Resumen

En esta tesis se estudiaron los efectos sobre el sedimento de la fauna que habita los fondos blandos de planicies de marea y marismas del estuario de Bahía Blanca. En particular se evaluaron los efectos de la presencia de poliquetos, como *Laeonereis culveri*, sobre la estabilidad del sedimento y su interacción con otros organismos como los cangrejos cavadores (*Neohelice granulata*) y peces bentófagos (*Micropogonias furnieri*) en la determinación de las propiedades de los sedimentos que habitan.

El trabajo se realizará bajo la siguiente hipótesis: la infauna bentónica del estuario de Bahía Blanca cumple un rol preponderante en la desestabilización de los sedimentos colonizados y ejerce influencia en la exportación de materiales del sistema.

En el **Capítulo I** se evaluó cuáles son los efectos de la presencia de *Laeonereis culveri*, una de las especies bentónicas más importantes de estuarios del Atlántico sudoccidental, en los sedimentos de fondos blandos de marismas del estuario de Bahía Blanca. Se llevaron a cabo una serie de muestreos y experimentos de campo (Exclusiones, etc.) y experimentos de laboratorio (mesocosmos).

En el **Capítulo II** se centró en el estudio de la actividad de alimentación de la corvina rubia, que produce al buscar su presa unas depresiones elípticas en el sustrato. En este trabajo surgió la pregunta de qué efecto tendría la turbulencia generada dentro de las depresiones en la resuspensión del sedimento depositado en su interior. Se llevaron a cabo una serie de muestreos y experimentos de campo.

En el **Capítulo III,** los objetivos determinar cuál es el grado de interacción entre estas dos importantes especies de invertebrados de las marismas del estuario de Bahía Blanca, el poliqueto *Laeonereis culveri* y el cangrejo cavador *Neohelice granulata*, y su efecto en las

propiedades físicas del sedimento y los cambios producidos por la presencia de *N. granulata* sobre la comunidad macrobentónica especialmente en la diversidad y abundancia.

En el **capítulo IV** se determinó cual es el rol de la densidad de la biota en los procesos de erosión y depositación. Para cumplir con el objetivo de este capítulo se realizó un experimento de mesocosmos.

Como conclusiones generales resaltan la determinación del efecto desestabilizador de *L. culveri*, afectando la estructura del sedimento y a las comunidades de microalgas bentónicas. Además se determinó un efecto sinérgico entre el poliqueto en cuestión y el cangrejo cavador *Neohelice granulata* afectando ambos la estabilidad del sedimento al disminuir la densidad de microalgas. A su vez se registró un efecto negativo del cangrejo cavador en la estructura de las comunidades betónicas.

Se evaluó también el rol de los peces en la determinación de la composición sedimentaria de planicies de marea del estuario de bahía blanca a través de su actividad de alimentación.

Por último se determino como varia el efecto de la densidad de *L. culveri* en las propiedades del sedimento que caracterizan la erodabilidad del mismo.

Los resultados alcanzados en esta tesis permitieron corroborar las hipótesis planteadas al inicio de esta investigación.

Abstract

The focus of this thesis was the study of the faunal effects on the sediment at tidal flats and salt marshes from the Bahía Blanca estuary. The effects of the presence of *Laeonereis culveri* on the sediment stability and the effects of its interaction with other organisms like crabs (*Neohelice granulata*) and fish (*Micropogonias furnieri*) in the same processes were evaluated.

The main hypothesis was: The benthic infauna of the Bahía Blanca estuary plays a preponderant role in the destabilization of the sediments that inhabits and exerts influence in the export of materials of the system.

In **Chapter I** the effects of the presence of *Laeonereis culveri* on salt marshes sediments at the Bahía Blanca estuary were evaluated. A series of samplings and field experiments was carried out (Exclusions, etc.) and laboratory experiments (mesocosmos).

In **Chapter II** the study was centered on the white croaker (*Micropogonias furnieri*) feeding activity, which produces elliptical depressions in the substrate when it is looking for its prey. In this work the focus was on the effect of turbulence generated within the depressions on sediment suspension. A series of field samplings and experiments was carried out.

In **Chapter III**, the objectives were to determine the degree of interaction between *Laeonereis culveri* and the crab *Neohelice granulata*, and the effect of this interaction on the sediment physical properties. The changes produced by the presence of *N. granulata* on the macrobenthic community were also studied.

In **Chapter IV** the role of biota density in the erosion and depositation processes were tested. In order to fulfill the aim of this chapter mesocosmos experiment was carried out.

As a general conclusion, a destabilizing effect of *L. culveri* was found. A synergic effect between *L. culveri* and the crab *Neohelice granulata* were affecting the stability of the

sediment when they feed of microalgae. Also, a negative effect of *N. granulata* on the benthic community's structure was found.

The role of fish in the determination of sediment composition was also evaluated, and a negative impact of fish was found.

Finally, a density dependent effect was found, found a negative relationship between abundance of *L. culveri* and sediment bed shear stress.

The results generated in this thesis make possible to probe the hypotheses raised at the beginning of this investigation.

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