Reproductive cycle of the Argentinean surf clam *Donax hanleyanus* (Philippi, 1847) (Bivalvia:Donacidae)

Juliane Metzner\(^1\), Marko Herrmann\(^1,2\), Jürgen Laudien\(^1\), Wolf E. Arntz\(^1\), Pablo E. Penchaszadeh\(^2\)

**Introduction**

*Donax hanleyanus* (Philippi, 1847) is a free-spawning surf clam inhabiting exposed intertidal sandy beaches from Rio de Janeiro, Brazil (22°51’S) \(^3\) to Mar del Plata, Argentina (38°20’S) \(^4\). Its reproductive cycle was investigated at Santa Teresita, Mar de las Pampas and Faro Querandi from November 2004 to September 2005. Gonadal development was monitored monthly analyzing histological sections (N = 978), condition indices, number and sizes of oocytes.

**Reproductive cycle**

- *D. hanleyanus* attains first maturity at 11.18 mm anterior-posterior length.
- Sex ratio is 1:1, hermaphroditism was not recorded.
- Clams are sexually active from November to March and inactive from April to September at all three sites.
- Absolute gonadal inactivity was not observed.
- Females at Mar de las Pampas showed an extended period of gonadal activity (November to May).
- The condition indices and the number of oocytes support the histological results.
- Oocytes are ripe when they achieve a diameter exceeding 38 μm (up to 83.5 μm).

**Sea surface temperature (SST)**

- SST is oscillating between 9.75 °C and 21.45 °C throughout the year.
- Reproductive activity is positively correlated with SST (R\(^2\) = 0.96).

**Discussion and Conclusion**

- Earlier studies of the reproductive cycle of *D. hanleyanus* from Mar del Plata described shorter spawning seasons. This suggests that environmental factors affect the reproductive season \(^5\).
- Spawning season is during summer as described for *D. serrata* of the Benguela upwelling system \(^6\). It remains unclear why female gonadal activity is prolonged.
- Condition index indicates spawning. However unfavourable environmental conditions like starvation and hydrodynamic processes impact clams conditions in the same way. Therefore histological validation is needed.
- Histology proved discontinuous annual reproductive cycle related to SST. This suggests that there are further environmental factors, e.g. the abundance of food, which additionally influence the reproductive activity.

**References**


\(^2\) Penchaszadeh P. E., Olivier S. (1975) Ecología de una población de *berberecho* (Donax hanleyanus) en Villa Gesell, Argentina. Malacologia 15: 133-146


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\(^1\) Alfred Wegener Institute for Polar and Marine research (AWI) Bremenhaven, Germany

\(^2\) Lab. Invertebrados, Depto. Biología, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (UBA), Argentina