,05:5) = 11,07$$

Diketahui bahwa nilai  $\chi^2$  hitung lebih besar dari nilai  $\chi^2$  tabel. Maka, nisbah kelamin ikan ancullung jantan dan betina yang tertangkap di Sungai Pattunuang berdasarkan waktu pengambilan sampel berbeda nyata (nisbah kelamin bukan 1:1).

### 3. Sungai Sambueja

| Waktu Pengambilan Sampel | Jantan | Betina | Total |
|--------------------------|--------|--------|-------|
| Oktober 2021             | 14     | 36     | 50    |
|                          | 17.21  | 32.79  |       |
| November 2021            | 18     | 46     | 64    |
|                          | 22.03  | 41.97  |       |
| Desember 2021            | 36     | 40     | 76    |
|                          | 26.16  | 49.84  |       |
| Januari 2022             | 17     | 51     | 68    |
|                          | 23.41  | 44.59  |       |
| Februari 2022            | 16     | 34     | 50    |
|                          | 17.21  | 32.79  |       |
| Maret 2022               | 25     | 33     | 58    |
|                          | 19.97  | 38.03  |       |
| Total                    | 126    | 240    | 366   |

| Jantan   | Betina   | nilai $\chi^2$ |        | $\chi^2$ hitung | $\chi^2$ tabel |
|----------|----------|----------------|--------|-----------------|----------------|
|          |          | Jantan         | Betina |                 |                |
| 17.21311 | 32.78689 | 0.5998         | 0.3149 |                 |                |
| 22.03279 | 41.96721 | 0.7381         | 0.3875 |                 |                |
| 26.16393 | 49.83607 | 3.6978         | 1.9413 | 12.42081        | 11.0705        |
| 23.40984 | 44.59016 | 1.7551         | 0.9214 |                 |                |
| 17.21311 | 32.78689 | 0.0855         | 0.0449 |                 |                |
| 19.96721 | 38.03279 | 1.2685         | 0.6660 |                 |                |

$$\chi^2 \text{ hit} = \frac{(14-17.21)^2}{17.21} + \frac{(18-22.03)^2}{22.03} + \frac{(36-26.16)^2}{26.16} + \frac{(17-23.41)^2}{23.41}$$

$$+ \frac{(16-17.21)^2}{17.21} + \frac{(25-19.97)^2}{19.97} + \frac{(36-32.79)^2}{32.79} + \frac{(46-41.97)^2}{41.97}$$

$$+ \frac{(40-49.84)^2}{49.84} + \frac{(51-44.59)^2}{44.59} + \frac{(34-32.79)^2}{32.79} + \frac{(33-38.03)^2}{38.03}$$

$$\chi^2 \text{ hit} = 0.5998 + 0.7381 + 3.6978 + 1.7551 + 0.0855$$

$$+ 1.2685 + 0.3149 + 0.3875 + 1.9413 + 0.9214$$

$$+ 0.0449 + 0.6660$$

$$\chi^2 \text{ hitung} = 12.4208$$

$$\chi^2 \text{ tabel } (0,05;5) = 11,070$$

Diketahui bahwa nilai  $\chi^2$  hitung lebih besar dari nilai  $\chi^2$  tabel. Maka, nisbah kelamin ikan ancullung jantan dan betina yang tertangkap di Sungai Sambueja berdasarkan waktu pengambilan sampel berbeda nyata (nisbah kelamin bukan 1:1).

**Lampiran 5.** Data regresi Bayes ukuran pertama kali matang gonad ikan ancung (*Dermogenys orientalis*) di Sungai Bantimurung, Sungai Pattunuang dan Sungai Sambueja, Kawasan Karst Maros, Sulawesi Selatan.

### 1. Sungai Bantimurung

| Bayesian regression (Male)   |                          |
|------------------------------|--------------------------|
| Formula                      | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)           | A -45.9924               |
|                              | B 0.9590                 |
|                              | L50 47.9778              |
|                              | R2 0.7401                |
| Size at gonad maturity       | 48                       |
| Confidence intervals         | 47.5 - 48.5              |
| Rsquare                      | 0.74                     |
| Bayesian regression (Female) |                          |
| Formula                      | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)           | A -24.4324               |
|                              | B 0.4230                 |
|                              | L50 57.7685              |
|                              | R2 0.8265                |
| Size at gonad maturity       | 57.8                     |
| Confidence intervals         | 56.3 - 59.1              |
| Rsquare                      | 0.83                     |

### 2. Sungai Pattunuang

| Bayesian regression (Male)   |                          |
|------------------------------|--------------------------|
| Formula                      | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)           | A -23.2482               |
|                              | B 0.4641                 |
|                              | L50 50.0951              |
|                              | R2 0.7515                |
| Size at gonad maturity       | 50.1                     |
| Confidence intervals         | 48.9 - 51.3              |
| Rsquare                      | 0.75                     |
| Bayesian regression (Female) |                          |
| Formula                      | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)           | A -28.0120               |
|                              | B 0.5171                 |
|                              | L50 54.2782              |
|                              | R2 0.7833                |
| Size at gonad maturity       | 54.3                     |
| Confidence intervals         | 53.3 - 55.3              |
| Rsquare                      | 0.78                     |

### 3. Sungai Sambueja

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| Bayesian regression (Male) |                          |
|----------------------------|--------------------------|
| Formula                    | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)         | A -27.5911               |
|                            | B 0.5725                 |
|                            | L50 48.3261              |
|                            | R2 0.7118                |
| Size at gonad maturity     | 48.3                     |
| Confidence intervals       | 47.3 - 49.3              |
| Rsquare                    | 0.71                     |

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| Bayesian regression (Female) |                          |
|------------------------------|--------------------------|
| Formula                      | $Y = 1/1+\exp-(A + B*X)$ |
| Bootstrap (Median)           | A -27.6827               |
|                              | B 0.5207                 |
|                              | L50 53.5514              |
|                              | R2 0.8167                |
| Size at gonad maturity       | 53.6                     |
| Confidence intervals         | 52.2 - 54.9              |
| Rsquare                      | 0.82                     |

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**Lampiran 6.** Uji Kruskal Wallis Indeks Kematangan Gonad ikan jantan dan betina di Sungai Bantimurung, Sungai Pattunuang dan Sungai Sambueja, Kawasan Karst Maros, Sulawesi Selatan.

| <b>Test Statistics<sup>a,b</sup></b> |              |
|--------------------------------------|--------------|
| GSI Male (S. Bantimurung)            |              |
| Kruskal-Wallis H                     | 2.794        |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.732</b> |
| GSI Female (S. Bantimurung)          |              |
| Kruskal-Wallis H                     | 13.254       |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.021</b> |
| <b>Test Statistics<sup>a,b</sup></b> |              |
| GSI Male Pattunuang River            |              |
| Kruskal-Wallis H                     | 8.042        |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.154</b> |
| GSI Female Pattunuang River          |              |
| Kruskal-Wallis H                     | 29.694       |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.000</b> |

a. Kruskal Wallis Test

b. Grouping Variable: Month

| <b>Test Statistics<sup>a,b</sup></b> |              |
|--------------------------------------|--------------|
| GSI Female Sambueja River            |              |
| Kruskal-Wallis H                     | 6.744        |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.240</b> |
| GSI Male Sambueja River              |              |
| Kruskal-Wallis H                     | 14.258       |
| df                                   | 5            |
| Asymp. Sig.                          | <b>0.014</b> |

a. Kruskal Wallis Test

b. Grouping Variable: Month



**Lampiran 7.** Uji statistik hubungan antara fekunditas terhadap panjang tubuh dan bobot tubuh ikan ancullung *Dermogenys orientalis* di Sungai Bantimurung

**Uji statistik hubungan antara fekunditas telur terhadap panjang tubuh.**

| Regression Statistics |              |                |          |          |                |           |
|-----------------------|--------------|----------------|----------|----------|----------------|-----------|
| Multiple R            | 0.77586865   |                |          |          |                |           |
| R Square              | 0.601972163  |                |          |          |                |           |
| Adjusted R Square     | 0.592715701  |                |          |          |                |           |
| Standard Error        | 6.955458031  |                |          |          |                |           |
| Observations          | 45           |                |          |          |                |           |
| ANOVA                 |              |                |          |          |                |           |
|                       | df           | SS             | MS       | F        | Significance F |           |
| Regression            | 1            | 3146.175074    | 3146.175 | 65.03264 | 3.84468E-10    |           |
| Residual              | 43           | 2080.271046    | 48.3784  |          |                |           |
| Total                 | 44           | 5226.44612     |          |          |                |           |
|                       | Coefficients | Standard Error | t Stat   | P-value  | Lower 95%      | Upper 95% |
| Intercept             | 11.307624    | 7.225700284    | 1.564917 | 0.124933 | -3.264389394   | 25.87964  |
| X Variable 1          | 1.311939798  | 0.162685257    | 8.064282 | 3.84E-10 | 0.983853709    | 1.640026  |

**Uji statistik hubungan antara fekunditas telur terhadap bobot tubuh.**

| Regression Statistics |              |                |          |          |                |           |
|-----------------------|--------------|----------------|----------|----------|----------------|-----------|
| Multiple R            | 0.726677342  |                |          |          |                |           |
| R Square              | 0.528059959  |                |          |          |                |           |
| Adjusted R Square     | 0.51708461   |                |          |          |                |           |
| Standard Error        | 0.584805531  |                |          |          |                |           |
| Observations          | 45           |                |          |          |                |           |
| ANOVA                 |              |                |          |          |                |           |
|                       | df           | SS             | MS       | F        | Significance F |           |
| Regression            | 1            | 16.45461824    | 16.45462 | 48.11327 | 1.59094E-08    |           |
| Residual              | 43           | 14.70589288    | 0.341998 |          |                |           |
| Total                 | 44           | 31.16051111    |          |          |                |           |
|                       | Coefficients | Standard Error | t Stat   | P-value  | Lower 95%      | Upper 95% |
| Intercept             | -2.765978895 | 0.607527135    | -4.55285 | 4.31E-05 | -3.991174129   | -1.54078  |
| X Variable 1          | 0.094878185  | 0.013678357    | 6.936373 | 1.59E-08 | 0.067293149    | 0.122463  |

**Lampiran 8.** Uji statistik hubungan antara fekunditas terhadap panjang tubuh, bobot tubuh dan bobot gonad ikan ancullung *Dermogenys orientalis* di Sungai Pattunuang

**Uji statistik hubungan antara fekunditas telur terhadap panjang tubuh**

| <i>Regression Statistics</i> |                     |                       |               |                |                       |                  |
|------------------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|
| Multiple R                   | 0.741172486         |                       |               |                |                       |                  |
| R Square                     | 0.549336654         |                       |               |                |                       |                  |
| Adjusted R Square            | 0.539321913         |                       |               |                |                       |                  |
| Standard Error               | 6.755874297         |                       |               |                |                       |                  |
| Observations                 | 47                  |                       |               |                |                       |                  |
| <i>ANOVA</i>                 |                     |                       |               |                |                       |                  |
|                              | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | <i>Significance F</i> |                  |
| Regression                   | 1                   | 2503.582895           | 2503.5829     | 54.85281       | 2.555E-09             |                  |
| Residual                     | 45                  | 2053.882688           | 45.641838     |                |                       |                  |
| Total                        | 46                  | 4557.465583           |               |                |                       |                  |
|                              | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i>      | <i>Upper 95%</i> |
| Intercept                    | 45.66584076         | 4.867196346           | 9.3823708     | 3.69E-12       | 35.862804             | 55.46888         |
| X Variable 1                 | 0.878324767         | 0.118592084           | 7.4062681     | 2.55E-09       | 0.639468              | 1.117181         |

**Uji statistik hubungan antara fekunditas telur terhadap bobot tubuh**

| <i>Regression Statistics</i> |                     |                       |               |                |                       |                  |
|------------------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|
| Multiple R                   | 0.717909            |                       |               |                |                       |                  |
| R Square                     | 0.515394            |                       |               |                |                       |                  |
| Adjusted R Square            | 0.504625            |                       |               |                |                       |                  |
| Standard Error               | 0.708991            |                       |               |                |                       |                  |
| Observations                 | 47                  |                       |               |                |                       |                  |
| <i>ANOVA</i>                 |                     |                       |               |                |                       |                  |
|                              | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | <i>Significance F</i> |                  |
| Regression                   | 1                   | 24.05714              | 24.05714      | 47.85894       | 1.35E-08              |                  |
| Residual                     | 45                  | 22.62005              | 0.502668      |                |                       |                  |
| Total                        | 46                  | 46.67719              |               |                |                       |                  |
|                              | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i>      | <i>Upper 95%</i> |
| Intercept                    | -1.74086            | 0.510785              | -3.4082       | 0.001388       | -2.76963              | -0.71208         |
| X Variable 1                 | 0.086099            | 0.012446              | 6.918016      | 1.35E-08       | 0.061032              | 0.111165         |

**Lampiran 8.** Uji statistik hubungan antara fekunditas terhadap panjang tubuh, bobot tubuh dan bobot gonad ikan ancullung *Dermogenys orientalis* di Sungai Sambueja.

**Uji statistik hubungan antara fekunditas telur terhadap panjang tubuh**

| <i>Regression Statistics</i> |                     |                       |               |                |                       |                  |
|------------------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|
| Multiple R                   | 0.7845              |                       |               |                |                       |                  |
| R Square                     | 0.6154              |                       |               |                |                       |                  |
| Adjusted R Square            | 0.6065              |                       |               |                |                       |                  |
| Standard Error               | 4.5415              |                       |               |                |                       |                  |
| Observations                 | 45                  |                       |               |                |                       |                  |
| <i>ANOVA</i>                 |                     |                       |               |                |                       |                  |
|                              | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | <i>Significance F</i> |                  |
| Regression                   | 1.0000              | 1419.1038             | 1419.1038     | 68.8034        | 0.0000                |                  |
| Residual                     | 43.0000             | 886.8962              | 20.6255       |                |                       |                  |
| Total                        | 44.0000             | 2306.0000             |               |                |                       |                  |
|                              | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i>      | <i>Upper 95%</i> |
| Intercept                    | 2.2456              | 3.9668                | 0.5661        | 0.5743         | -5.7543               | 10.2454          |
| X Variable 1                 | 0.4622              | 0.0557                | 8.2948        | 0.0000         | 0.3498                | 0.5745           |

**Uji statistik hubungan antara fekunditas telur terhadap bobot tubuh**

| <i>Regression Statistics</i> |                     |                       |               |                |                       |                  |
|------------------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|
| Multiple R                   | 0.7706              |                       |               |                |                       |                  |
| R Square                     | 0.5938              |                       |               |                |                       |                  |
| Adjusted R Square            | 0.5844              |                       |               |                |                       |                  |
| Standard Error               | 4.6673              |                       |               |                |                       |                  |
| Observations                 | 45                  |                       |               |                |                       |                  |
| <i>ANOVA</i>                 |                     |                       |               |                |                       |                  |
|                              | <i>df</i>           | <i>SS</i>             | <i>MS</i>     | <i>F</i>       | <i>Significance F</i> |                  |
| Regression                   | 1.0000              | 1369.2961             | 1369.2961     | 62.8584        | 0.0000                |                  |
| Residual                     | 43.0000             | 936.7039              | 21.7838       |                |                       |                  |
| Total                        | 44.0000             | 2306.0000             |               |                |                       |                  |
|                              | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i>      | <i>Upper 95%</i> |
| Intercept                    | 25.5269             | 1.3465                | 18.9582       | 0.0000         | 22.8115               | 28.2424          |
| X Variable 1                 | 6.1699              | 0.7782                | 7.9283        | 0.0000         | 4.6005                | 7.7394           |

**Lampiran 10.** Hasil analisis parameter kualitas perairan di lokasi pengambilan sampel

**Parameter kualitas air di Sungai Bantimurung**

| Waktu       | Stasiun | Suhu rataan (°C) | Kecepatan arus rataan (m/d) | pH rataan   |
|-------------|---------|------------------|-----------------------------|-------------|
| Oktober 21  | I       | 27.10 ± 0.14     | 0.39 ± 0.01                 | 7.27 ± 0.10 |
|             | II      | 27.28 ± 0.39     | 0.30 ± 0.02                 | 7.47 ± 0.12 |
| November 21 | I       | 27.03 ± 0.04     | 0.45 ± 0.05                 | 7.28 ± 0.06 |
|             | II      | 27.60 ± 0.28     | 0.26 ± 0.06                 | 7.35 ± 0.21 |
| Desember 21 | I       | 27.19 ± 0.16     | 0.45 ± 0.01                 | 7.36 ± 0.10 |
|             | II      | 27.45 ± 0.21     | 0.34 ± 0.01                 | 7.19 ± 0.09 |
| Januari 22  | I       | 27.12 ± 0.04     | 0.37 ± 0.05                 | 7.41 ± 0.16 |
|             | II      | 27.38 ± 0.32     | 0.32 ± 0.04                 | 7.27 ± 0.13 |
| Februari 22 | I       | 27.18 ± 0.32     | 0.40 ± 0.08                 | 7.32 ± 0.12 |
|             | II      | 28.03 ± 0.11     | 0.29 ± 0.02                 | 7.21 ± 0.10 |
| Maret 22    | I       | 27.26 ± 0.07     | 0.45 ± 0.03                 | 7.44 ± 0.13 |
|             | II      | 27.79 ± 0.30     | 0.23 ± 0.04                 | 7.35 ± 0.07 |

**Parameter kualitas air di Sungai Pattunuang**

| Waktu       | Stasiun | Suhu rataan (°C) | Kecepatan Arus rataan (m/d) | pH rataan   |
|-------------|---------|------------------|-----------------------------|-------------|
| Oktober 21  | I       | 26.90 ± 0.14     | 0.42 ± 0.12                 | 7.28 ± 0.04 |
|             | II      | 27.78 ± 0.32     | 0.28 ± 0.05                 | 7.32 ± 0.18 |
| November 21 | I       | 27.08 ± 0.04     | 0.45 ± 0.04                 | 7.37 ± 0.13 |
|             | II      | 27.25 ± 0.35     | 0.30 ± 0.03                 | 7.29 ± 0.07 |
| Desember 21 | I       | 26.85 ± 0.21     | 0.36 ± 0.11                 | 7.33 ± 0.07 |
|             | II      | 27.65 ± 0.49     | 0.32 ± 0.03                 | 7.40 ± 0.13 |
| Januari 22  | I       | 27.25 ± 0.21     | 0.39 ± 0.08                 | 7.46 ± 0.06 |
|             | II      | 27.35 ± 0.21     | 0.24 ± 0.01                 | 7.28 ± 0.11 |
| Februari 22 | I       | 26.95 ± 0.07     | 0.33 ± 0.09                 | 7.42 ± 0.06 |
|             | II      | 27.87 ± 0.21     | 0.24 ± 0.07                 | 7.26 ± 0.04 |
| Maret 22    | I       | 27.28 ± 0.17     | 0.46 ± 0.06                 | 7.27 ± 0.18 |
|             | II      | 27.50 ± 0.28     | 0.33 ± 0.03                 | 7.10 ± 0.04 |

**Parameter kualitas air di Sungai Sambueja**

| Waktu       | Stasiun | Suhu rataan (°C) | Kecepatan arus rataan (m/d) | pH rataan   |
|-------------|---------|------------------|-----------------------------|-------------|
| Oktober 21  | I       | 26.80 ± 0.14     | 0.35 ± 0.04                 | 7.39 ± 0.28 |
|             | II      | 27.09 ± 0.27     | 0.24 ± 0.05                 | 7.22 ± 0.03 |
| November 21 | I       | 27.05 ± 0.07     | 0.43 ± 0.03                 | 7.34 ± 0.11 |
|             | II      | 27.20 ± 0.14     | 0.31 ± 0.01                 | 7.21 ± 0.09 |
| Desember 21 | I       | 26.81 ± 0.29     | 0.50 ± 0.01                 | 7.26 ± 0.17 |
|             | II      | 27.03 ± 0.04     | 0.42 ± 0.04                 | 7.15 ± 0.06 |
| Januari 22  | I       | 26.93 ± 0.04     | 0.27 ± 0.05                 | 7.40 ± 0.15 |
|             | II      | 27.57 ± 0.10     | 0.20 ± 0.02                 | 7.23 ± 0.16 |
| Februari 22 | I       | 27.05 ± 0.07     | 0.40 ± 0.04                 | 7.28 ± 0.15 |
|             | II      | 27.20 ± 0.28     | 0.28 ± 0.04                 | 7.16 ± 0.08 |
| Maret 22    | I       | 26.85 ± 0.21     | 0.34 ± 0.06                 | 7.51 ± 0.11 |
|             | II      | 27.50 ± 0.14     | 0.20 ± 0.01                 | 7.14 ± 0.05 |