

Exploring ECOSPACE potential use in the South Brazil Bight by integrating oceanographic features

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Problems or questions you are trying to respond with Ecospace model.

Both selected fishing fleets management questions (I) and effects of MPAs (II).

(I) Selected tests on fishing fleets management:

A- Bottom-up trophic control question: interaction sardines, live-bait fleet and squids.

(i) To test the effect of the sardine seasonal closure

(ii) To test the ban of live-baitfish fleet (especially on squids)

B- Top-down trophic control question: interaction croakers-sharks.

(iii) To test the effect of a closure for croakers

(iv) To test the ban of gillnetters.

(II) Selected test on MPAs.

(v) Effects of existing MPAs.

(vi) Ecospace.

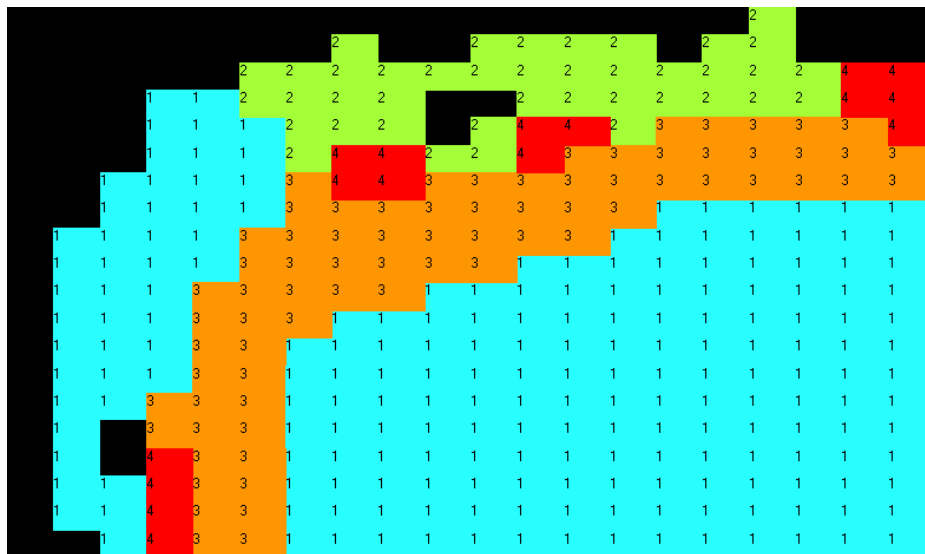
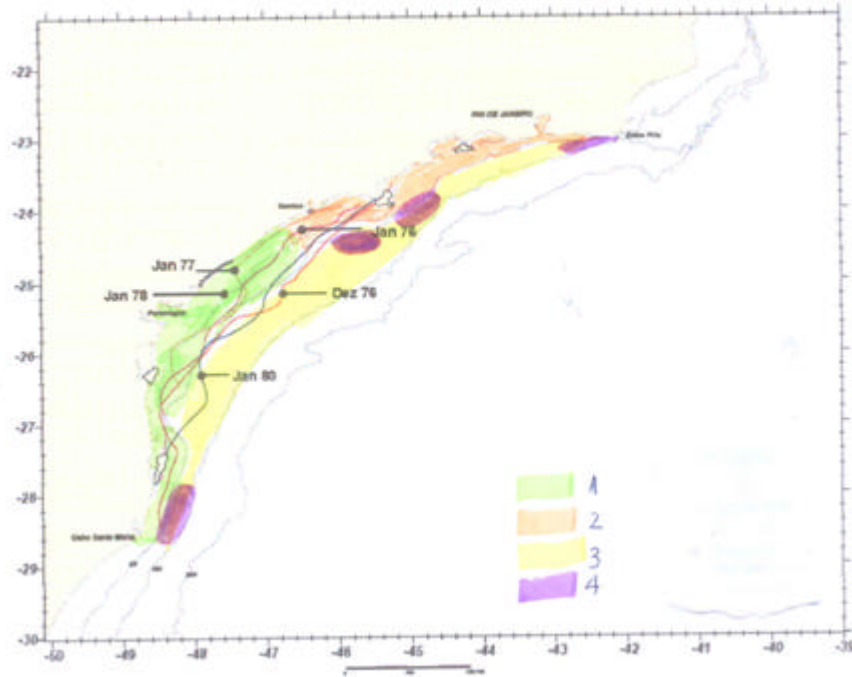
Number of groups: 33, between 2 mammals, 1 birds, 22 fish, 5 invertebrates, 2 producers, 1 discard.

Number of fleets/gears: 7, artisanal, purse-seiners, pair-bottom trawlers, pink-shrimp trawler, gillnetters, small shrimp trawlers, live-baitfish fleet.

Provide table of habitats.

- 1- Cool coastal water (sub-antarctic lateral intrusion, cool and fresh, La Plata plume)
- 2- Warm coastal water (low salinity influenced by rivers runoff)
- 3- South Atlantic Central Water (cool/oceanic)
- 4- Upwelling zones

Provide map of habitats (please be sure that numbers corresponding to habitats appears in the map). Assign habitats table



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Group \ Habitat #	All habitats (e	Cool coastal water (Warm coastal water (2)	SACW (3)	Upwelling zones (4)
Bryde-whales					+
Dolphins	+				
Seabirds	+				
Large pelagic fish	+				
Sharks	+				
Rays		+	+	+	
Weakfish (Cynoscion)			+		
Other piscivore fish				+	
Large benthic fish	+				
Flatfish		+			
Triggerfish			+		
King weakfish (Macrodon)		+	+		
Other benthic fish		+	+		
Octopus			+		
Cutlass fish		+	+		
Hakes		+		+	
Croaker			+		
Other sciaenids			+		
Squids			+	+	
Mackerel				+	
Zooplanktivore Carangids				+	+
Carnivorous benthos	+				
Sardine Juveniles				+	+
Sardine Adults				+	+
Small pelagics				+	+
Catfish		+			
Shrimps			+		
Mulletts		+			
Zooplankton	+				
Detritivorous benthos		+	+		
Phytoplankton				+	+
Discards	+				
Detritus	+				

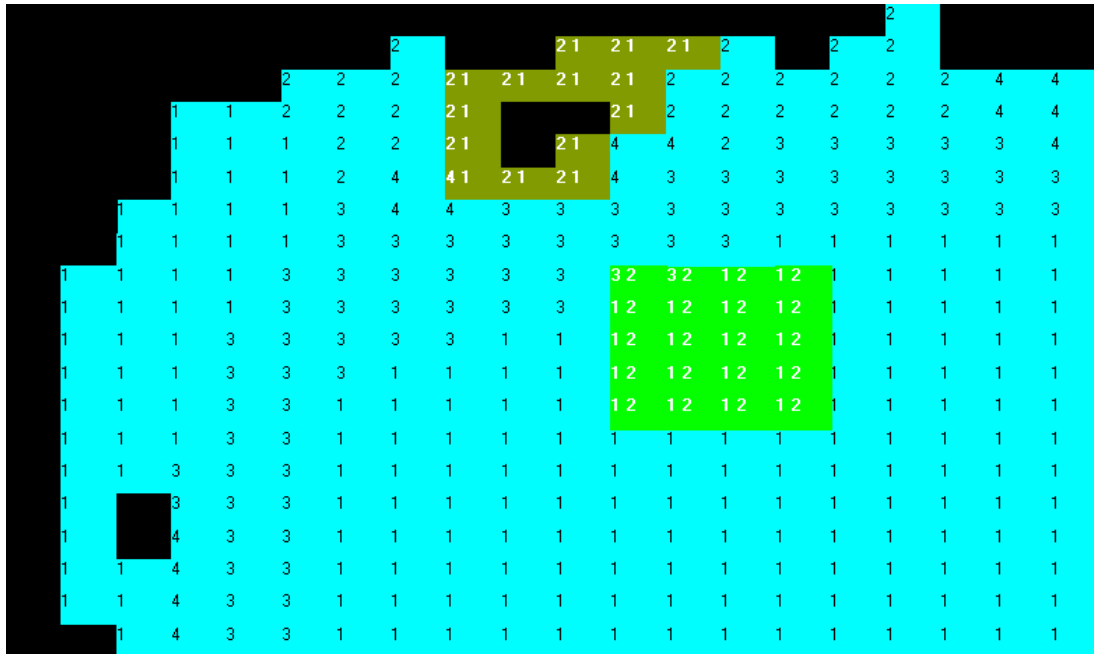
Obs: Firstly, both bottom-type (sands and mud) and depth-strata were tested as habitat types, but because of the homogeneity then it was decided that the objective of the analysis will be to consider oceanographic features such as water masses preferences as system's most important habitats definition.

After the first proposal and tests in La Paz, an intensive study was dedicated to the delineation of a scheme that horizontally/spatially could synthesize the main oceanographic features in the region. It was based on consultation with oceanographers, satellites images and a search of updated oceanographic literature. Map of habitats is now a result of intensive integration of oceanographic data from several sources and the construction of an image describing a rough average situation based on the probability of the occurrence of different water masses in each cell.

Information of the problem (reason) because you are representing an MPA and what are you are trying to respond (IF it was exposed in point five above do not repeat here)

There are 2 MPAs in the region: one for the live-bait fleet and trawlers, and other no-take area.

Provide the map with location of the MPA



21- MPA- Livebaitfish fleet and trawlers

12- MPA- Permanent no-take area

If you are representing regions, please provide the map with the region and explain briefly the concept of the regions.

A North-South direction regions delimitation was defined based on fish community studies, as being:

1-Northern region– from Cape Frio to Grande Island

2-Islands regions – from Grande Island to Santos

3-Central region – from Santos to Paranaguá

4-Southern region – from Paranaguá to Cape Santa Marta

IF you have fleet allocation please define fleets and provide the correspondent map

Not yet – to be implemented.

Please indicate if you are using advection fields, migration indicating groups affected. Please also provide any other relevant information used to modeling. Not yet, but advection fields from hydrological models are available from literature.

Please provide your output map(s) with your interpretation regarding the problem focused, including a conclusion (if pertinent)

None useful interpretation so far.

Work in progress –

Please provide a list of those aspects you think could be help with improving Ecospace (problems you find, things you want to see, other facilities you think could be useful, etc).

- **Problems found:** some incompatibilities with 2 different computers running with MS-windows-portuguese version: flat line appears in ecospace even after regional settings changes. In other computer, settings changes was successful for ecospace.
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- **Ideas for ECOSPACE improving:**
- The possibility of habitat overlapping and the use of different layers of environmental variables (surface temp., bottom temp, salinity, oxygen, nitrate, sediment type) for habitats definition.
- Possibility of increasing some habitats size during running (i.e. the effect of a cool intrusion or upwelling).
- I would like to learn how to import files from GIS into Ecospace.