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LAMPIRAN

Lampiran 1. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) jantan di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.97375
R Square	0.948188
Adjusted R Square	0.947999
Standard Error	0.04626
Observations	275

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	10.69178	10.69178	4996.097	1.6E-177
Residual	273	0.584227	0.00214		
Total	274	11.276			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.63125	0.098353	-47.088	4.5E-133	-4.82488	-4.43762	-4.82488	-4.43762
X Variable 1	2.787516	0.039437	70.68307	1.6E-177	2.709877	2.865155	2.709877	2.865155

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.6312 + 2.7875 X$$

$$\text{Log } W = -4.6312 + 2.7875 L$$

$$\text{Antilog } (-4.6312) = 0.00002$$

$$\text{Sehingga } W = 0.00002 L^{2.7875}$$

Lampiran 2. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) betina di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.960916
R Square	0.92336
Adjusted R Square	0.922756
Standard Error	0.056408
Observations	129

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	4.868558	4.868558	1530.095	1.07E-72
Residual	127	0.404097	0.003182		
Total	128	5.272655			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.86852	0.178184	-27.323	5.04E-55	-5.22111	-4.51593	-5.22111	-4.51592576
X Variable 1	2.8940	0.073984	39.11643	1.07E-72	2.747588	3.04039	2.747588	3.040389716

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.8685 + 2.8940X$$

$$\text{Log } W = -4.6312 + 2.8940 L$$

$$\text{Antilog } (-4.6312) = 0.00001$$

$$\text{Sehingga } W = 0.00002 L^{2.8940}$$

Lampiran 3. Analisis regresi hubungan panjang bobot gabungan ikan sapu-sapu (*Pterygoplichthys pardalis*) di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.975025339
R Square	0.950674412
Adjusted R Square	0.950551711
Standard Error	0.050477458
Observations	404

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	19.74151795	19.7415	7747.93	8.3E-265
Residual	402	1.024285469	0.00255		
Total	403	20.76580342			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.5482	0.077249056	-58.877	9E-200	-4.700034	-4.396309	-4.7000343	-4.3963092
X Variable 1	2.7563	0.031313537	88.0223	8E-265	2.694731	2.8178488	2.6947313	2.81784876

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.5482 + 2.7563X$$

$$\text{Log } W = -4.5482 + 2.7563 L$$

$$\text{Antilog } (-4.5482) = 0.00003$$

$$\text{Sehingga } W = 0.00003 L^{2.7563}$$

Lampiran 4. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) jantan pada bulan Januari di Danau Tempe.

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.98223456
R Square	0.96478473
Adjusted R Square	0.96226936
Standard Error	0.01935338
Observations	16

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.143661782	0.14366178	383.555	1.429E-11
Residual	14	0.005243748	0.00037455		
Total	15	0.14890553			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-3.9902917	0.316747457	12.5977071	5E-09	-4.6696474	-3.31094	-4.6696474	-3.310936
X Variable 1	2.53469279	0.129423036	19.5845567	1.4E-11	2.25710798	2.812278	2.25710798	2.8122776

Persamaan linier :

$$Y = a+bx$$

$$Y = -3.9903 + 2.5347X$$

$$\text{Log } W = -3.9903 + 2.5347 L$$

$$\text{Antilog } (-3.9903) = 0.0001$$

$$\text{Sehingga } W = 0.0001 L^{2.5347}$$

Lampiran 5. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) betina pada bulan Januari di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.99534
R Square	0.99071
Adjusted R Square	0.98761
Standard Error	0.01803
Observations	5

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.10392	0.10392	319.807	0.00038
Residual	3	0.00097	0.00032		
Total	4	0.10489			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.09445	0.35218	-11.626	0.00137	-5.2153	-2.9737	-5.2153	-2.9737
X Variable 1	2.59371	0.14504	17.8831	0.00038	2.13214	3.0553	2.13214	3.05528

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.0945 + 2.5937X$$

$$\text{Log } W = -4.0945 + 2.5937 L$$

$$\text{Antilog } (-4.0945) = 0.0001$$

$$\text{Sehingga } W = 0.0001 L^{2.5937}$$

Lampiran 6. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) jantan pada bulan Februari di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.95824826
R Square	0.91823973
Adjusted R Square	0.91770183
Standard Error	0.0463691
Observations	154

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3.67041	3.67041	1707.09	1.5E-84
Residual	152	0.326814	0.00215		
Total	153	3.997224			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.4462	0.164646	-27.004	7E-60	-4.7715	-4.1209	-4.7715	-4.12088
X Variable 1	2.71558488	0.065726	41.317	1.5E-84	2.58573	2.84544	2.58573	2.845439

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.4462 + 2.7156X$$

$$\text{Log } W = -4.4462 + 2.7156 L$$

$$\text{Antilog } (-4.4462) = 0.00004$$

$$\text{Sehingga } W = 0.00004 L^{2.7156}$$

Lampiran 7. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) betina pada bulan Februari di Danau Tempe

SUMAMRY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.929562822
R Square	0.864087039
Adjusted R Square	0.859400386
Standard Error	0.048889645
Observations	31

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.44068512	0.44069	184.372	4.3E-14
Residual	29	0.06931572	0.00239		
Total	30	0.51000085			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-3.55821129	0.42600851	-8.3524	3.3E-09	-4.4295	-2.6869	-4.4295	-2.68693
X Variable 1	2.3710	0.17461463	13.5784	4.3E-14	2.01385	2.72811	2.01385	2.72811

Persamaan linier :

$$Y = a+bx$$

$$Y = -3.5582 + 2.3710X$$

$$\text{Log } W = -3.5582 + 2.3710 L$$

$$\text{Antilog } (-3.5582) = 0.00003$$

$$\text{Sehingga } W = 0.00003 L^{2.3710}$$

Lampiran 8. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) jantan pada bulan Juni di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.982950736
R Square	0.966192149
Adjusted R Square	0.965863917
Standard Error	0.046507263
Observations	105

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6.36685	6.36685	2943.63	1.4E-77
Residual	103	0.22278	0.00216		
Total	104	6.58963			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	4.761319759	0.12986	-36.666	6.3E-61	-5.0189	-4.5038	-5.0189	-4.50378
X Variable 1	2.835617141	0.05226	54.2552	1.4E-77	2.73196	2.93927	2.73196	2.939271

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.7613 + 2.8356X$$

$$\text{Log } W = -4.7613 + 2.8356 L$$

$$\text{Antilog } (-4.7613) = 0.00002$$

$$\text{Sehingga } W = 0.00002 L^{2.8356}$$

Lampiran 9. Analisis regresi hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) betina pada bulan Juni di Danau Tempe

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.968006596
R Square	0.93703677
Adjusted R Square	0.936344866
Standard Error	0.051933773
Observations	93

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3.65267	3.65267	1354.29	2E-56
Residual	91	0.24544	0.0027		
Total	92	3.89811			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-4.83896134	0.1873	-25.835	1.1E-43	-5.211	-4.4669	-5.211	-4.46691
X Variable 1	2.875825912	0.07815	36.8007	2E-56	2.7206	3.03105	2.7206	3.031053

Persamaan linier :

$$Y = a+bx$$

$$Y = -4.8390 + 2.8758X$$

$$\text{Log } W = -4.8390 + 2.8758 L$$

$$\text{Antilog } (-4.8390) = 0.00001$$

$$\text{Sehingga } W = 0.00001 L^{2.8758}$$

Lampiran 10. Uji t hubungan panjang bobot ikan sapu-sapu (*Pterygoplichthys pardalis*) di Danau Tempe

Jantan

$$\begin{aligned}t \text{ hitung} &= \frac{3-b}{Sb} \\ &= \frac{3- 2.7875}{0.3944} \\ &= 5.3880 \\ t_{0.05(275)} &= 1.9687\end{aligned}$$

karena $t_{hitung} > t_{tabel}$ maka kesimpulannya adalah pola pertumbuhan ikan sapu-sapu jantan bersifat hipoalometrik.

Betina

$$\begin{aligned}t \text{ hitung} &= \frac{3-b}{Sb} \\ &= \frac{3- 2.8940}{0.0740} \\ &= 1.4329 \\ t_{0.05(275)} &= 1.9788\end{aligned}$$

karena $t_{hitung} < t_{tabel}$ maka kesimpulannya adalah pola pertumbuhan ikan sapu-sapu jantan bersifat isometrik

Jantan dan betina

$$\begin{aligned}t \text{ hitung} &= \frac{3-b}{Sb} \\ &= \frac{3 - 2.7563}{0.0313} \\ &= 7.7829 \\ t_{0.05(275)} &= 1.9659\end{aligned}$$

karena $t_{hitung} > t_{tabel}$ maka kesimpulannya adalah pola pertumbuhan ikan sapu-sapu jantan bersifat Hipoalometrik

Lampiran 11. Uji statistik koefisien regresi seluruh ikan sapu-sapu (*Pterygoplichthys pardalis*) di Danau Tempe

$$\begin{aligned}
 t &= \frac{(b_1 - b_2)}{\sqrt{\text{Var}(b_1 - b_2)}} \\
 &= \frac{(2.8940 - 2.7875)}{\sqrt{0.0060}} \\
 &= 1.3693
 \end{aligned}$$

$$\begin{aligned}
 \text{var}(b_1 - b_2) &= \frac{s_p^2}{\sum(X_1 - \bar{X}_1)^2} + \frac{s_p^2}{\sum(X_2 - \bar{X}_2)^2} \\
 &= \frac{0.0025}{0.5813} + \frac{0.0025}{1.3760} \\
 &= 0.0060
 \end{aligned}$$

$$\begin{aligned}
 S_p^2 &= \frac{JKS_1 + JKS_2}{(n_1 - 2) + (n_2 - 2)} \\
 &= \frac{0.4041 + 0.5842}{(129 - 2) + (275 - 2)} \\
 &= 0.0025
 \end{aligned}$$

$$\begin{aligned}
 JKS_1 &= \sum(Y_1 - \bar{Y}_1)^2 - \frac{\sum(X_1 - \bar{X}_1)(Y_1 - \bar{Y}_1)}{\sum(X_1 - \bar{X}_1)^2} \\
 &= \sum(5.2727)^2 - \frac{\sum(1.6823)}{\sum(0.5813)} \\
 &= 0.4041
 \end{aligned}$$

$$\begin{aligned}
 JKS_2 &= \sum(Y_2 - \bar{Y}_2)^2 - \frac{(\sum(X_2 - \bar{X}_2)(Y_2 - \bar{Y}_2))^2}{\sum(X_2 - \bar{X}_2)^2} \\
 &= \sum(11.2760)^2 - \frac{\sum(3.8356)}{\sum(1.3760)} \\
 &= 0.5842
 \end{aligned}$$

$$t_{0.05(400)} = 1.9659$$

karena $t_{\text{hitung}} < t_{\text{tabel}}$ maka kesimpulannya adalah koefisien regresi hubungan panjang bobot ikan sapu-sapu jantan dan betina tidak berbeda nyata