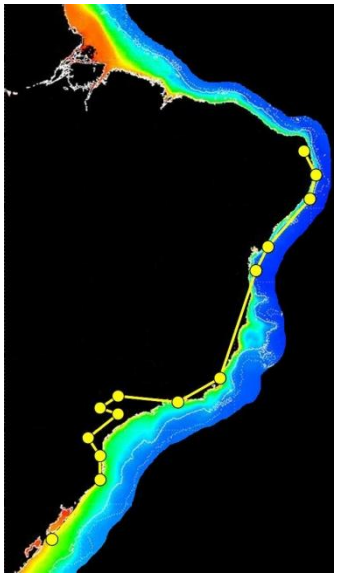
FURG

ECOLOGIA VEGETAL COSTEIRA

BLUE CARBON INTERNATIONAL SCIENTIFIC WORKING GROUP
II Workshop – Bali, July 26th to 29th

BRAZILIAN CONTRIBUTION TO *GLOBAL COASTAL CARBON DATA ARCHIVE*



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doccoper@furg.br

DiVAS
Dinamycs of Submerged Aquatic Vegetation

ReBENTOS

Climate Changes & Coastal Zones

PELD

Brazilian-LTER

Global Coastal Carbon Data Archive Outline

1. Coastal science community involvement:

ReBENTOS network

2. Data and metadata needs:

Brazilian preliminary metadata

Seagrass data availability

3. Data storage and technical aspects of collocating auxiliary parameters

4. Data submission and data ownership issues

1. ***Coastal science community involvement***

The potential of ReBENTOS

Rede de Monitoramento de Habitats Bentônicos Costeiros

"Monitoring Network for Coastal Benthic Habitats"

- Integrated Brazilian network for benthic studies, within the context of anthropogenic impacts, global climate changes and ecosystems biodiversity and function.
- *Cr*eated in 2011 within the Brazilian Government grant : SISBIOTA Program
- Linked to major Brazilian climate change research programs, funded by government agencies

Rede CLIMA

Brazilian Network for
Global Climate Change Studies

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Support:

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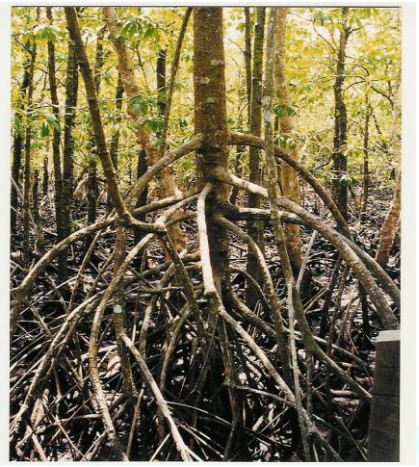
ReBentos Mission



Short term:

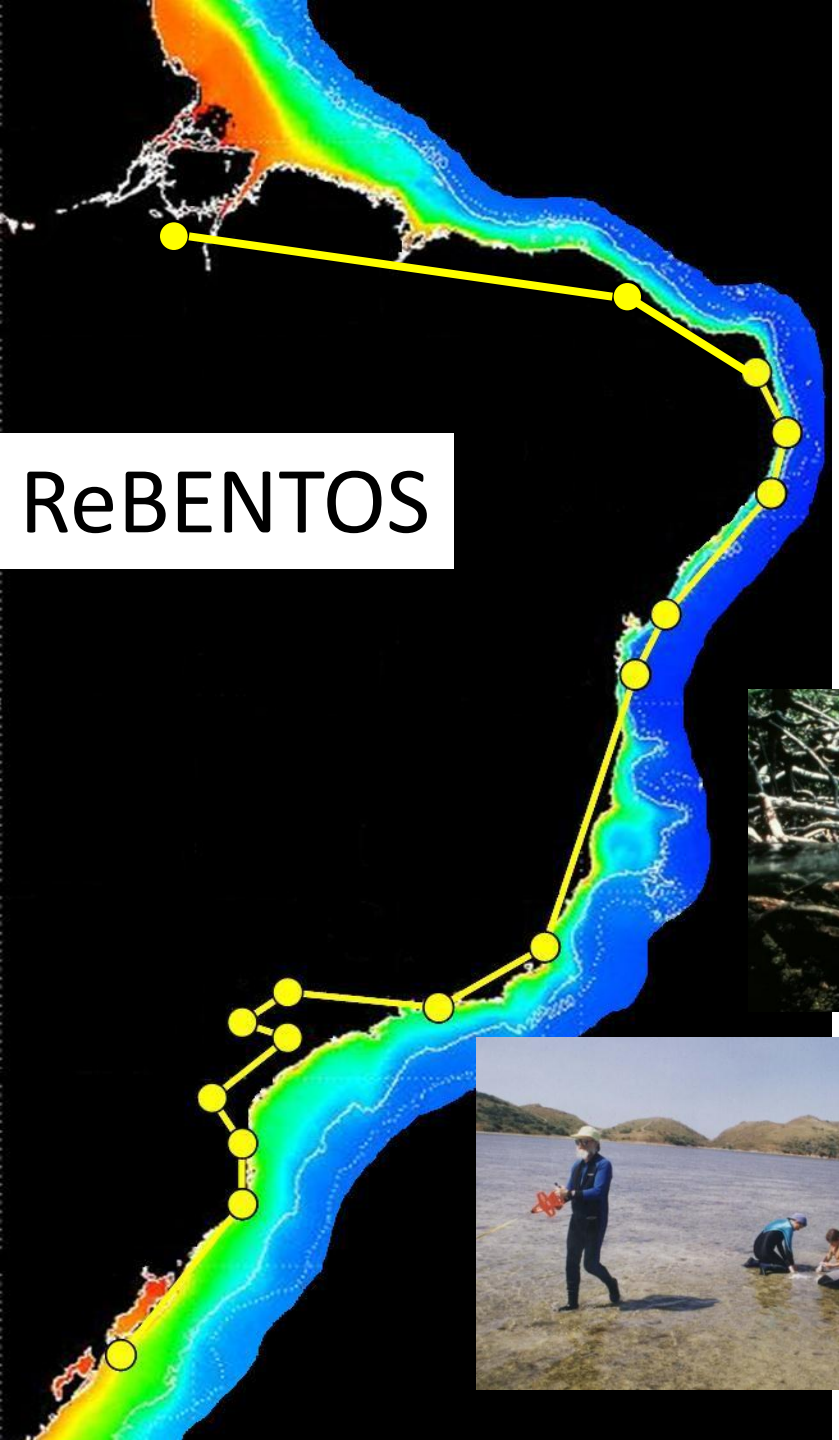
- To review the current knowledge and the health status of benthic habitats

Long term:

- To establish the continuous monitoring of intertidal and shallow subtidal benthic habitats along Brazilian coast
- To detect the effects of environmental changes, at local and regional scale.

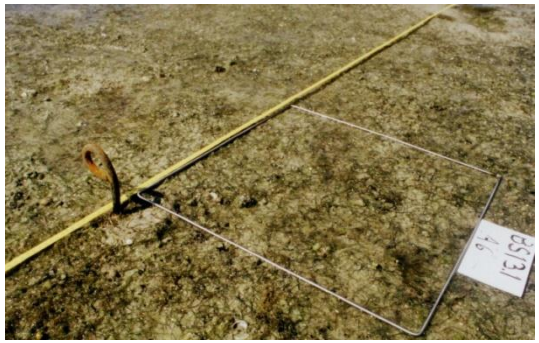
5 Projects

Sand Beaches
Reefs
Mangroves and Salt Marshes
Vegetated bottoms (seagrasses)
Environmental Education and Outreach



The network

- 36 researchers,
- 12 research institutions
- Many of them have been studying and collecting data in mangroves, salt marshes and seagrasses for years.



I Workshop of ReBENTOS: Happening now!

July 28-29 2011 – Arraial do cabo (Rio de Janeiro State)

- Overview and synthesis of benthic studies in Brazil: what we have done and where are we going to,
- Discussion of monitoring protocols to be applied
- Integration to international research networks, including Blue Carbon

Researchers that confirmed the interest to give contributions to GCCDA

(Total of 11, but waiting additional feed-back)

Management, Public Policy and Data Sets

Dr. Alexander Turra. ReBentos Coordimator Instituto de Oceanografia. Universidade de São Paulo (USP).

Mangrove Data:

Dr. Luis Drude Lacerda. Universidade Federal do Ceará (UFCE).

Dra. Cristina Rocha Barreira. Universidade Federal do Ceará (UFCE).

Dr. Ângelo Fraga Bernadino. Universidade Federal do Espírito Santos (UFES)

Seagrass Data:

Dr. Joel Creed. Universidade Estadual do Rio de Janeiro (UERJ).

Dr. Margareth da Silva Copertino. Universidade Federal do Rio Grande (FURG).

Dr. Karine Magalhães. Departamento de Biologia, Universidade Federal Rural de Pernambuco (UFRPE),

Dr. Paulo Antunes Horta. Universidade Federal de Santa Catarina (UFSC)

Salt Marsh Data:

Dr. Cesar Serra Bonifácio Costa. Universidade Federal do Rio Grande (FURG).

Dr. Juliano Marangoni. Universidade Federal do Rio Grande (FURG).

Satelite imagery and GIS:

MSc. Franciane Coimbra. Instituto Federal de Educação do Rio Grande do Sul (IFRS)

2. Data and metadata needs

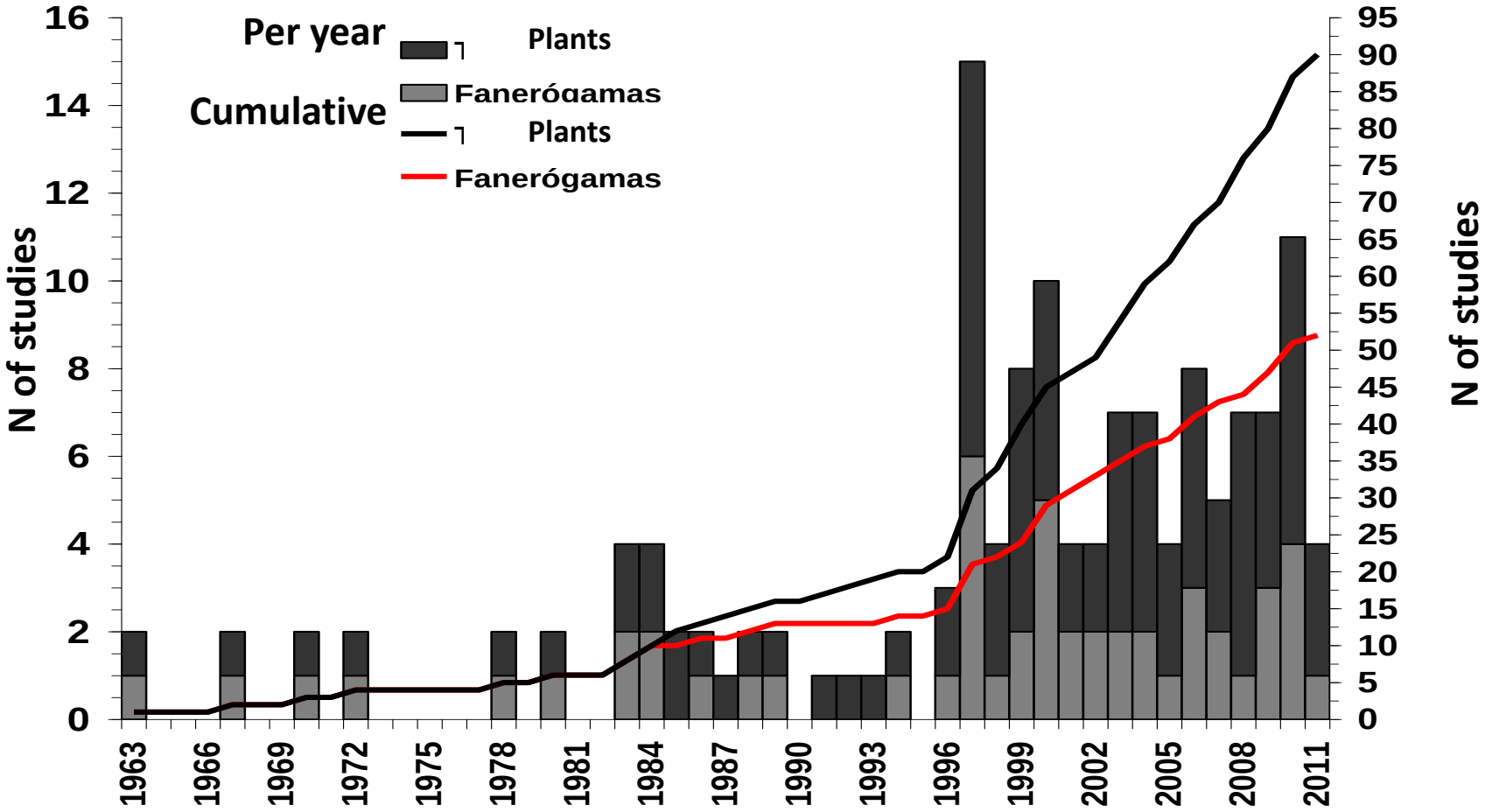
What can we provide soon?

Preliminary metadata

- List of studies on Brazilian seagrasses, mangroves and salt marshes.
- Locations and geographic coordinates;
- Type of data and parameters collected;
- Methodologies used;
- Period or date of collection;
- Publications associated to the data;
- Data owner or administration .

Studies performed on Brazilian seagrass habitats

100 Studies registered since 1963 - 52 focused on plant biology and ecology

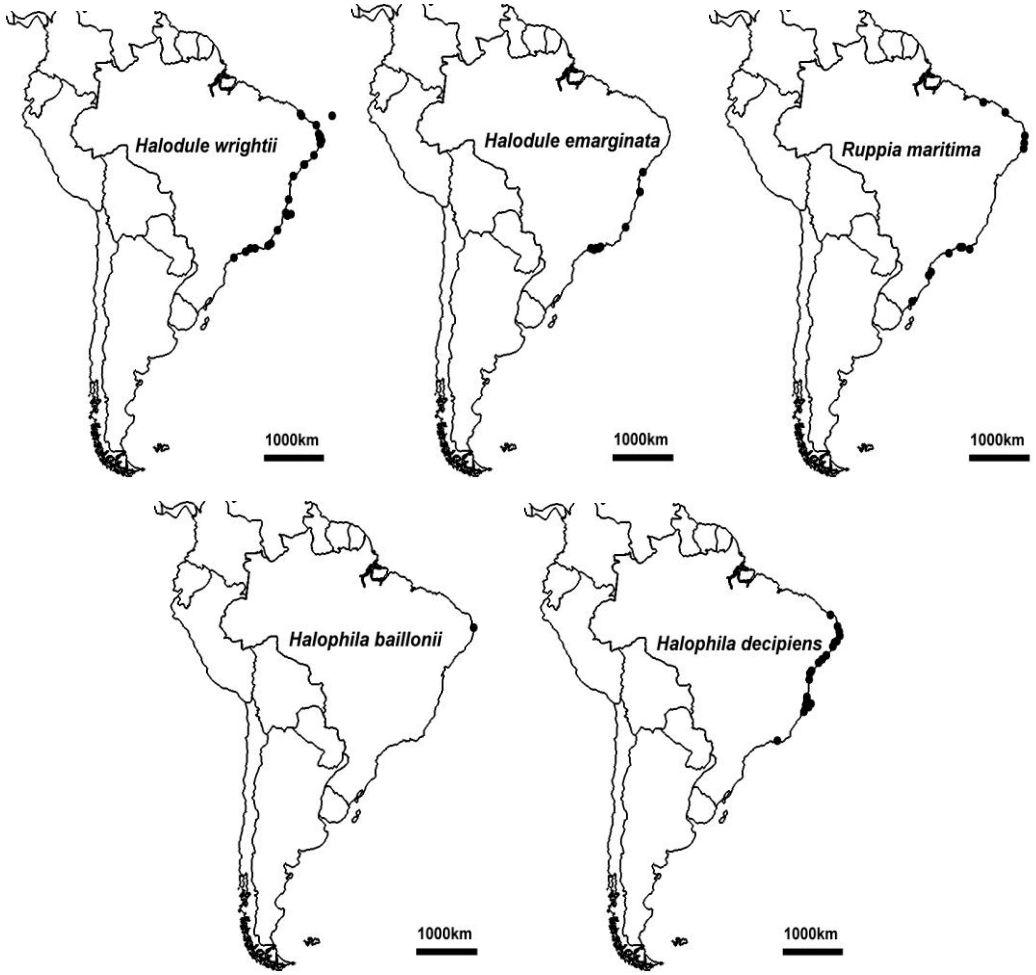


Complete list is available online on Mendeley – Group ReBentos - Fanerógamas

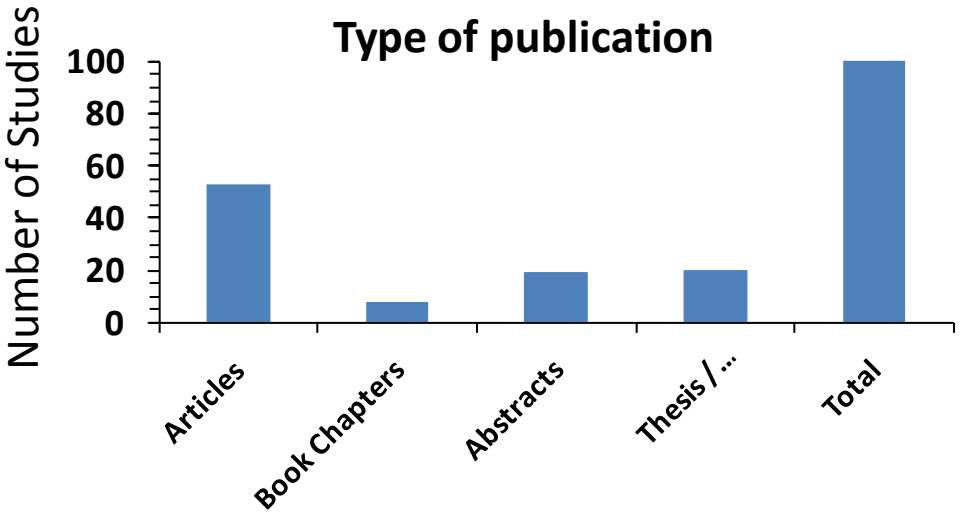
DATA on SEAGRASSES

Position of seagrass data along Brazilian coast (Coordinates)

Distribuition of seagrass species along Brazilian coast (Marques & Creed 2010)

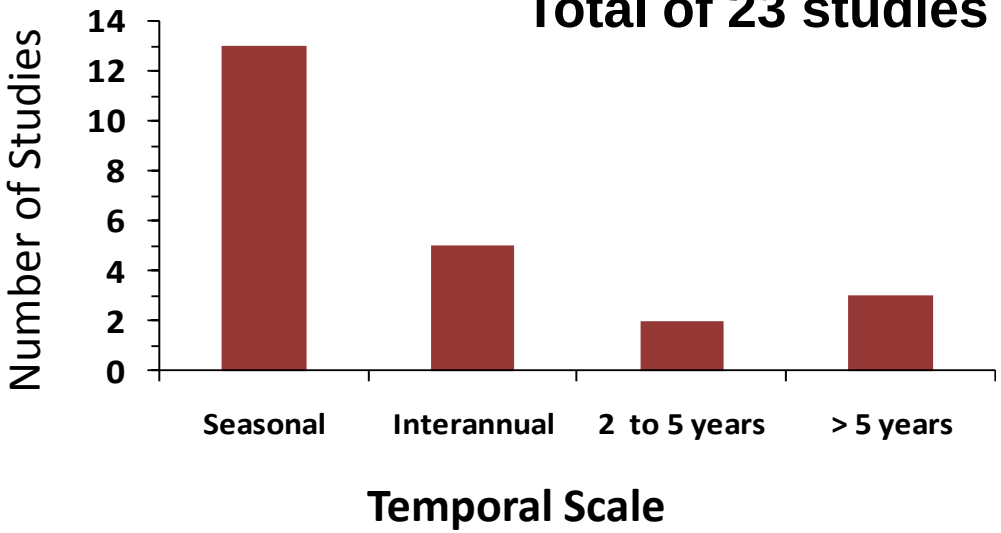


Where are these studies?



Information on temporal variability of seagrass populations

Total of 23 studies



5 studies have
> 5 years data

Long Term seagrass data: indication of changes

South

- Patos Lagoon estuary (Rio Grande do Sul State), Brazilian LTER. Period: 1979-2011.

Southeast

- Araruama lagoon (Rio de Janeiro State), SeagrassNet. Period: 1985-2011.

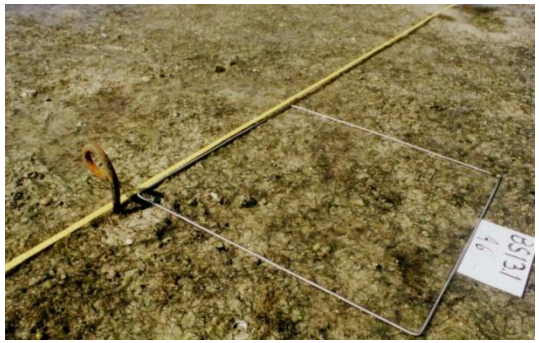
Northeast

- Abrolhos Reef (Bahia State), SeagrassNet. Period: 1985-2008
- Itamaracá &Tamandaré (Pernambuco State), SeagrassNet. Period: 2001-2010

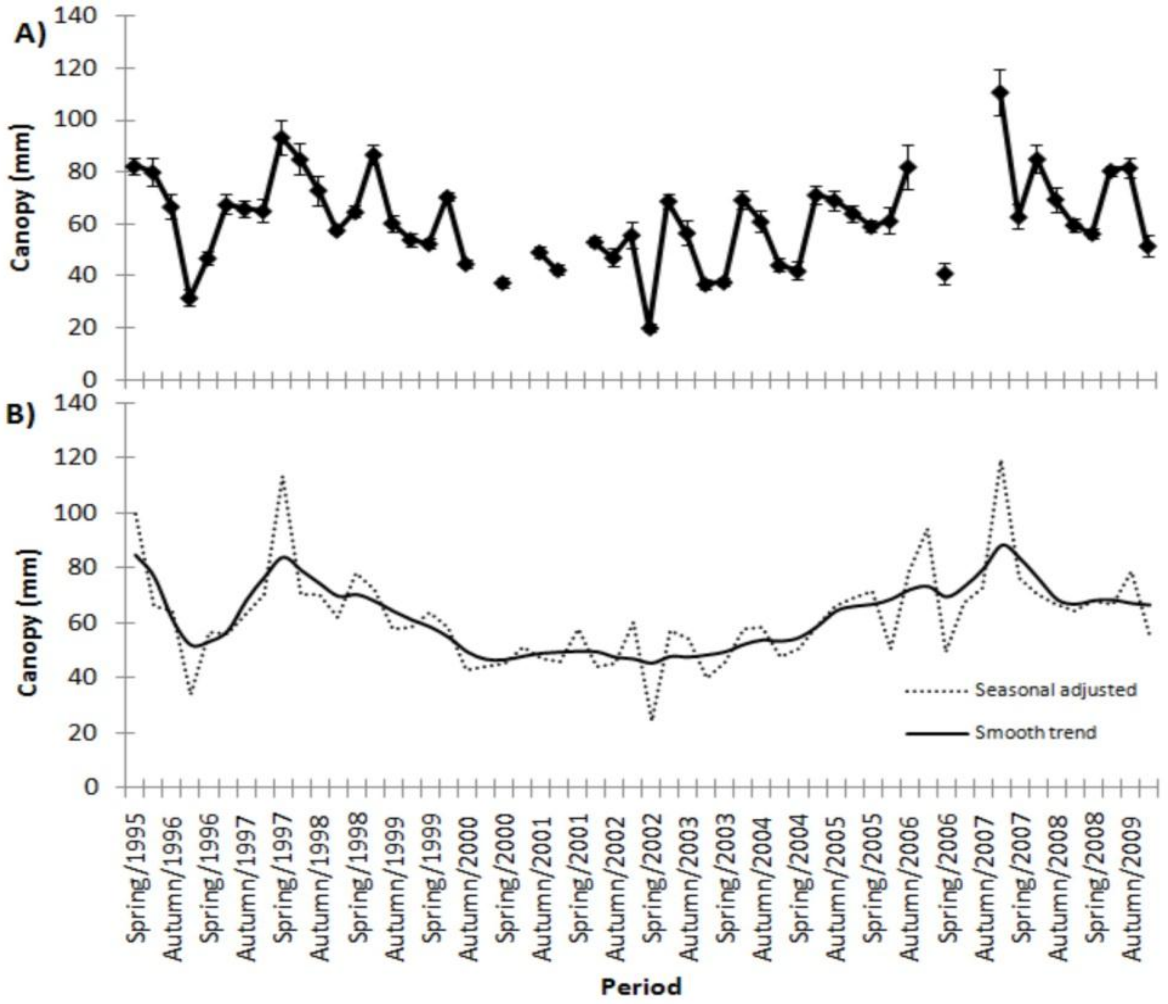
Basic common parameters measured are:

- - Spatial limits of the meadow;
- - Plant biomass and % cover;
- - Species composition
- - Abiotic parameters (e.g. depth, salinity, temperature).

Cabo Frio, RJ – 15 years of monitoring – Dr. J. Creed & research team



Halodule beds



DiVAS

Dinamycs of Submerged Aquatic Vegetation

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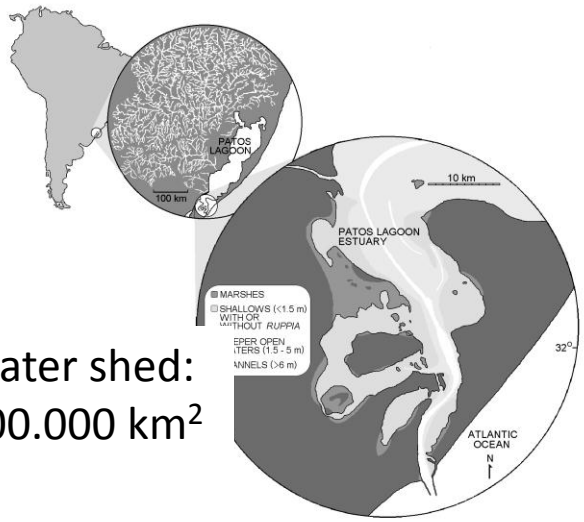
Brazilian-LTER

- Changes in structure and abundance of SAV in Patos Lagoon estuary during last 30 years
-Their relationship to changes in climate, hydrology and water parameters

Effects of climate and hydrological variability on benthic habitats in Patos Lagoon estuary (South Brazil)

M. S. Copertino, U. Seeliger, L. A. Colling, C. E. Bemvenutti, O. Möller. *In review.*



Water shed:
200.000 km^2

Largest choked lagoon in world

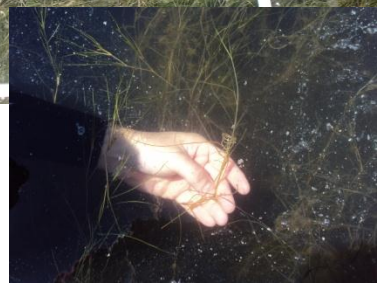
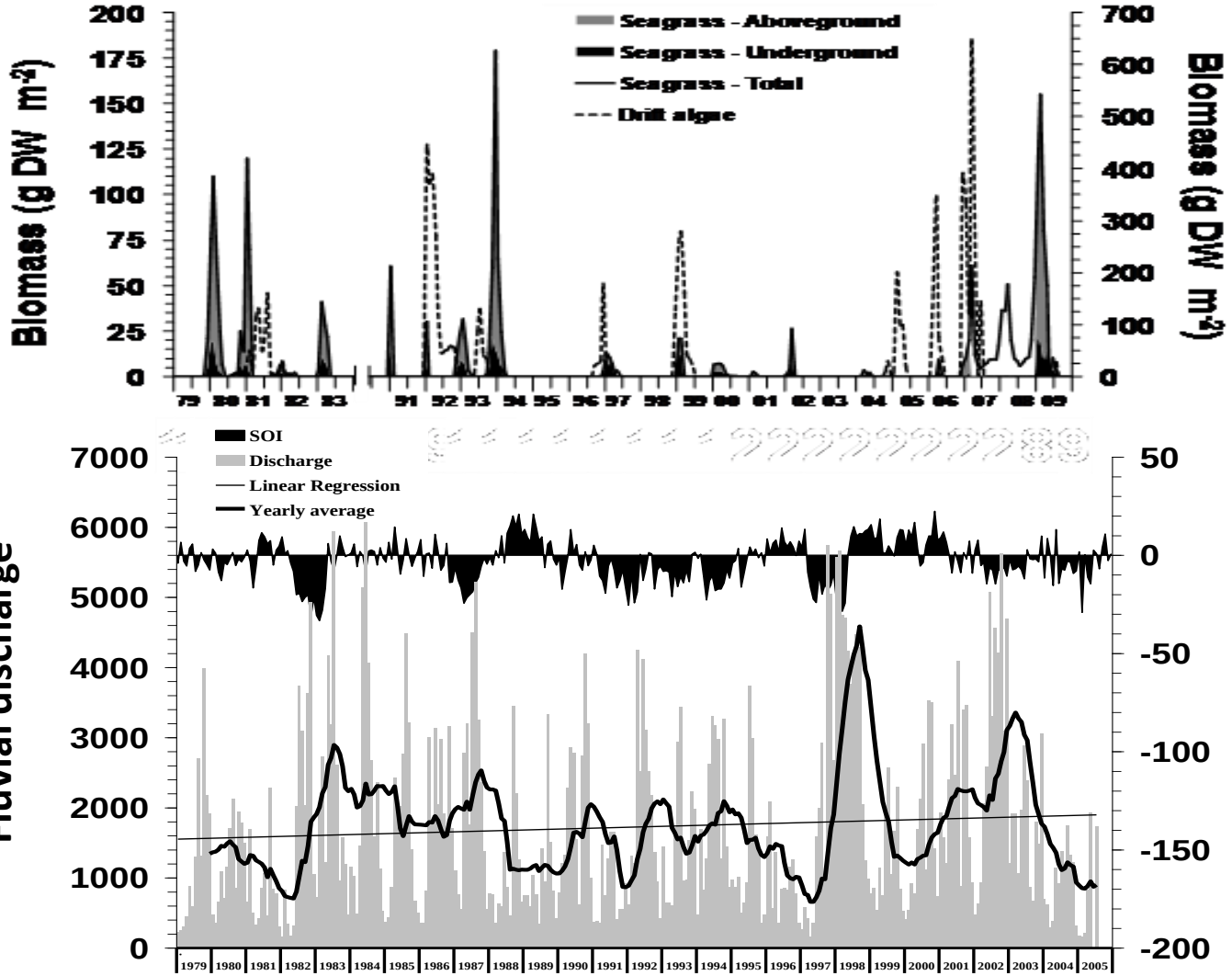


Fig. 7 Plant Biomass data (monthly)



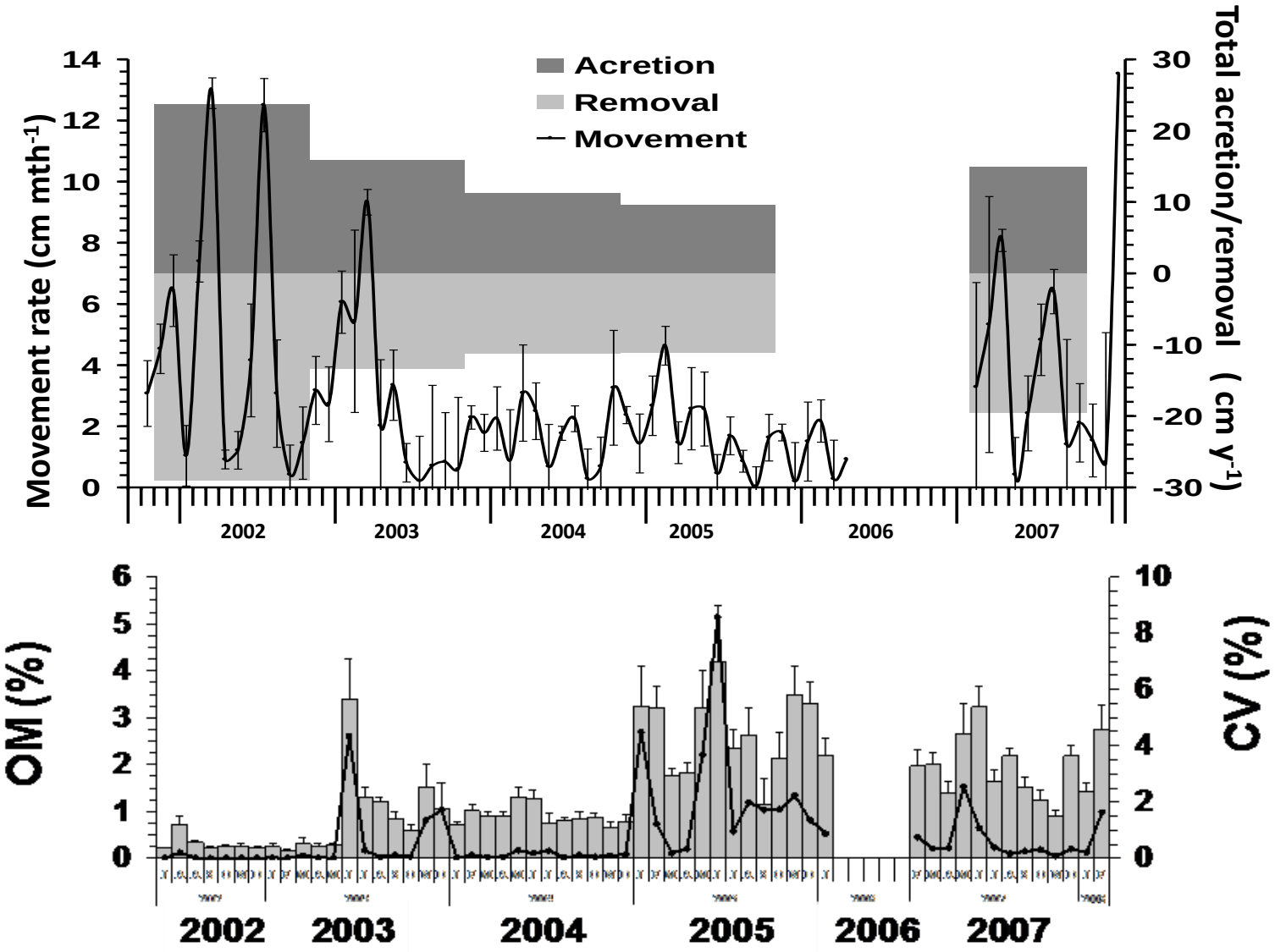
Other Abiotic parameters:

Fluvial discharge
Salinity
Water level
Water Temperature

Sources: Moler et al. 2009, Odebrecht et al. 2010; Copertino & Seeliger 2010

Sediment Dynamics & Organic Matter content

High interanual variabilityem in % OM



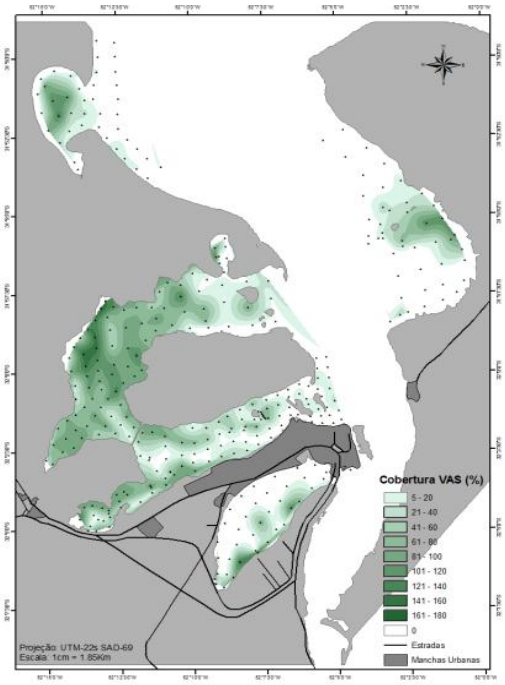
Copertino & Seeliger 2010

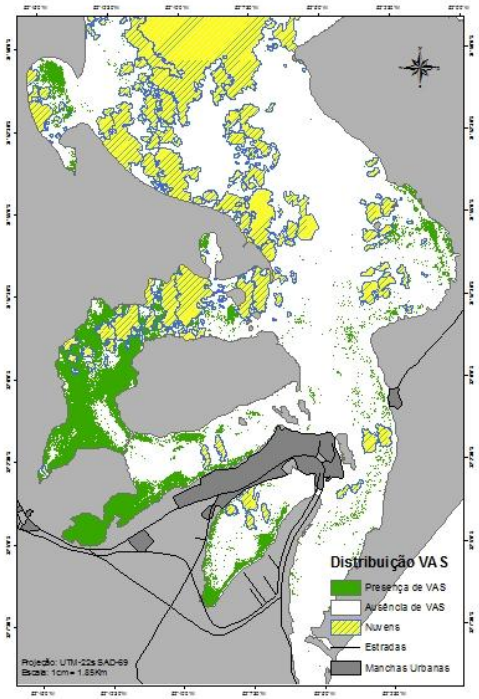
Spatial distribuition & abundance of seagrasses by *in situ* and satellite imagery (ongoing project)

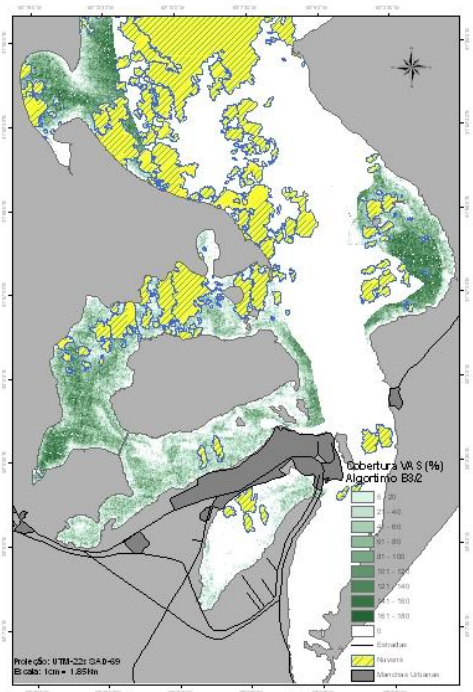
February 2011

% Cover *in situ (*344 points)

Estimated by LANDSAT-5, from diferent methods



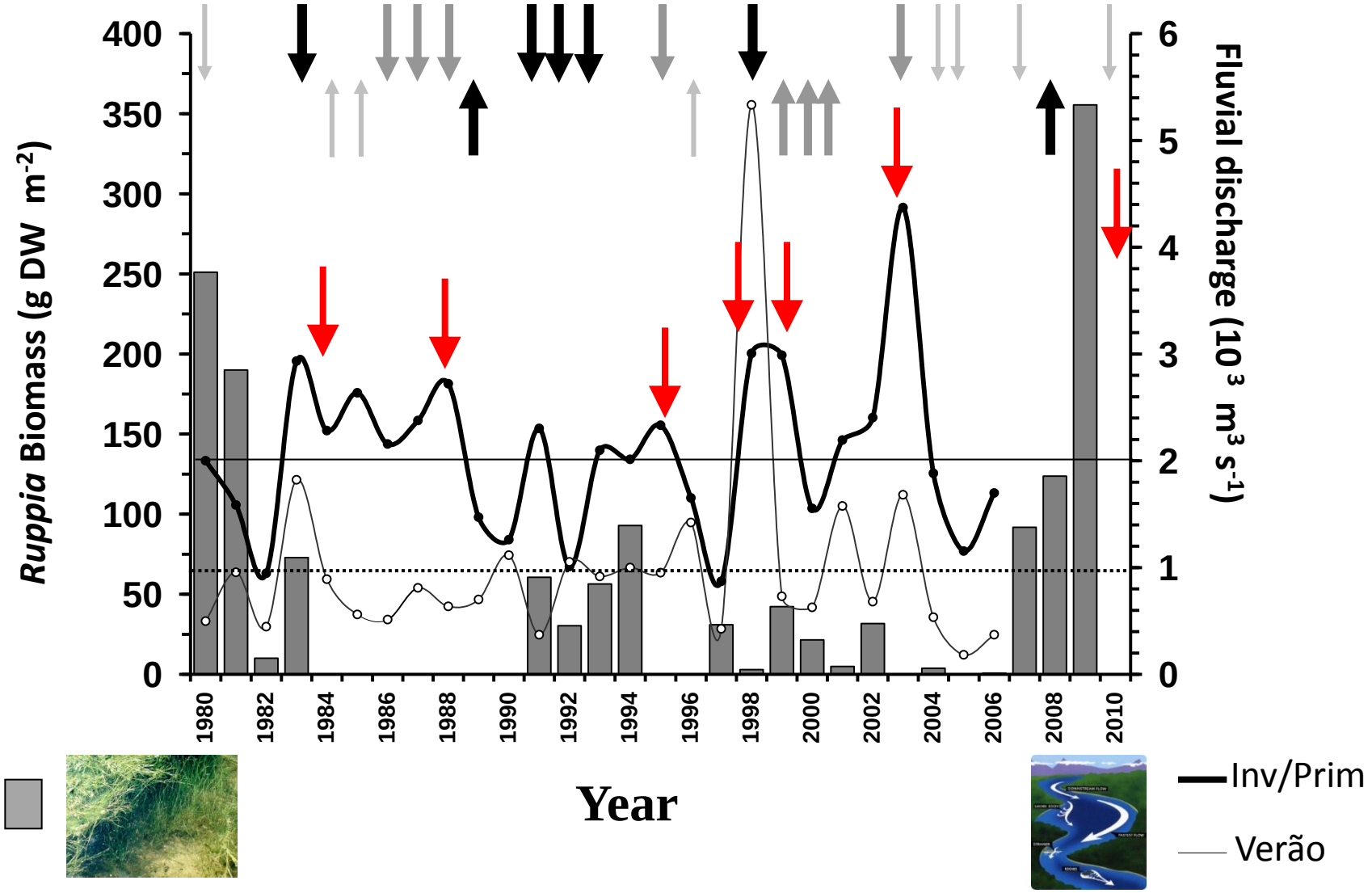




Satellite image processed by Supervisioned Classification method and by using an algorithm, calibrate with *in situ* data. Seagrasses covered about 80 km^2 of shallow areas. Gianasi & Copertino (not published).

Inerannual & Interdecadal variability

Reductions under El Nino and High Fluvial Discharge Changes Biomassa



Copertino e Seeliger 2010. in Seliger e Odebrecht (eds): *O estuário da Lagoa dos Patos: um século de transformações*.

4. Data submission and ownership issues

- People would agree submitting the data and making them available for synthesis and other integrated products, since the data source and owner are properly cited and previously contacted.
- A DOI number to each data set upon submission is highly desirable. But it may not be enough to solve some other issues related to data submission.
- A considerable and unknown portion of the collected data on Brazilian mangroves and seagrasses has not been making available throughout publications
- Among the available studies, more than half have been published within the country (national journals, reports and grey literature of hard access) and most are only descriptive.
- Many researchers still have concerns about making data freely available to the public, and the reasons can be several.

4. Data submission and data ownership issues

- Strong efforts should be put towards encouraging data submission from scientific community, and additional status or data certification should be created.
- A previous agreement must be done regarding using the data for local, regional or global studies.
- Public submitted data should be used ONLY for global or regional synthesis and evaluations, modeling or integrated approaches, upon data owner acordance

OBRIGADA!

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PESQUISAS ECOLÓGICAS DE LONGA DURAÇÃO

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