

Nearshore prioritization 1.1 Report

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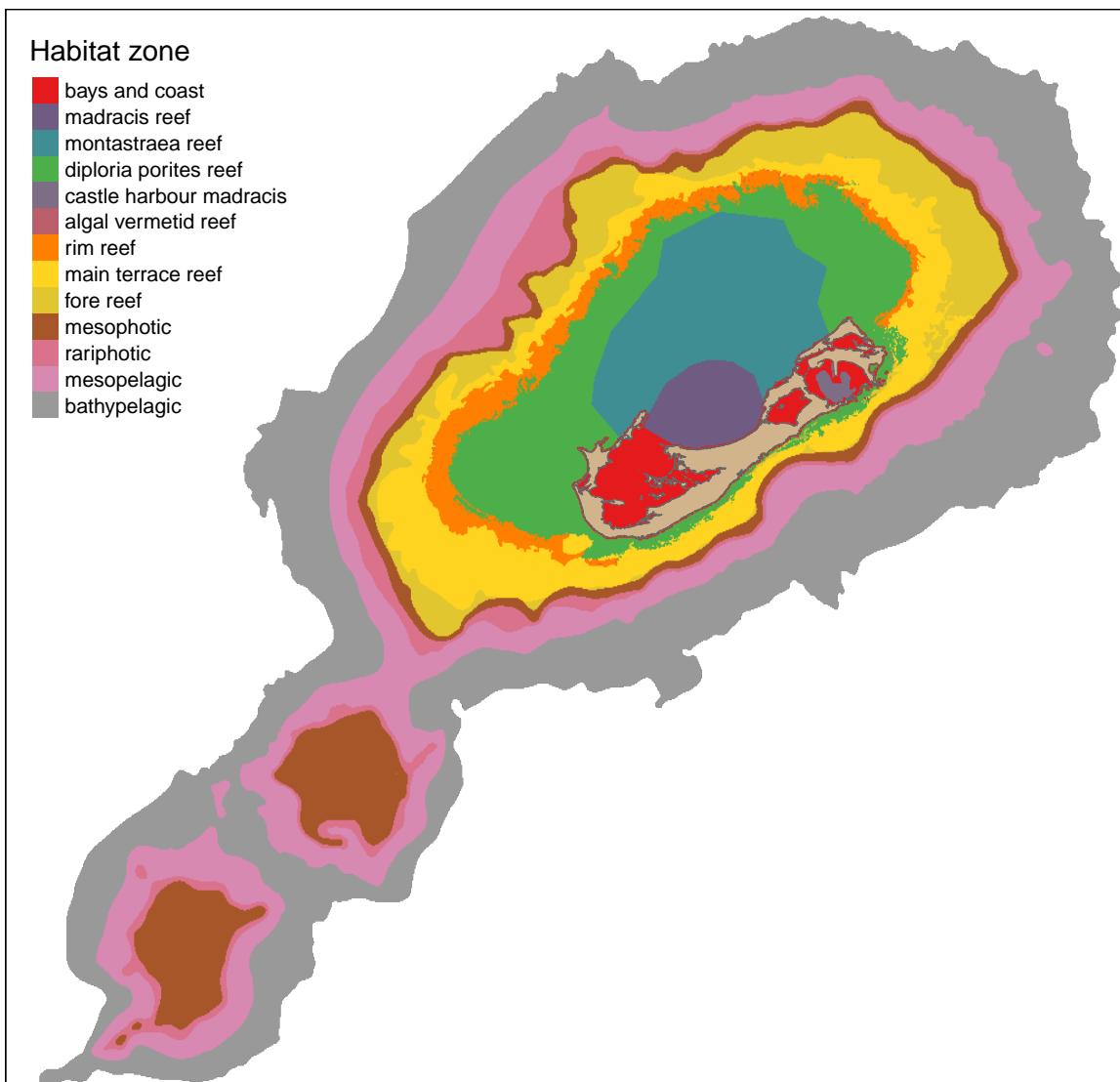
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Features

This prioritization will use the following features:

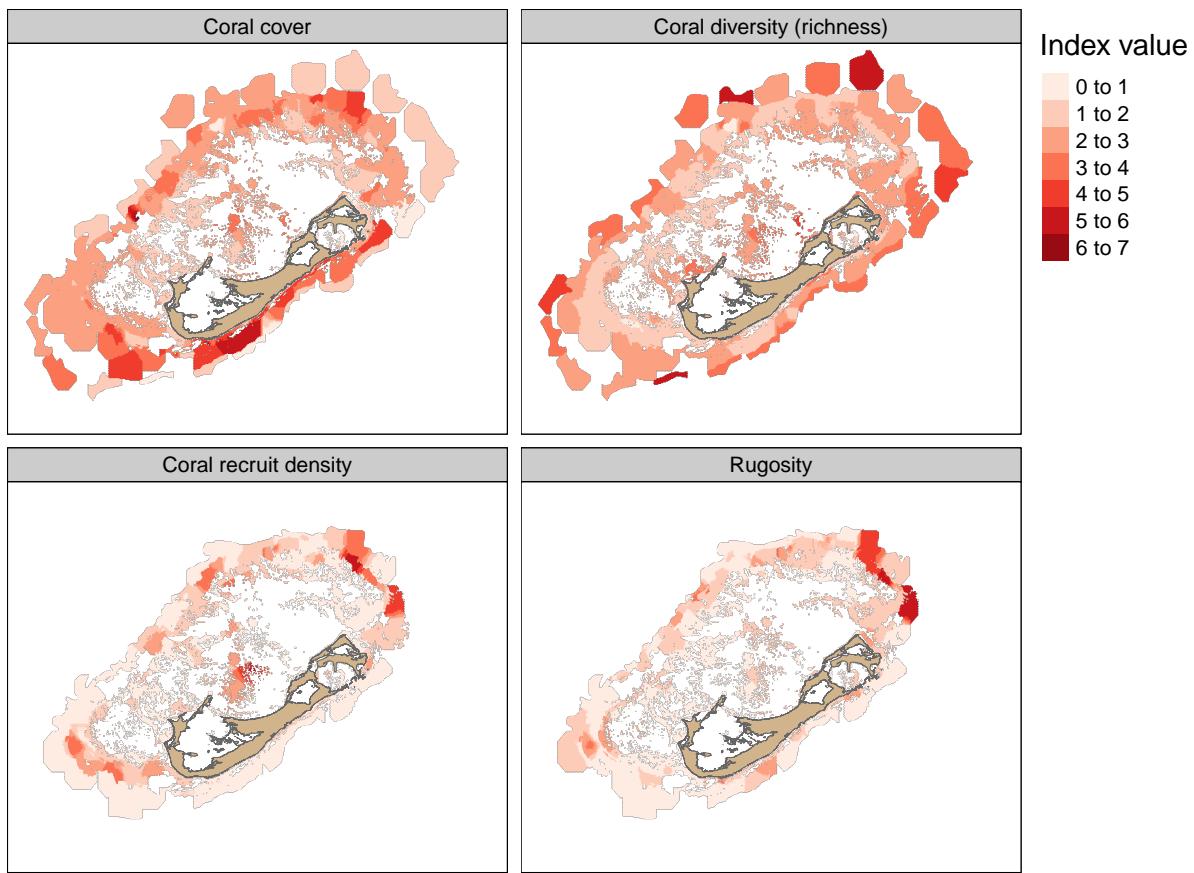
Habitat zones: the 13 habitat zones.



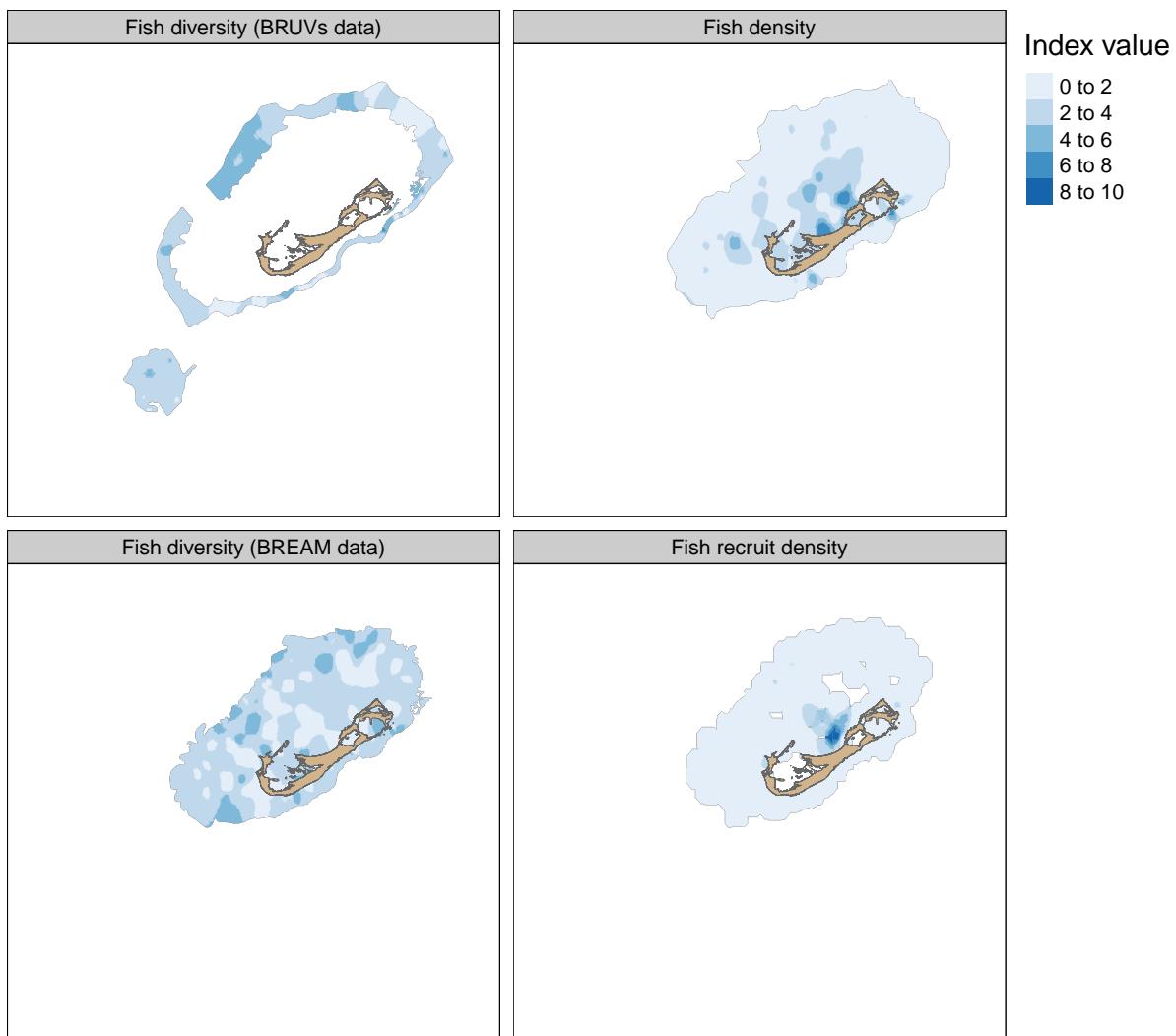
Reef Health

Scaled reef data values, including BRUVS fish species richness data for areas outside the main terrace reef

- Here are the coral/ benthic data:

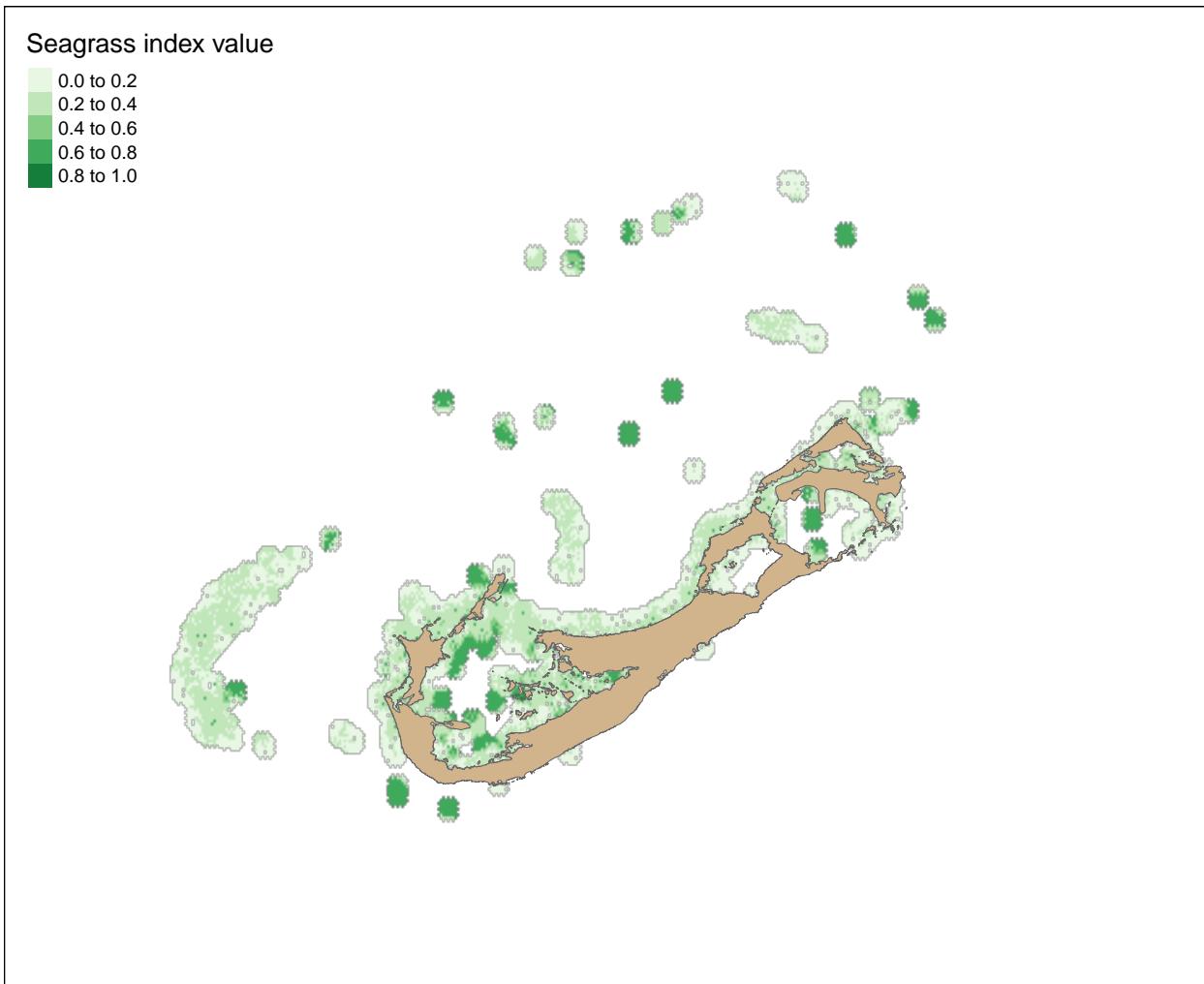


- Here are the fish data:



Seagrass

Seagrass index value, interpolated in R with range = 500, and power = 2

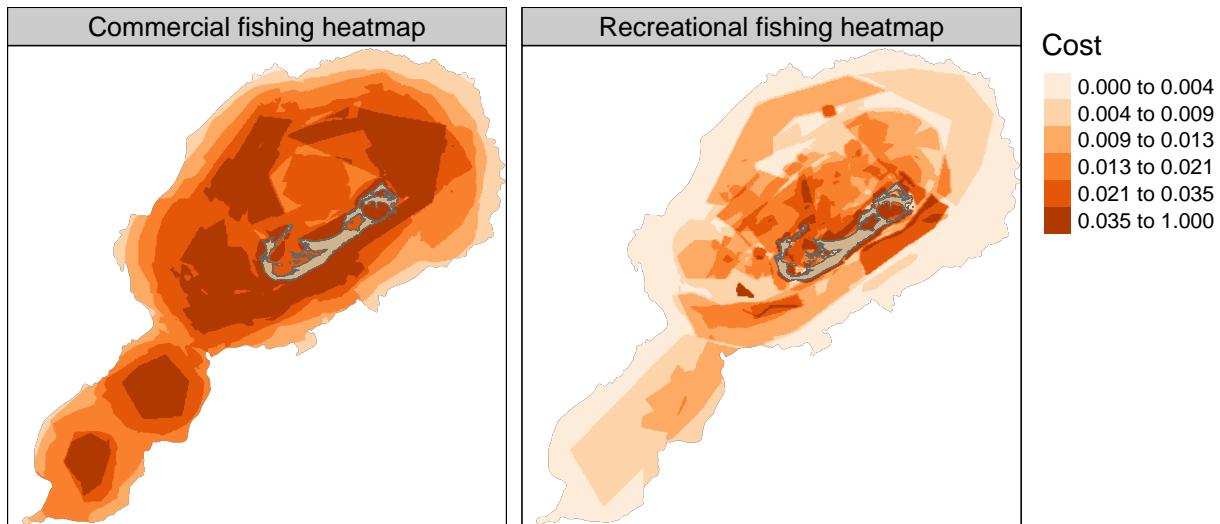


Targets

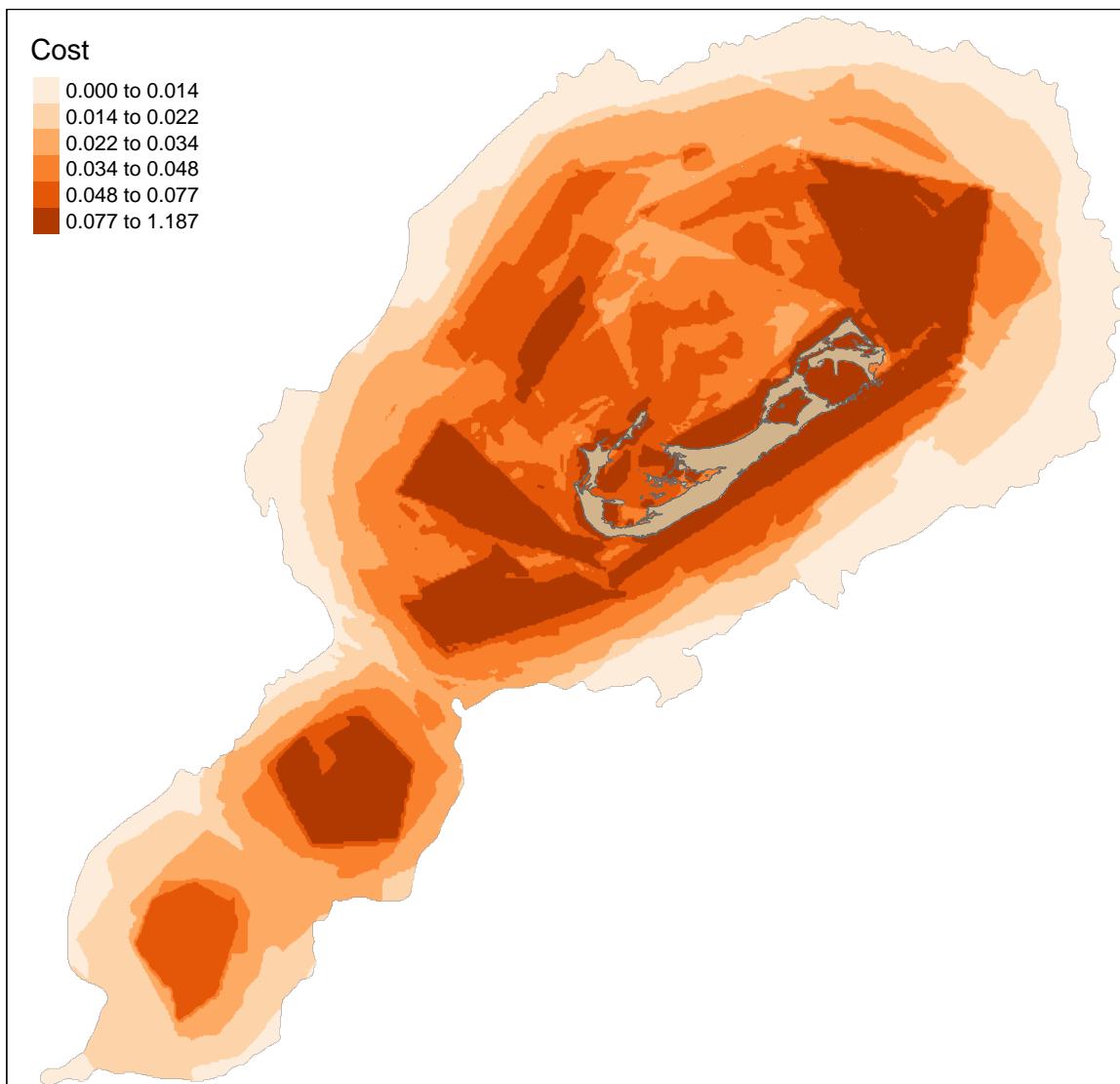
- Habitat zones: 20% of each habitat zones
- Coral/ benthic data: 20% of the total value of each of the coral/ benthic data layers
- Fish: 20% of the total value of each of the fish data layers
- Seagrass: 50% of the total seagrass index value

Cost

The cost data is composed of the commercial and recreational fishing Seasketch generated heatmaps. Each data set was rasterized to the platform planning area, and rescaled on a 0-1 scale:

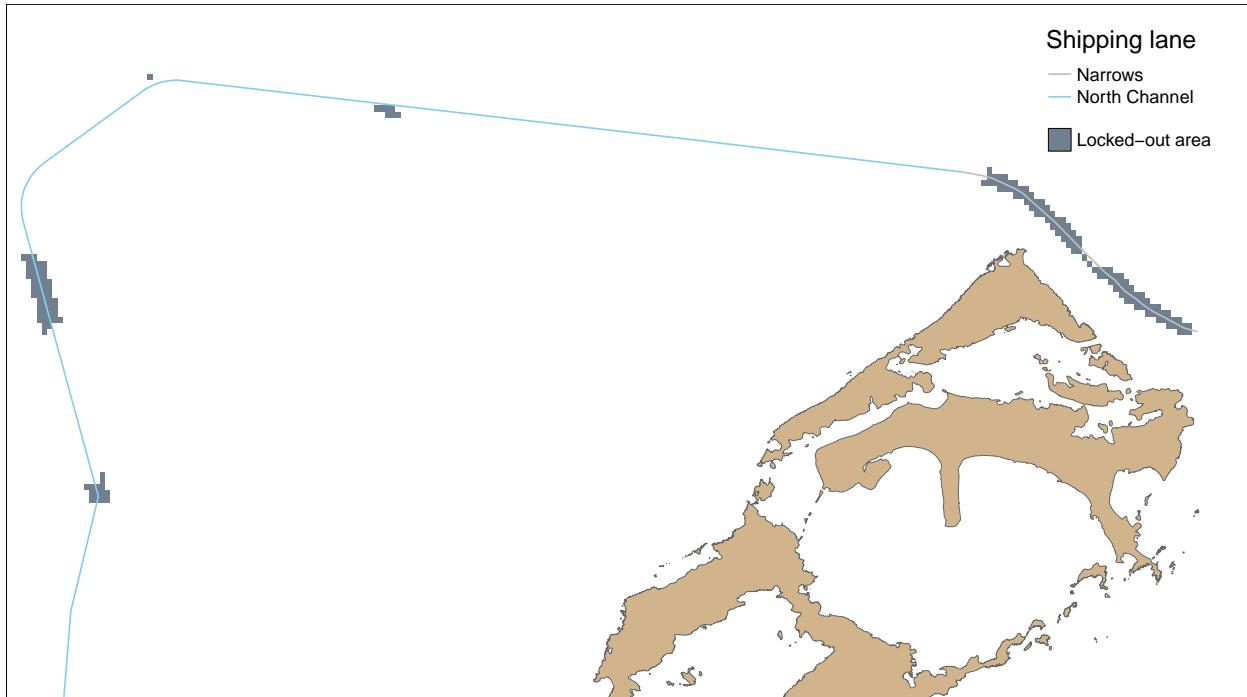


The cost input for the prioritization is the sum of the commercial and recreational fishing data:



Locked-out areas

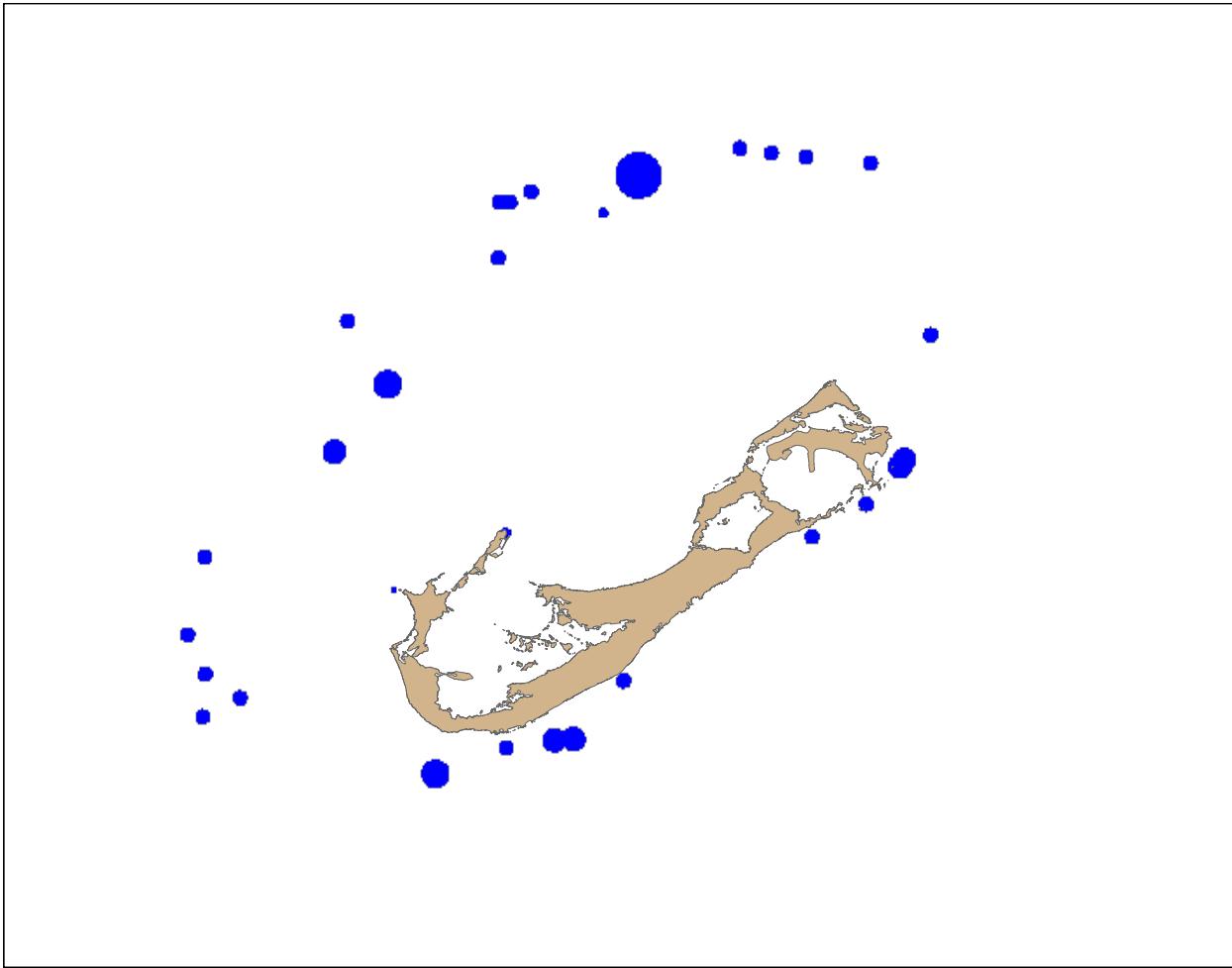
Shipping lanes that are dredged will be locked-out (not available for prioritization). Only sections of the North Channel and Narrows Channel that are shallower than 11.6m and 12.5m respectively are dredged.



Locked-in areas

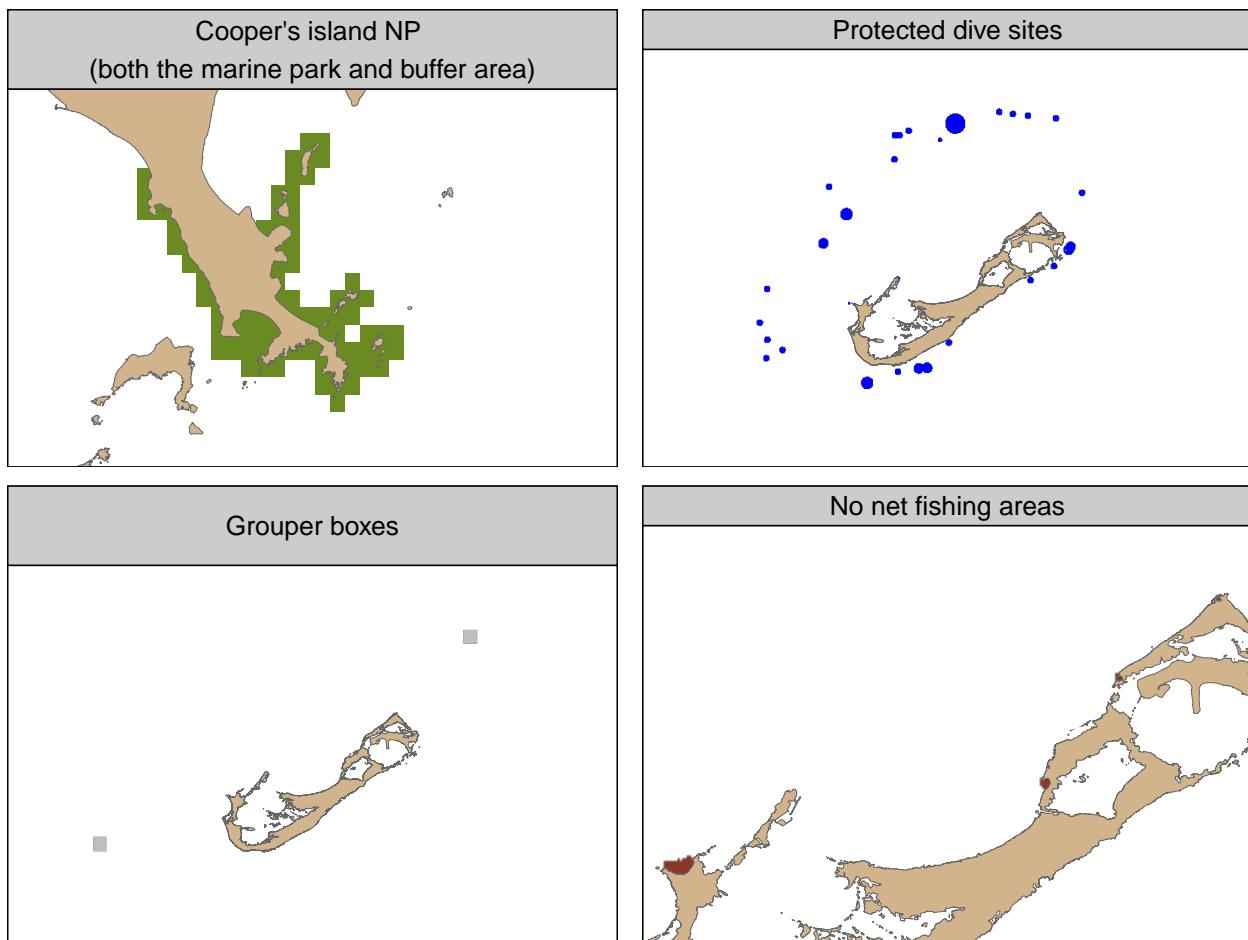
These are the areas that will be included in the prioritization as locked-in, meaning they will be definitely included in the prioritization solution (priority area for protection):

- Protected dives sites (Scenario 1) These cover 0.7% of the planning area (platform).



- 4 locked-in zones (Scenario 2)

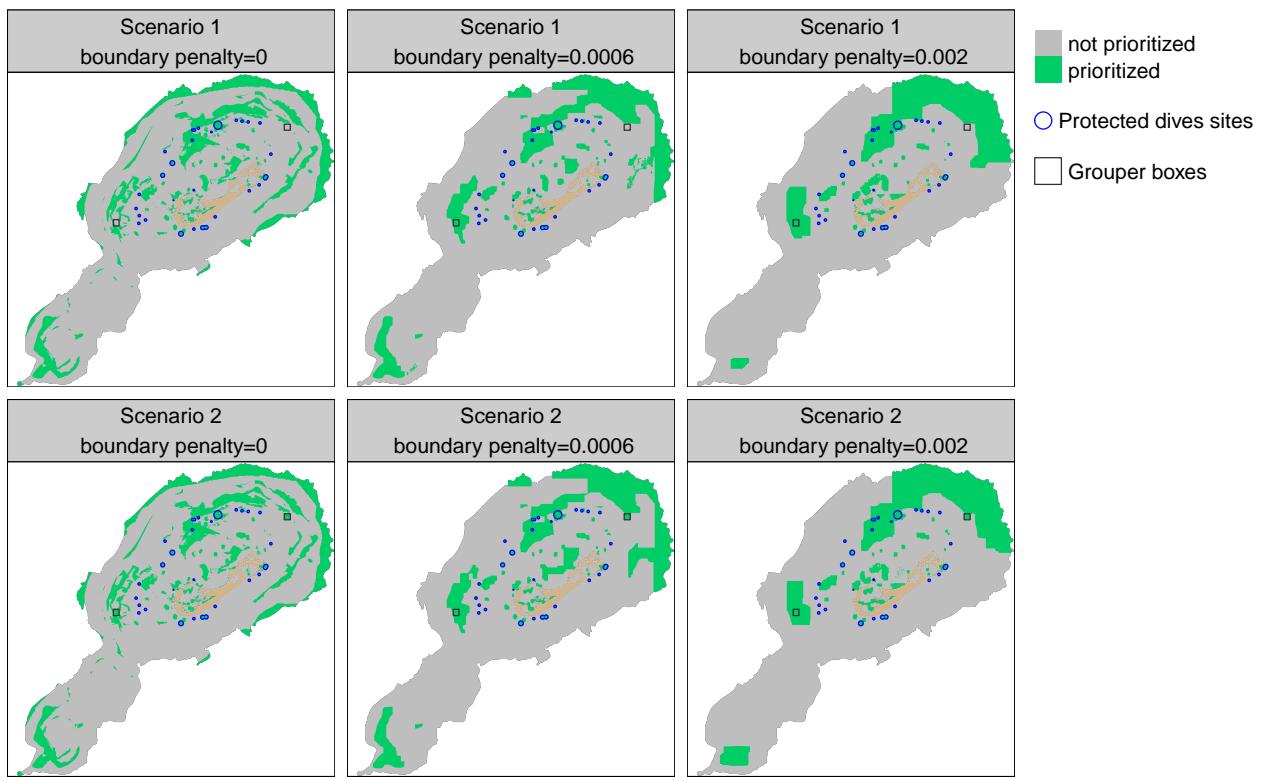
These cover 0.9% of the planning area (platform).



Prioritization solution

Time to run prioritizations: 6.24 hours.

There are a total of 355728 planning units. Each planning unit is 78.5 m (x) by 92.4 m (y).

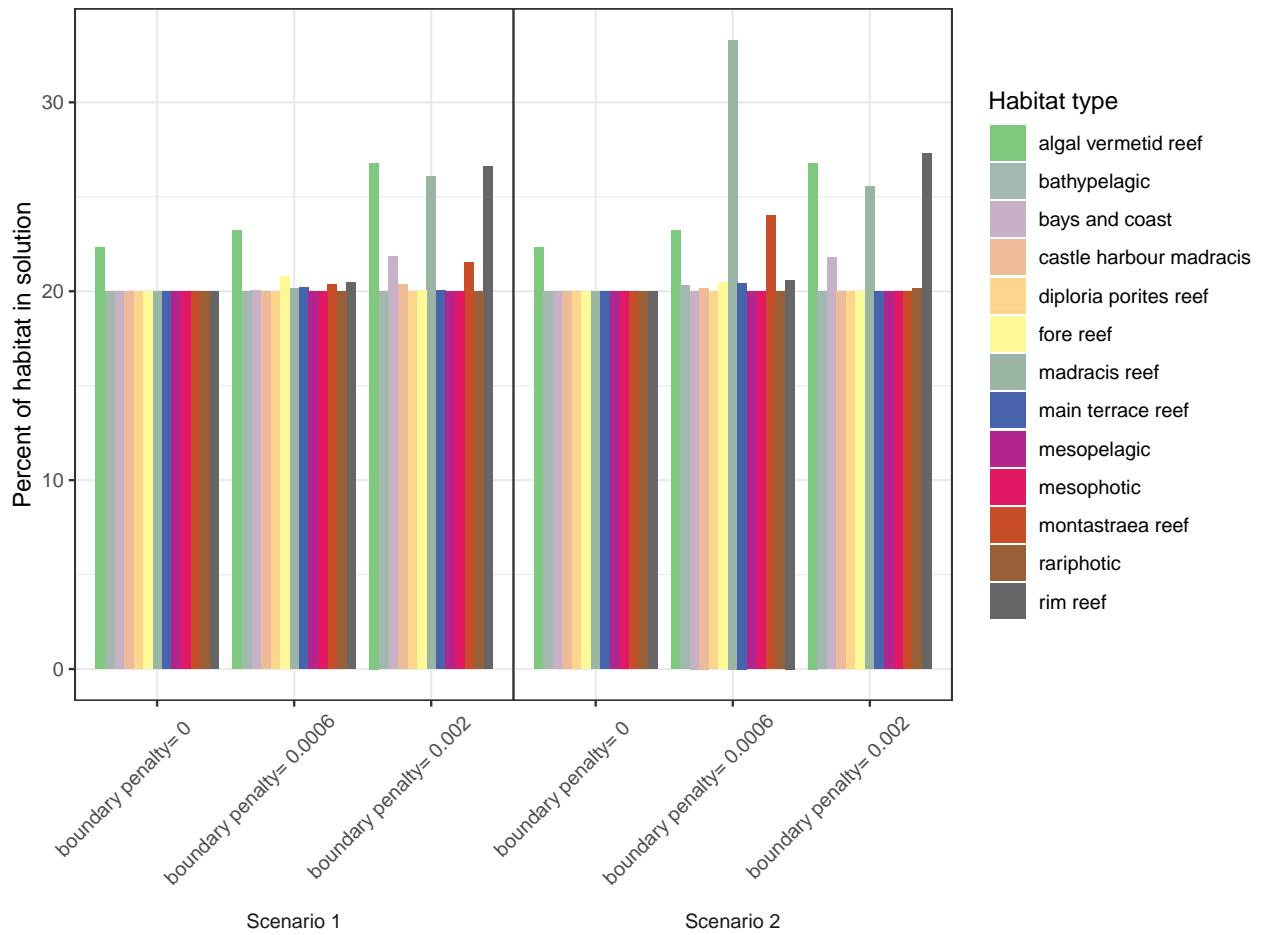


How much of each feature is represented in the solution?

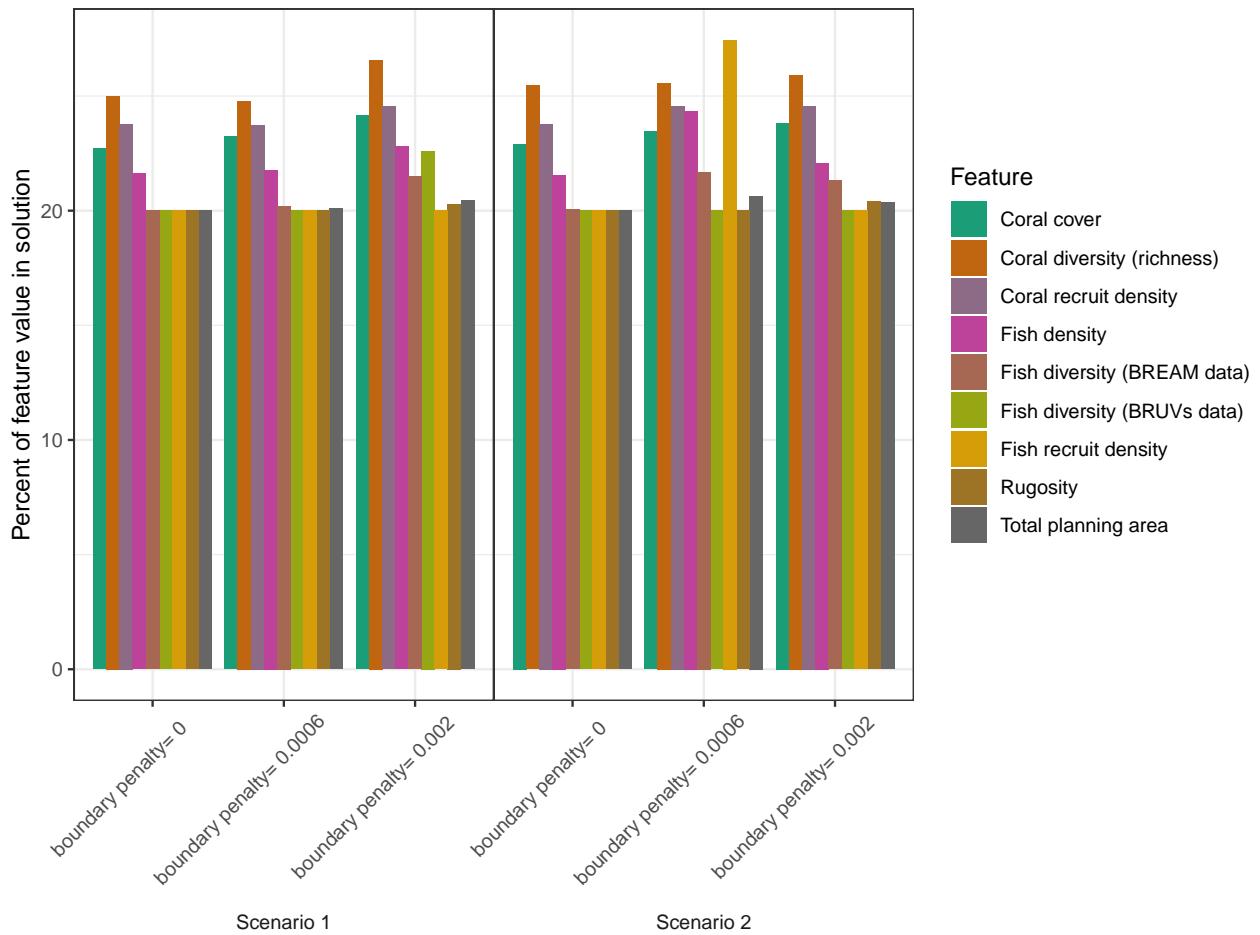
Feature	Target %	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario
		1, bound- ary penalty= 0	1, bound- ary penalty= 0.0006	1, bound- ary penalty= 0.002	2, bound- ary penalty= 0	2, bound- ary penalty= 0.0006	2, bound- ary penalty= 0.002
Total planning area		20.0	20.1	20.4	20.0	20.6	20.4
bays and coast	20.0	20.0	20.0	21.9	20.0	20.0	21.8
madracis reef	20.0	20.0	20.1	26.1	20.0	33.3	25.5
montastraea reef	20.0	20.0	20.4	21.5	20.0	24.0	20.0
diploria porites reef	20.0	20.0	20.0	20.0	20.0	20.0	20.0
castle harbour madracis	20.0	20.0	20.0	20.4	20.0	20.2	20.0

Feature	Target %	Scenario 1, bound- ary penalty= 0	Scenario 1, bound- ary penalty= 0.0006	Scenario 1, bound- ary penalty= 0.002	Scenario 2, bound- ary penalty= 0	Scenario 2, bound- ary penalty= 0.0006	Scenario 2, bound- ary penalty= 0.002
algal vermetid reef	20.0	22.3	23.2	26.8	22.3	23.2	26.8
rim reef	20.0	20.0	20.5	26.6	20.0	20.6	27.3
main terrace reef	20.0	20.0	20.2	20.0	20.0	20.4	20.0
fore reef	20.0	20.0	20.8	20.0	20.0	20.5	20.0
mesophotic	20.0	20.0	20.0	20.0	20.0	20.0	20.0
rariphotic	20.0	20.0	20.0	20.0	20.0	20.0	20.2
mesopelagic	20.0	20.0	20.0	20.0	20.0	20.0	20.0
bathy- pelagic	20.0	20.0	20.0	20.0	20.0	20.3	20.0
Coral cover	20.0	22.7	23.2	24.2	22.9	23.4	23.8
Coral diversity (rich- ness)	20.0	25.0	24.8	26.6	25.5	25.6	25.9
Coral recruit density	20.0	23.8	23.7	24.5	23.8	24.6	24.6
Rugosity	20.0	20.0	20.0	20.3	20.0	20.0	20.4
Fish diversity (BRUVs data)	20.0	20.0	20.0	22.6	20.0	20.0	20.0
Fish density	20.0	21.6	21.8	22.8	21.6	24.3	22.1
Fish diversity (BREAM data)	20.0	20.0	20.2	21.5	20.0	21.7	21.3
Fish recruit density	20.0	20.0	20.0	20.0	20.0	27.4	20.0
Seagrass	50.0	50.0	50.0	50.0	50.0	50.0	50.0

Habitats



Other features

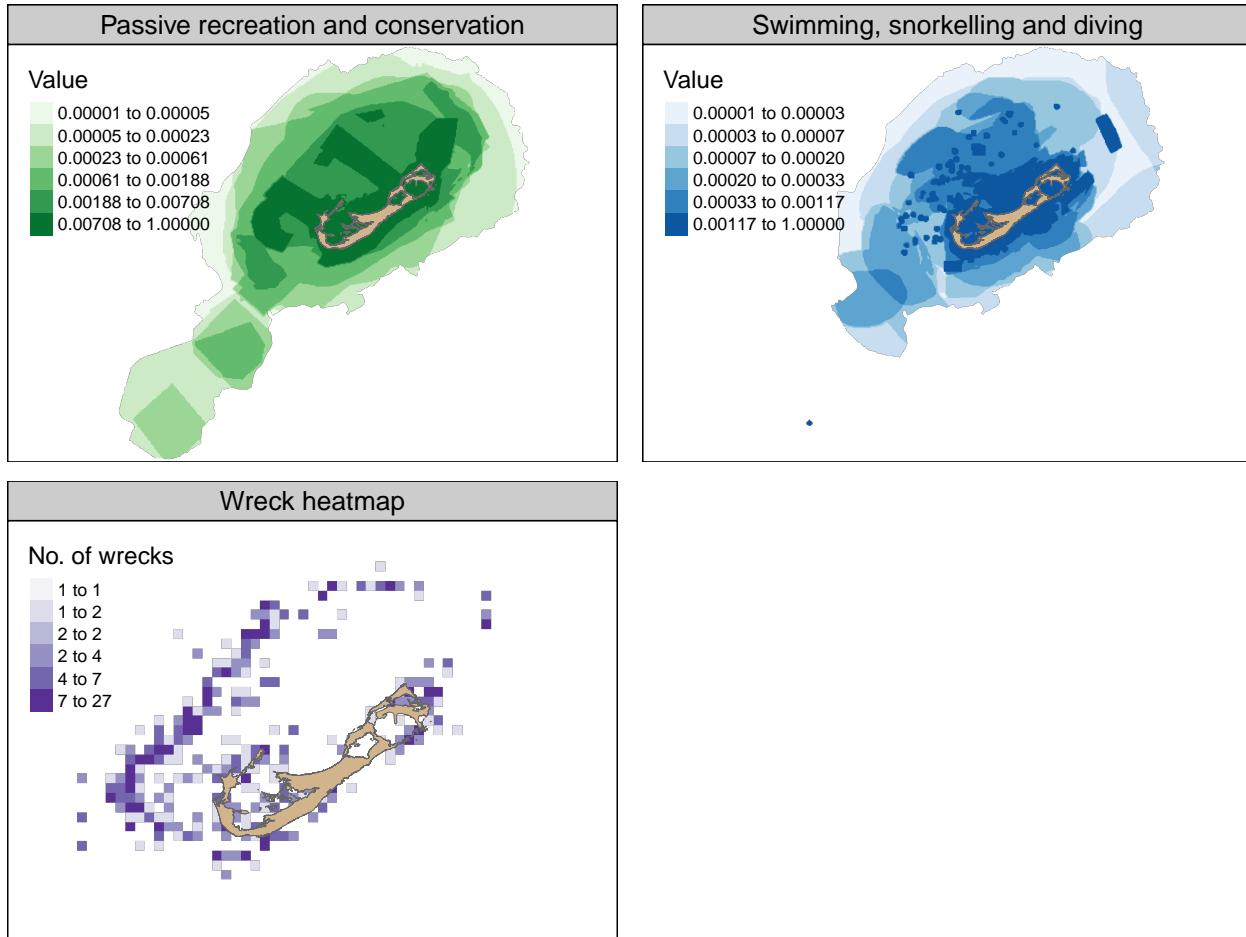


How much of Ocean Use Survey and wrecks heatmap values are in solutions?

Data	Scenario 1, boundary penalty=0	Scenario 1, boundary penalty=0.0006	Scenario 1, boundary penalty=0.002	Scenario 2, boundary penalty=0	Scenario 2, boundary penalty=0.0006	Scenario 2, boundary penalty=0.002
	Passive recreation and conservation	15.3	14.3	15.4	17.4	17.8
Swimming, snorkelling and diving	17.1	16.3	17.8	19.3	19.7	20.4

Data	Scenario 1, bound- ary penalty=0	Scenario 1, bound- ary penalty=0.0006	Scenario 1, bound- ary penalty=0.002	Scenario 2, bound- ary penalty=0	Scenario 2, bound- ary penalty=0.0006	Scenario 2, bound- ary penalty=0.002
Heatmap of wrecks	26.9	28.3	30.4	27.5	29.0	31.0

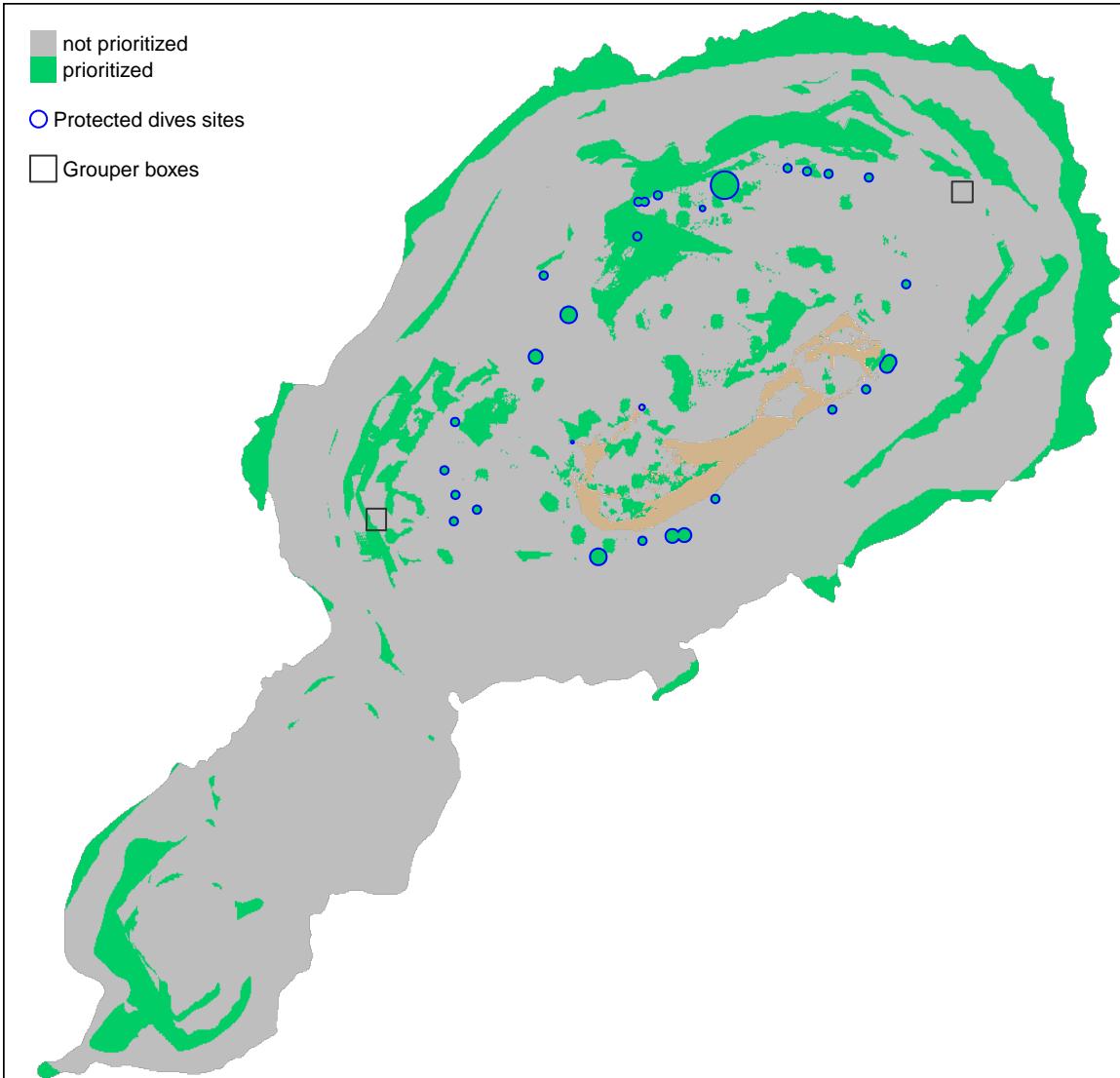
Ocean use survey values maps and wreck heatmap:



Enlarged maps of each solution

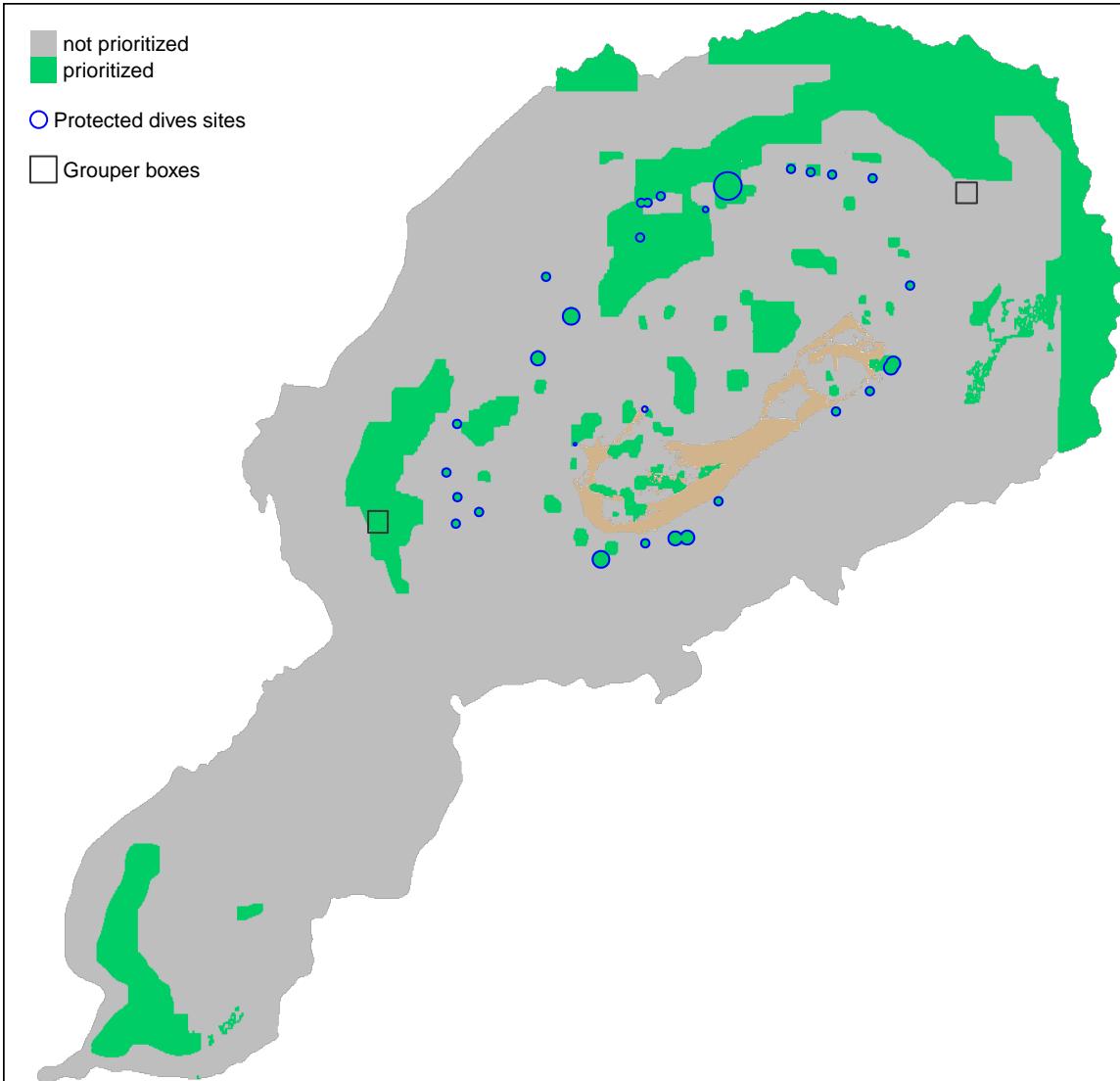
Scenario 1

boundary penalty=0 The solution occupies 71151 units, which is 20.0 % of the planning area.



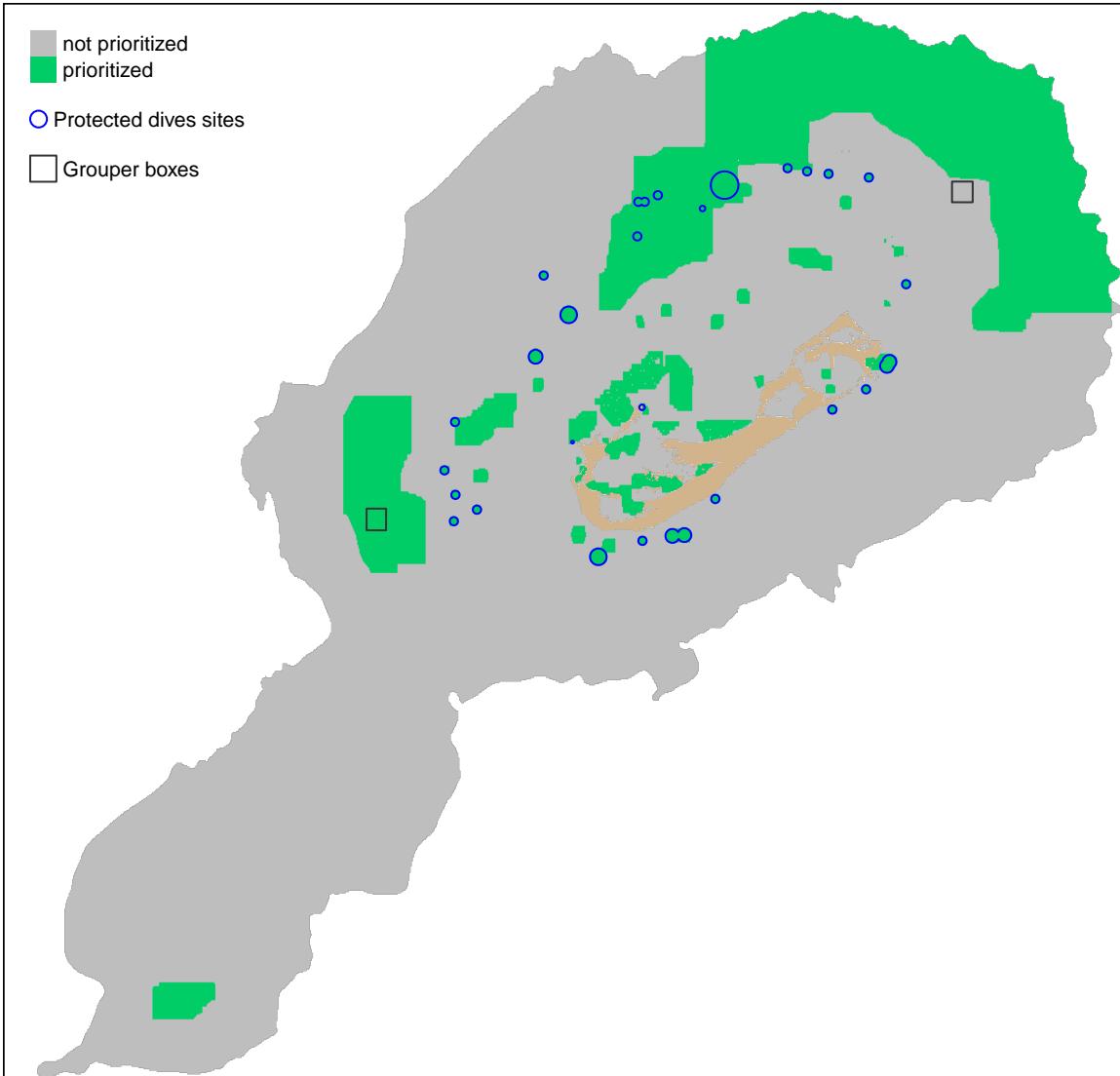
Scenario 1

boundary penalty=0.0006 The solution occupies 71508 units, which is 20.1 % of the planning area.



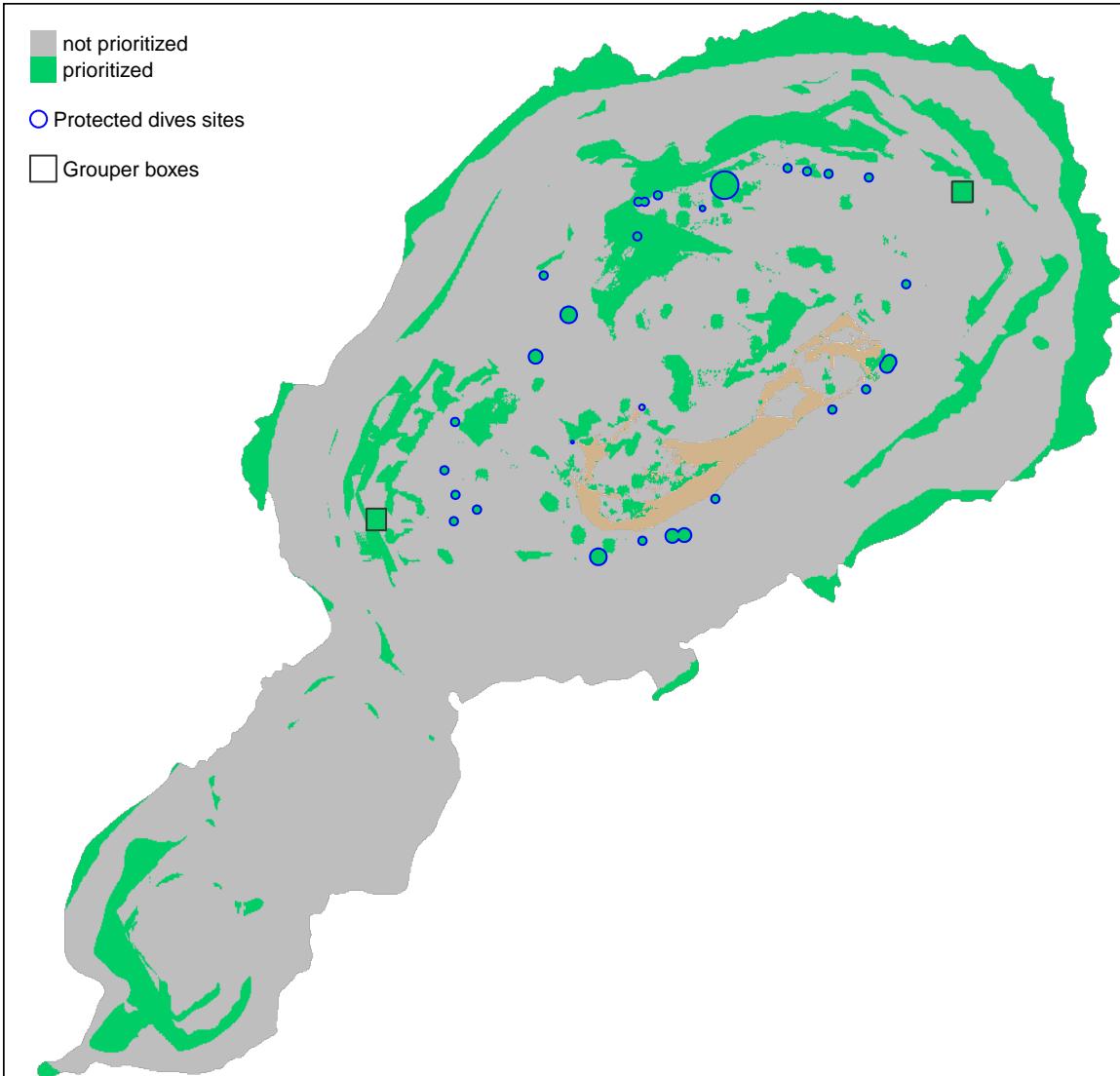
Scenario 1

boundary penalty=0.002 The solution occupies 72690 units, which is 20.4 % of the planning area.



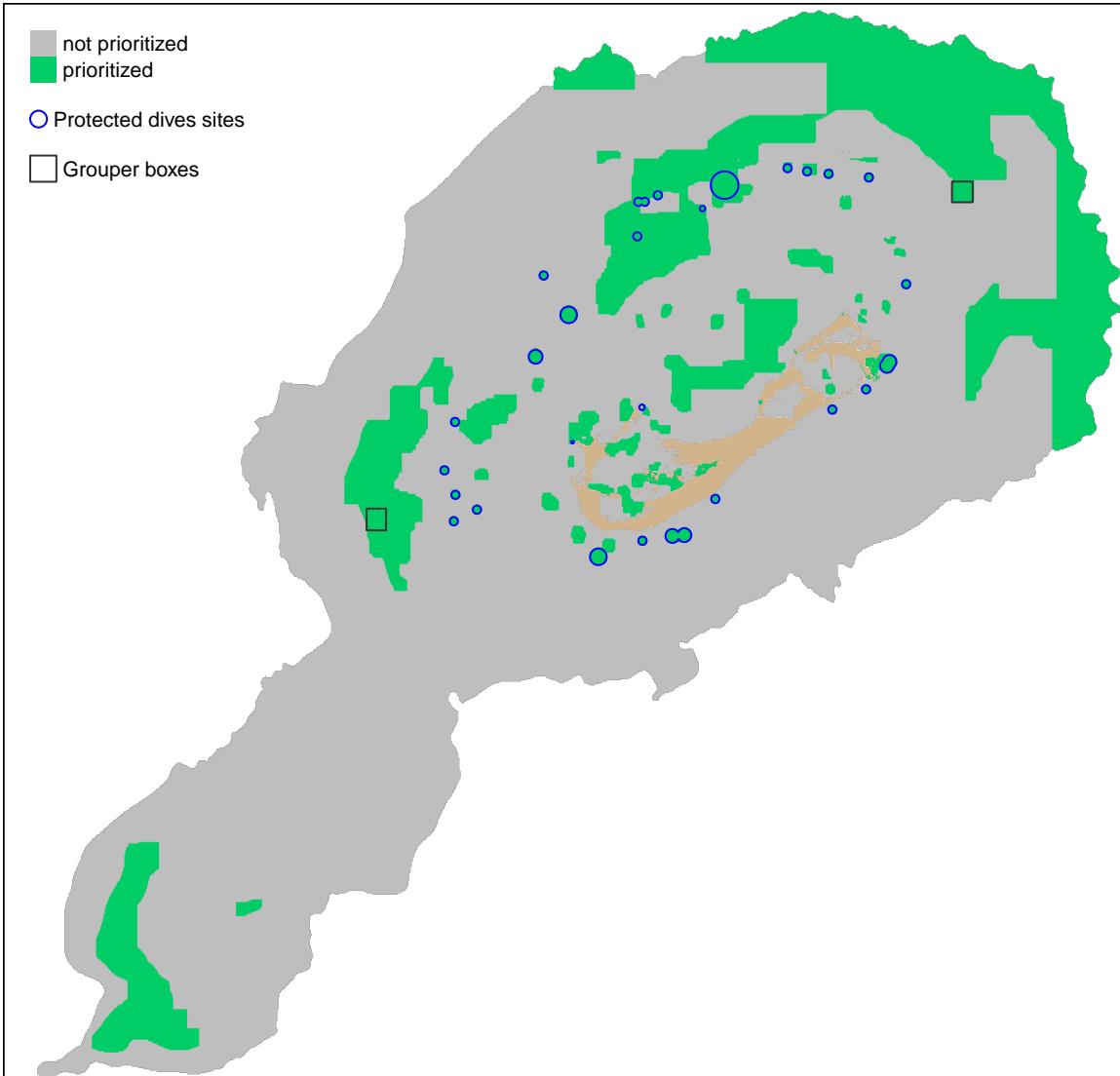
Scenario 2

boundary penalty=0 The solution occupies 71151 units, which is 20.0 % of the planning area.



Scenario 2

boundary penalty=0.0006 The solution occupies 73400 units, which is 20.6 % of the planning area.



Scenario 2

boundary penalty=0.002 The solution occupies 72419 units, which is 20.4 % of the planning area.

