

Barnacle settlement and growth at oil and gas platforms in the northern Gulf of Mexico

David B. Reeves*, Edward J. Chesney, Ryan T. Munnely, Donald M. Baltz

*Corresponding author: davidbradleyreeves@gmail.com

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Supplement 1.

Comparisons of Akaike’s Information Criteria (AIC) for all feasible models examining trends of fouling accumulation, barnacle settlement, and biometrics. “Y” denotes the dependent variable for each table, “X1” – “X7” denote the independent variables, “km” denotes distance from shore (km), “Yr” denotes an indicator variable for year (2015 = 1; 2016 = 0), “m” denotes an indicator variable for depth (2m = 1; 7m = 0), and “*” indicates interaction between variables. The model highlighted in yellow was the final model selected for each comparison.

Y = Fouling Accumulation ($\text{g m}^{-2} \text{d}^{-1}$)

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	479.70
km	Yr	m	km*Yr	km*m	Yr*m		485.50
km	Yr	m	km*m	Yr*m			488.20
km	Yr	m	km*Yr	Yr*m			493.00
km	Yr	m	Yr*m				495.70
km	Yr	m	km*Yr	km*m			497.60
km	Yr	m	km*m				502.00
km	Yr	m	km*Yr				504.00
Yr	m	Yr*m					505.50
km	Yr	m					508.00
km	m	km*m					512.30
Yr	m						516.50
km	m						517.80
km	Yr	km*Yr					523.70
m							525.60
km	Yr						527.20
km							537.60
Yr							541.10
int.							550.60

Y = *Amphibalanus* spp. Post-Spat (number m⁻² d⁻¹)

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	553.40
km	Yr	m	km*Yr	km*m	Yr*m		573.10
km	Yr	m	km*m	Yr*m			577.50
km	Yr	m	km*Yr	Yr*m			586.30
km	Yr	m	km*Yr	km*m			588.00
km	Yr	m	Yr*m				591.20
km	Yr	m	km*m				592.50
Yr	m	Yr*m					598.30
km	Yr	m	km*Yr				602.70
km	m	km*m					603.40
km	Yr	m					607.80
Yr	m						614.30
km	Yr	km*Yr					618.50
km	m						619.20
km	Yr						623.90
m							625.80
Yr							633.70
km							635.20
Int.							645.20

$$Y = \ln[\textit{Amphibalanus spp. Spat (number m}^{-2} \text{ d}^{-1})]$$

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	135.50
km	Yr	m	km*Yr	km*m	Yr*m		144.30
km	Yr	m	Yr*m				144.40
km	Yr	m	km*Yr	Yr*m			144.60
km	Yr	m	km*m	Yr*m			144.70
Yr	m	Yr*m					145.00
km	Yr	m	km*Yr	km*m			146.20
km	Yr	m	km*Yr				147.20
km	Yr	m	km*m				147.40
km	Yr	km*Yr					148.50
Yr	m						149.00
Yr							149.70
km	Yr	m					150.80
km	Yr						152.00
km	m	km*m					156.30
m							157.40
Int.							158.20
km	m						160.20
km							161.50

$$Y = \ln[\text{Megabalanus tintinnabulum Post Spat (number m}^{-2} \text{ d}^{-1})]$$

X1	X2	X3	X4	X5	X6	X7	AIC
Yr	m	Yr*m					120.40
Yr	m						121.30
km	Yr	m	Yr*m				127.10
km	Yr	m					128.00
km	Yr	m	km*m	Yr*m			129.20
km	Yr	m	km*m				130.40
km	Yr	m	km*Yr	Yr*m			132.70
km	Yr	m	km*Yr				133.70
km	Yr	m	km*Yr	km*m	Yr*m		134.60
km	Yr	m	km*Yr	km*m			135.60
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	136.60
m							137.30
km	m	km*m					139.40
Yr							140.10
km	Yr						143.00
km	m						143.40
Int.							147.70
km	Yr	km*Yr					148.10
km							151.30

$$Y = \ln[\text{Megabalanus tintinnabulum Spat (number m}^{-2} \text{ d}^{-1})]$$

X1	X2	X3	X4	X5	X6	X7	AIC
Int.							-278.70
m							-272.30
Yr							-272.10
Yr	m						-265.80
km							-265.10
Yr	m	Yr*m					-261.10
km	Yr						-258.60
km	m						-257.90
km	Yr	m					-251.30
km	m	km*m					-250.30
km	Yr	km*Yr					-247.10
km	Yr	m	Yr*m				-246.90
km	Yr	m	km*m				-243.80
km	Yr	m	km*Yr				-239.70
km	Yr	m	km*m	Yr*m			-238.60
km	Yr	m	km*Yr	Yr*m			-234.00
km	Yr	m	km*Yr	km*m			-232.90
km	Yr	m	km*Yr	km*m	Yr*m		-225.90
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	-223.20

Y = *Amphibalanus reticulatus* Height (mm d⁻¹)

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	Yr*m				-6040.01
Yr	m	Yr*m					-6031.32
Yr	m						-6028.81
km	Yr	m	km*m	Yr*m			-6028.73
km	Yr	m	km*Yr	Yr*m			-6025.22
km	Yr	m	km*Yr	km*m	Yr*m		-6014.06
km	Yr	m	km*Yr	km*m			-6007.82
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	-6007.41
km	Yr	m	km*m				-5939.63
km	m	km*m					-5875.32
km	Yr	km*Yr					-5524.99
km	Yr	m					-5345.8
km	m						-3615.67
m							-2331.88
Yr							4966.28
Int.							8001.98
km							D.N.C.
km	Yr						D.N.C.
km	Yr	m	km*Yr				D.N.C.

$Y = \text{Amphibalanus reticulatus Width (mm d}^{-1}\text{)}$

X1	X2	X3	X4	X5	X6	X7	AIC
Int.							-5730.87
Yr							-5729.31
km	Yr						-5722.54
m							-5722.42
Yr	m						-5721.14
km							-5720.76
Yr	m	Yr*m					-5715.97
km	Yr	m					-5715.77
km	m						-5711.89
km	Yr	km*Yr					-5709.39
km	Yr	m	Yr*m				-5708.56
km	Yr	m	km*m				-5706.08
km	m	km*m					-5705.42
km	Yr	m	km*Yr				-5700.49
km	Yr	m	km*m	Yr*m			-5699.80
km	Yr	m	km*Yr	Yr*m			-5695.32
km	Yr	m	km*Yr	km*m			-5693.19
km	Yr	m	km*Yr	km*m	Yr*m		-5686.51
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	-5675.88

$$Y = \ln[\text{Tallness (Height / Width)}]$$

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	Yr*m				749.40
km	Yr	m	km*m	Yr*m			753.90
km	m						754.30
km	m	km*m					757.30
km	Yr	m					757.70
km	Yr	m	km*Yr	Yr*m			758.30
km							758.40
Yr	m	Yr*m					759.10
km	Yr	m	km*m				760.80
km	Yr						761.40
m							762.50
km	Yr	m	km*Yr	km*m	Yr*m		762.80
Yr	m						764.30
km	Yr	m	km*Yr				764.60
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	767.20
km	Yr	m	km*Yr	km*m			767.80
Int.							770.20
Yr							771.60
km	Yr	km*Yr					15973.90

Y= ln[*Amphibalanus reticulatus* Total Wet Weight (mg d⁻¹)]

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	km*m	Yr*m			3531.94
km	Yr	m	km*m				3533.71
km	Yr	m	Yr*m				3533.85
km	Yr	m					3534.09
km	Yr						3536.66
km	Yr	m	km*Yr	km*m	Yr*m		3537.80
km	Yr	m	km*Yr	Yr*m			3539.62
km	Yr	m	km*Yr	km*m			3539.80
km	Yr	m	km*Yr				3540.39
km	m	km*m					3540.54
Yr	m	Yr*m					3540.54
Yr	m						3540.64
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	3541.04
km	m						3542.35
km	Yr	km*Yr					3543.05
km							3545.92
Yr							3546.13
m							20122.55
Int.							9037000000000.00

Y = ln[*Amphibalanus reticulatus* Tissue Wet Weight (mg d⁻¹)]

X1	X2	X3	X4	X5	X6	X7	AIC
km	Yr	m	Yr*m				3063.51
km	Yr	m	km*m	Yr*m			3068.28
km	Yr	m	km*Yr	Yr*m			3071.24
km	Yr	m	km*Yr	km*m	Yr*m		3075.96
km	Yr						3076.30
km	Yr	m					3077.15
Yr	m	Yr*m					3078.65
km	Yr	m	km*Yr	km*m	Yr*m	km*Yr*m	3079.66
km	Yr	m	km*m				3080.59
km	Yr	km*Yr					3081.80
Yr	m						3082.46
km	Yr	m	km*Yr				3082.50
km	Yr	m	km*Yr	km*m			3086.09
Yr							3086.53
m							3093.10
Int.							3093.25
km	m	km*m					3098.34
km	m						11201.13
km							14933.87

Supplement 2.

Backwards selection procedure using Akaike’s Information Criteria (AIC) for percent tissue [ln(Tissue Wet Weight/ Total Wet Weight)]. “X1” – “X15” denote the dependent variables, “km” denotes distance from shore (km), “Yr” denotes an indicator variable for year (2015 = 1; 2016 = 0), “m” denotes an indicator variable for depth (2m = 1; 7m = 0), Ht. denotes barnacle height (mm), and “*” denotes interaction between variables. The number of variables, AIC, and Δ AIC (difference between given model and the full model) are provided for each model. “Step” denotes whether the given model was selected among models with the same number of variables. The model highlighted in yellow was the final model.

Number of Variables	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	AIC	Δ AIC	Step
15	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*Yr*Ht	km*m*Ht	Yr*m*Ht	km*Yr*m*Ht	660.7	0.0	Yes
14	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*Yr*Ht	km*m*Ht	Yr*m*Ht		656.8	-4.0	Yes
13	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*Yr*Ht	km*m*Ht			657.0	-3.7	No
13	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*Yr*Ht	Yr*m*Ht			645.7	-15.0	Yes
13	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*m*Ht	Yr*m*Ht			650.2	-10.6	No
13	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*Ht	km*m*Ht	Yr*m*Ht			652.8	-7.9	No
12	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	km*Yr*Ht				646.1	-14.6	No
12	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m	Yr*m*Ht				639.6	-21.1	Yes
12	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*Ht	Yr*m*Ht				641.8	-18.9	No
11	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	km*Yr*m					638.2	-22.5	No
11	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht	Yr*m*Ht					635.2	-25.5	Yes
10	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht						634.4	-26.3	Yes
9	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	Yr*Ht							628.9	-31.8	No
9	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m	m*Ht							628.6	-32.1	Yes
9	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*Ht	m*Ht							631.6	-29.1	No
9	km	Yr	m	Ht	km*Yr	km*m	Yr*m	Yr*Ht	m*Ht							645.7	-15.0	No
9	km	Yr	m	Ht	km*Yr	km*Ht	Yr*m	Yr*Ht	m*Ht							628.7	-32.0	No
9	km	Yr	m	Ht	km*m	km*Ht	Yr*m	Yr*Ht	m*Ht							630.1	-30.6	No
8	km	Yr	m	Ht	km*Yr	km*m	km*Ht	Yr*m								623.2	-37.5	Yes
8	km	Yr	m	Ht	km*Yr	km*m	km*Ht	m*Ht								625.7	-35.0	No

Number of Variables	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	AIC	Delta AIC	Select
8	km	Yr	m	Ht	km*Yr	km*m	Yr*m	m*Ht								641.4	-19.3	No
8	km	Yr	m	Ht	km*Yr	km*Ht	Yr*m	m*Ht								623.0	-37.7	No
8	km	Yr	m	Ht	km*m	km*Ht	Yr*m	m*Ht								623.8	-36.9	No
7	km	Yr	m	Ht	km*Yr	km*m	km*Ht									620.4	-40.3	No
7	km	Yr	m	Ht	km*Yr	km*m	Yr*m									636.5	-24.2	No
7	km	Yr	m	Ht	km*Yr	km*Ht	Yr*m									617.3	-43.4	Yes
7	km	Yr	m	Ht	km*m	km*Ht	Yr*m									618.2	-42.5	No
6	km	Yr	m	Ht	km*Yr	km*Ht										614.6	-46.1	No
6	km	Yr	m	Ht	km*Yr	Yr*m										629.5	-31.2	No
6	km	Yr	m	Ht	km*Ht	Yr*m										612.0	-48.7	Yes
5	km	Yr	m	Ht	km*Ht											609.9	-50.8	Yes
5	km	Yr	m	Ht	Yr*m											621.8	-38.9	No
4	km	Yr	m	Ht												619.7	-41.0	No
4	km	Yr	Ht	km*Ht												605.2	-55.5	Yes
4	km	m	Ht	km*Ht												618.7	-42.0	No
3	km	Ht	km*Ht													614.0	-46.7	No
3	km	Yr	Ht													614.9	-45.8	No