

Table S1. Data used for analyzing macroscale patterns in population parameters of the wedge clam *Donax hanleyanus*.

| Beach | No. | Country | Latitude (°S) | References |
|------------------------------------|-----|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Carapebus | 1 | Brazil | 22°15'08.5" | Veloso et al. 2003 |
| Pecado | 2 | Brazil | 22°24'33.2" | Veloso et al. 2003 |
| Unamar | 3 | Brazil | 22°39'42.2" | Veloso et al. 2003 |
| (Praia Baía) Formosa | 4 | Brazil | 22°45'01.8" | Veloso et al. 2003 |
| Tucúns | 5 | Brazil | 22°48'05.1" | Veloso et al. 2003 |
| Peró | 6 | Brazil | 22°50'36.6" | Veloso et al. 2003 |
| Foguete | 7 | Brazil | 22°55'6.524" | Veloso et al. 2003 |
| Boqueirão | 8 | Brazil | 22°56' | Veloso & Cardoso 2001 |
| Restinga de Massambaba | 9 | Brazil | 22°56'03.5" | Veloso et al. 2003 |
| Jaconé | 10 | Brazil | 22°56'07.7" | Veloso et al. 2003 |
| Urca | 11 | Brazil | 22°56'52.4" | Veloso et al. 2003 |
| Fora | 12 | Brazil | 22°57' | Veloso & Cardoso 2001 |
| Itaipuaçu | 13 | Brazil | 22°58'09.8" | Veloso et al. 2003 |
| Itaipu | 14 | Brazil | 22°58'13.4" | Veloso et al. 2003 |
| Copacabana | 15 | Brazil | 22°58'26.2" | Veloso et al. 2006 |
| Ipanema | 16 | Brazil | 22°59'13.8" | Veloso et al. 2006 |
| São Conrado | 17 | Brazil | 22°59'59.6" | Veloso et al. 2006 |
| Barra (Alvorada) | 18 | Brazil | 23°00'39.6" | Veloso et al. 2006 |
| Barra da Tijuca | 19 | Brazil | 23°00'46.8" | Veloso et al. 2006 |
| Barra (Reserva) | 20 | Brazil | 23°00'47.8" | Veloso et al. 2006 |
| Prainha | 21 | Brazil | 23°02'25.4" | Veloso & Cardoso 2001 |
| Grumari | 22 | Brazil | 23°02'54.5" | Veloso et al. 2003, 2006 Veloso et al. 2003, Cardoso & Veloso 2003, Petracco et al. 2019 |
| Restinga de Marambaia | 23 | Brazil | 23°03' | |
| Vermelha do Norte | 24 | Brazil | 23°25'00" | Petracco et al. 2019 |
| Fortaleza | 25 | Brazil | 25°31'45.8" | Borzzone et al. 1996 |
| Fora Norte | 26 | Brazil | 25°32'32.4" | Borzzone et al. 1996 |
| Grande | 27 | Brazil | 25°32'59.8" | Borzzone et al. 1996 |
| Fora Sul | 28 | Brazil | 25°34'20.3" | Borzzone et al. 1996 |
| Praia de Atami | 29 | Brazil | 25°35'47.6" | Borzzone et al. 1996, de Souza 1998 |
| Barrancos | 30 | Brazil | 25°37' | Souza & Gianuca 1995 |
| Leste | 31 | Brazil | 25°42'04.5" | Borzzone et al. 1996 |
| Gaiivotas | 32 | Brazil | 25°43'04.4" | Borzzone et al. 1996 |
| Harmonia | 33 | Brazil | 29°54'08.57" | Neves & Bemvenuti 2006, 2009 |
| Tramandaí | 34 | Brazil | 30°00'02.21" | Neves & Bemvenuti 2006, 2009 |
| Jardin do Éden | 35 | Brazil | 30°05'08.0" | Neves & Bemvenuti 2006, 2009 |
| Cassino (Querência) | 36 | Brazil | 32°12'54" | da Silva et al. 2008 |
| Cassino | 37 | Brazil | 32°15'34.2" | da Silva et al. 2008 Defeo et al. 1992, Defeo & de Álava 1995, Defeo 1996, 1998, Delgado & Defeo 2007, Lercari & Defeo 2015, Petracco et al. 2019, Risoli et al. unpubl. data |
| Barra del Chuy | 38 | Uruguay | 33°48'41.0" | |
| Achiras (Rocha) | 39 | Uruguay | 33°58'50.0" | Lercari & Defeo 2015 |
| Punta del Diablo (La Viuda, Rocha) | 40 | Uruguay | 34°03'16.6" | Lercari & Defeo 2015 |
| Santa Isabel (Rocha) | 41 | Uruguay | 34°34'10.0" | Lercari & Defeo 2015 |

| | | | | |
|---------------------------|----|-----------|--------------|------------------------------------------------------------------------------------------|
| Arachania (Rocha) | 42 | Uruguay | 34°37'04.7" | Pollovero 1984, Defeo et al. 1992, Lercari & Defeo 2015 |
| Aguada (Rocha) | 43 | Uruguay | 34°38'43.3" | Lercari & Defeo 2015 |
| Jose Ignacio (Maldonado) | 44 | Uruguay | 34°49'47.8" | Lercari & Defeo 2015 |
| Santa Mónica (Maldonado) | 45 | Uruguay | 34°51'03.7" | Lercari & Defeo 2015 |
| Punta Negra (Maldonado) | 46 | Uruguay | 34°53'19.0" | Lercari & Defeo 2015 |
| Playa Hermosa (Maldonado) | 47 | Uruguay | 34°50'20.3" | Lercari & Defeo 2015 |
| La Baguala (Canelones) | 48 | Uruguay | 34°47'46.0" | Lercari & Defeo 2015 |
| Costa Azul (Canelones) | 49 | Uruguay | 34°46'11.3" | Lercari & Defeo 2015 |
| Playa Honda (Montevideo) | 50 | Uruguay | 34°53'43.2" | Lercari & Defeo 2015 |
| Playa Verde (Montevideo) | 51 | Uruguay | 34°53'51.1" | Lercari & Defeo 2015 |
| Playa Penino (San José) | 52 | Uruguay | 34°45'37.3"S | Lercari & Defeo 2015 |
| Playa Pascual (San José) | 53 | Uruguay | 34°45'04.7"S | Lercari & Defeo 2015 |
| Punta Rasa | 54 | Argentina | 36°17'42.1" | Marcomini et al. 2002 |
| San Clemente del Tuyú | 55 | Argentina | 36°21'44.7" | Marcomini et al. 2002 |
| Las Toninas | 56 | Argentina | 36°27' | Marcomini et al. 2002, Thompson & Sánchez de Bock 2009 |
| El Barco Hundido | 57 | Argentina | 36°27'03" | Risoli et al. unpubl. data |
| Costa Chica | 58 | Argentina | 36°30'56" | Risoli et al. unpubl. data |
| Santa Teresita | 59 | Argentina | 36°33' | Marcomini et al. 2002, Herrmann et al. 2009a, b, Risoli et al. 2022, unpubl. data |
| Mar del Tuyú | 60 | Argentina | 36°34'41.5" | Marcomini et al. 2002, Thompson & Sánchez de Bock 2009 |
| Costa del Este | 61 | Argentina | 36°36'11" | Marcomini et al. 2002, Risoli et al. unpubl. data |
| Aguas Verdes | 62 | Argentina | 36°38'08" | Thompson & Sánchez de Bock 2009, Risoli et al. unpubl. data |
| La Lucila del Mar | 63 | Argentina | 36°38'73" | Risoli et al. unpubl. data |
| Mar de Ajó | 64 | Argentina | 36°44'36" | Marcomini et al. 2002, Risoli et al. unpubl. data |
| Nueva Atlantis | 65 | Argentina | 36°47'39" | Marcomini et al. 2002, Risoli et al. unpubl. data |
| Punta Médanos | 66 | Argentina | 36°53' | Marcomini et al. 2002, Thompson & Sánchez de Bock 2009, Risoli et al. 2022, unpubl. data |
| Karnak | 67 | Argentina | 36°55'43" | Risoli et al. unpubl. data |
| Pinamar | 68 | Argentina | 37°07'01.0" | Marcomini et al. 2002 |
| Ostende | 69 | Argentina | 37°07'75" | Marcomini et al. 2002, Risoli et al. unpubl. data |
| Valeria del Mar | 70 | Argentina | 37°08'47.1" | Marcomini et al. 2002 |
| Cariló | 71 | Argentina | 37°10'22.7" | Marcomini et al. 2002 |
| Villa Gesell | 72 | Argentina | 37°15' | Marcomini et al. 2002, Thompson & Sánchez de Bock 2009, Risoli et al. 2022, unpubl. data |
| Mar de las Pampas | 73 | Argentina | 37°19' | Herrmann et al. 2009a, b |
| Faro Querandí | 74 | Argentina | 37°29' | Herrmann et al. 2009a, b |
| Mar del Plata | 75 | Argentina | 38°04' | Risoli et al. 2021, 2022 |

Table S2. Generalized linear mixed model relating abundance of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|-------------------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Mean salinity + Dean's parameter</i> | 5 | 568.59 | 0.00 | 0.51 |
| Mean salinity + Dean's parameter + minimum SST | 6 | 570.44 | 1.85 | 0.20 |
| Mean salinity + Dean's parameter + mean Chl- <i>a</i> | 6 | 570.68 | 2.09 | 0.18 |
| Mean salinity | 4 | 571.88 | 3.29 | 0.10 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|--------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | -0.267 | 1.45 | 1.49 | 0.18 | 0.86 | |
| Mean salinity | 0.192 | 0.04 | 0.04 | 4.54 | < 0.05 | 1.00 |
| Dean's parameter | 0.180 | 0.07 | 0.08 | 2.39 | < 0.05 | 0.84 |
| Minimum SST | -0.053 | 0.06 | 0.06 | 0.89 | 0.37 | 0.27 |
| Mean Chl- <i>a</i> | 0.056 | 0.07 | 0.08 | 0.75 | 0.45 | 0.24 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S3. Generalized linear model relating IRSC of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|-----------------------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Salinity range + maximum Chl-<i>a</i></i> | 4 | -5.03 | 0.00 | 0.56 |
| Salinity range + maximum Chl- <i>a</i> + Dean's parameter | 5 | -3.56 | 1.47 | 0.27 |
| Salinity range + maximum Chl- <i>a</i> + maximum SST | 5 | -2.56 | 2.47 | 0.16 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|-----------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | 0.755 | 0.60 | 0.62 | 1.21 | 0.23 | |
| Salinity range | -0.046 | 0.01 | 0.01 | 5.14 | < 0.05 | 1.00 |
| Maximum Chl- <i>a</i> | 0.022 | 0.01 | 0.01 | 3.33 | < 0.05 | 0.99 |
| Dean's parameter | -0.024 | 0.02 | 0.02 | 1.05 | 0.29 | 0.32 |
| Maximum SST | -0.028 | 0.05 | 0.05 | 0.54 | 0.59 | 0.22 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S4. Generalized linear mixed model relating growth performance ϕ' of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | Δ AIC _c | AIC _{cw} |
|-------------------------------------------------------------------|----------|------------------|---------------------------|-------------------|
| <i>Mean Chl-<i>a</i> + salinity range</i> | 5 | -44.98 | 0.00 | 0.30 |
| Mean Chl- <i>a</i> + salinity range + mean SST | 6 | -44.17 | 0.81 | 0.20 |
| Mean SST | 4 | -42.91 | 2.07 | 0.11 |
| Mean SST + Dean's parameter | 5 | -42.68 | 2.31 | 0.10 |
| Mean Chl- <i>a</i> | 4 | -41.63 | 3.35 | 0.06 |
| Mean Chl- <i>a</i> + salinity range + Dean's parameter | 6 | -41.57 | 3.41 | 0.06 |
| Null model | 3 | -41.32 | 3.66 | 0.05 |
| Mean Chl- <i>a</i> + Mean SST + Dean's parameter | 6 | -41.06 | 3.92 | 0.04 |
| Mean Chl- <i>a</i> + salinity range + mean SST + Dean's parameter | 7 | -41.02 | 3.96 | 0.04 |
| Mean Chl- <i>a</i> + mean SST | 5 | -41.02 | 3.96 | 0.04 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|--------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | 3.022 | 0.21 | 0.21 | 14.32 | < 0.05 | |
| Mean Chl- <i>a</i> | 0.035 | 0.02 | 0.02 | 2.02 | < 0.05 | 0.70 |
| Salinity range | -0.011 | 0.00 | 0.00 | 2.48 | < 0.05 | 0.60 |
| Mean SST | -0.014 | 0.01 | 0.01 | 1.81 | 0.07 | 0.52 |
| Dean's parameter | -0.012 | 0.01 | 0.01 | 1.10 | 0.27 | 0.28 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (Δ AIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S5. Generalized linear model relating longevity of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|-------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Mean SST + grain size</i> | 4 | 14.19 | 0.00 | 0.74 |
| Mean SST | 3 | 16.30 | 2.11 | 0.26 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | 9.879 | 1.18 | 1.28 | 7.71 | < 0.05 | |
| Grain size | 2.620 | 0.95 | 1.12 | 2.34 | < 0.05 | 1.00 |
| Mean SST | -0.402 | 0.05 | 0.05 | 7.90 | < 0.05 | 0.68 |

d.f., degrees of freedom; SST, sea surface temperature; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S6. Generalized linear mixed model relating secondary production of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|-----------------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Maximum salinity + maximum SST</i> | 5 | 83.14 | 0.00 | 0.66 |
| Maximum salinity + maximum SST + mean Chl- <i>a</i> | 6 | 86.39 | 3.25 | 0.13 |
| Maximum salinity + maximum SST + Dean's parameter | 6 | 86.74 | 3.60 | 0.11 |
| Maximum salinity | 4 | 86.99 | 3.85 | 0.10 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|--------------------|----------|-------|-------------|----------------|----------------|---------------------|
| Intercept | -89.681 | 27.54 | 29.17 | 3.08 | < 0.05 | |
| Maximum salinity | 2.860 | 0.88 | 0.92 | 3.09 | < 0.05 | 0.88 |
| Maximum SST | -0.424 | 0.13 | 0.14 | 2.96 | < 0.05 | 0.79 |
| Mean Chl- <i>a</i> | -0.093 | 0.16 | 0.17 | 0.56 | 0.57 | 0.23 |
| Dean's parameter | 0.011 | 0.18 | 0.20 | 0.06 | 0.96 | 0.16 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S7. Generalized linear mixed model relating mean total biomass of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|----------------------------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Mean Chl-<i>a</i> + salinity range</i> | 5 | 138.57 | 0.00 | 0.48 |
| Mean Chl- <i>a</i> + salinity range + maximum SST | 6 | 139.52 | 0.94 | 0.30 |
| Mean Chl- <i>a</i> + salinity range + grain size | 6 | 141.05 | 2.48 | 0.14 |
| Mean Chl- <i>a</i> + salinity range + maximum SST + grain size | 7 | 141.98 | 3.41 | 0.09 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|--------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | -5.033 | 4.65 | 4.74 | 1.06 | 0.29 | |
| Mean Chl- <i>a</i> | 0.712 | 0.16 | 0.16 | 4.33 | < 0.05 | 0.99 |
| Salinity range | -0.269 | 0.07 | 0.07 | 3.97 | < 0.05 | 0.99 |
| Maximum SST | 0.265 | 0.18 | 0.19 | 1.38 | 0.17 | 0.38 |
| Grain size | 1.581 | 2.15 | 2.25 | 0.70 | 0.48 | 0.23 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S8. Generalized linear model relating P/B of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

| Model selection process | | | | | | |
|-------------------------------------------------------------|----------|------------------|-------------------|-------------------|------------------|---------------------|
| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} | | |
| <i>Maximum Chl-<i>a</i></i> | 3 | 70.02 | 0.00 | 0.47 | | |
| Maximum Chl- <i>a</i> + Dean's parameter | 4 | 72.12 | 2.10 | 0.16 | | |
| Maximum Chl- <i>a</i> + maximum salinity | 4 | 72.62 | 2.59 | 0.13 | | |
| Dean's parameter | 3 | 72.62 | 2.60 | 0.13 | | |
| Maximum Chl- <i>a</i> + maximum SST | 4 | 72.89 | 2.86 | 0.11 | | |
| Model-averaged coefficients and importance of each variable | | | | | | |
| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
| Intercept | -0.130 | 6.46 | 6.78 | 0.02 | 0.98 | |
| Maximum Chl- <i>a</i> | 0.054 | 0.02 | 0.02 | 2.40 | < 0.05 | 0.80 |
| Dean's parameter | 0.173 | 0.14 | 0.15 | 1.18 | 0.24 | 0.36 |
| Maximum salinity | 0.241 | 0.46 | 0.49 | 0.49 | 0.62 | 0.21 |
| Maximum SST | 0.021 | 0.11 | 0.12 | 0.18 | 0.86 | 0.19 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S9. Generalized linear model relating mortality of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Maximum salinity</i> | 3 | 47.78 | 0.00 | 0.32 |
| Maximum salinity + minimum Chl- <i>a</i> | 4 | 48.39 | 0.60 | 0.24 |
| Mean SST | 3 | 48.90 | 1.12 | 0.18 |
| Maximum salinity + Dean's parameter | 4 | 50.86 | 3.07 | 0.07 |
| Maximum salinity + mean SST | 4 | 50.89 | 3.10 | 0.07 |
| Mean SST + minimum Chl- <i>a</i> | 4 | 51.20 | 3.41 | 0.06 |
| Mean SST + Dean's parameter | 4 | 51.29 | 3.51 | 0.06 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|-----------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | -7.102 | 2.38 | 2.53 | 2.81 | < 0.05 | |
| Maximum salinity | 0.210 | 0.07 | 0.07 | 2.87 | < 0.05 | 0.98 |
| Minimum Chl- <i>a</i> | 0.053 | 0.03 | 0.03 | 1.65 | 0.10 | 0.41 |
| Maximum SST | 0.005 | 0.01 | 0.01 | 0.39 | 0.70 | 0.17 |
| Dean's parameter | -0.003 | 0.01 | 0.01 | 0.33 | 0.74 | 0.16 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

Table S10. Generalized linear model relating individual shell mass of the wedge clam *D. hanleyanus* with environmental variables in South American sandy beaches.

Model selection process

| Candidate models | d.f. | AIC _c | ΔAIC _c | AIC _{cw} |
|-----------------------------------------------------|----------|------------------|-------------------|-------------------|
| <i>Mean salinity + beach slope</i> | 4 | 48.94 | 0.00 | 0.60 |
| Mean salinity + beach slope + maximum Chl- <i>a</i> | 5 | 51.04 | 2.10 | 0.21 |
| Mean salinity + beach slope + mean SST | 5 | 51.19 | 2.25 | 0.19 |

Model-averaged coefficients and importance of each variable

| Variables | Estimate | SE | Adjusted SE | <i>z</i> value | <i>p</i> value | Variable importance |
|-----------------------|----------|------|-------------|----------------|----------------|---------------------|
| Intercept | -4.042 | 1.65 | 1.72 | 2.35 | < 0.05 | |
| Mean salinity | 0.099 | 0.04 | 0.04 | 2.68 | < 0.05 | 0.95 |
| Beach slope | 0.084 | 0.03 | 0.04 | 2.39 | < 0.05 | 0.82 |
| Maximum Chl- <i>a</i> | 0.015 | 0.02 | 0.02 | 0.84 | 0.40 | 0.30 |
| Mean SST | 0.106 | 0.13 | 0.14 | 0.76 | 0.45 | 0.26 |

d.f., degrees of freedom; SST, sea surface temperature; Chl-*a*, Chlorophyll-*a*; AIC_c, corrected Akaike information criterion; AIC_{cw}, AIC_c weights; Models are ordered by AIC_c values. Only the best models with a difference between AIC_c values (ΔAIC_c) < 4 are shown. The best model is highlighted in bold and italics. SE, standard error; Averaged estimates were calculated using the best models selected through AIC_c values. Significant *p* values are highlighted in bold.

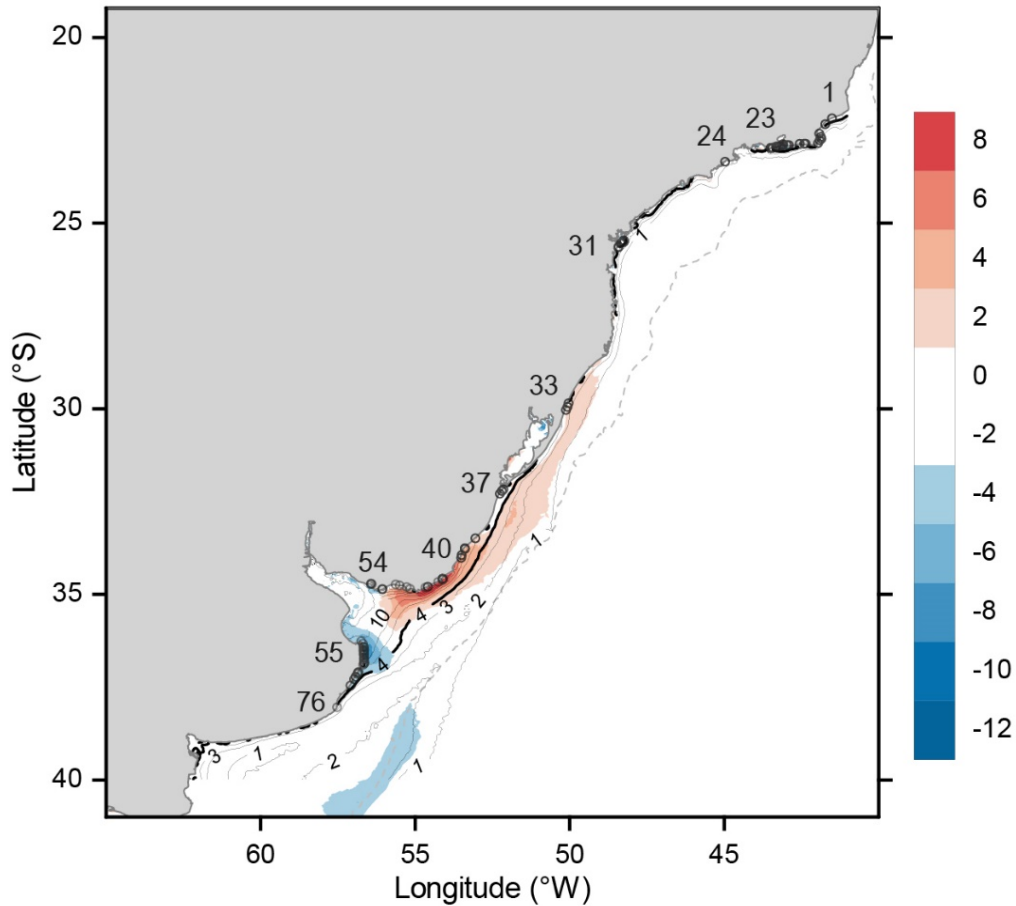


Fig. S1. Annual mean chlorophyll-*a* distribution (contours). The heavy contour indicates the 4 mg m⁻³. Contour intervals are 1 mg m⁻³ for 1–4 mg m⁻³ and 2 mg m⁻³ for Chl-*a* > 4 mg m⁻³. The background color shading indicates the difference in winter chlorophyll-*a* minus summer chlorophyll-*a*, indicated by the color scale to the right of the graphic. Site locations (black open circles) are shown along the coast with selected sites numbered according to Table S1. Bathymetric data from the General Bathymetric Chart of the Oceans (GEBCO), available at https://www.gebco.net/data_and_products.

LITERATURE CITED

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