

PRELIMINARY ASSESSMENT FOR LOWER YORKE PENINSULA MARINE PARK LOCAL ADVISORY GROUP TO ASSIST WITH THE MEETING ON THE 2nd of MAY 2011

Rapid Assessment on Comprehensive, Adequate and Representative (CAR) Principles for the Lower Yorke Peninsula Marine Park (Marine Park 13) suggested zoning options

Overview

DENR has undertaken a rapid assessment of the CAR principles for the possible sanctuary zone options for the Lower Yorke Peninsula Marine Park suggested by members of the Marine Parks Local Advisory Group (MPLAG) and community in April 2011.

This assessment is a guide to help with park zoning design, it was taken from a community map suggestion that continues to undergo revisions and does not reflect the latest version. Community feedback and MPLAG advice has resulted in sanctuary zones suggested at three locations within the marine park (Zones A, C, D) (See Figure 1).

This rapid assessment¹ helps to determine if the zoning option meets the core biophysical principles of:

Comprehensive: To be comprehensive, examples of all ecosystems and habitats within the marine park should be included within sanctuary zones.

Adequate: To be adequate the marine parks system should provide for the maintenance of the ecological viability and integrity of populations, species and communities

Representative: To be representative, the system of sanctuary zones should reflect the biodiversity and variability naturally present in the marine park.

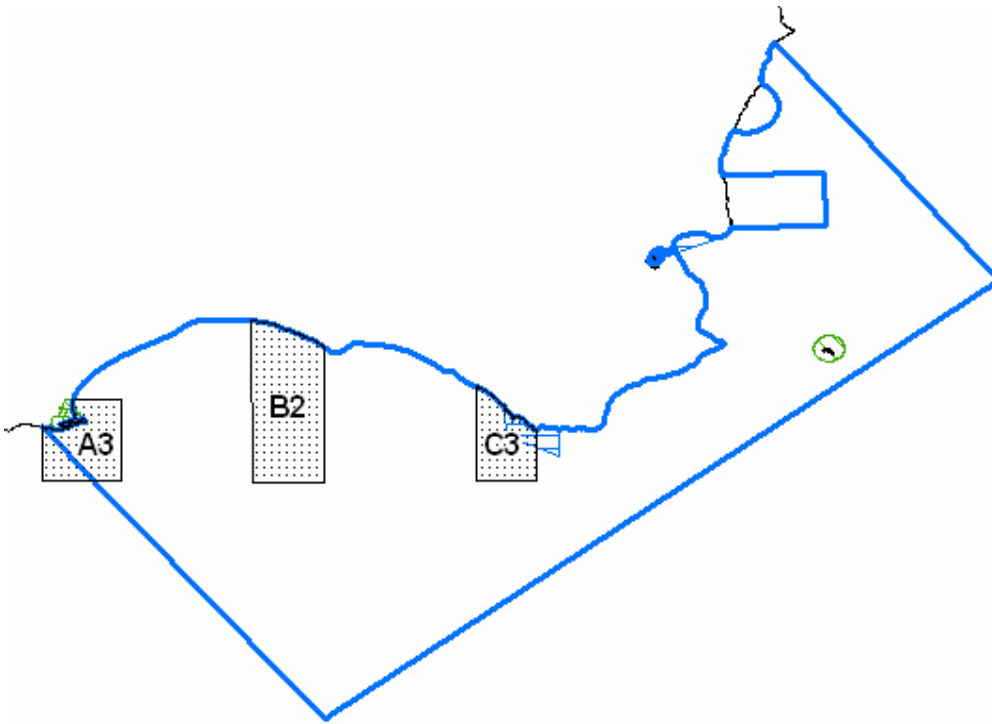
MPLAGs should seek to apply the full suite of 14 design principles in any further zoning advice generated.

Possible zoning option for marine park 13 using the three suggested zones

Figure 1: Zoning Option 1 (10% of MP)

A3, B2, C3

¹ GIS processing formed the basis of the rapid assessments. A number of data layers captured at various scales were used in the analysis, these include layers such as: state and national benthic mapping; coastal shoreline types; and sea lion haul out and breeding locations. Procedures such as intersections, unions, frequency analysis as well as manual measurements were used in this assessment. All information is subject to the scale and accuracy of the data used.



How to use this document

The rapid assessment shows the range of environmental values/features that are included in MPLAG zoning options and that are omitted. It also shows those features that are well represented and those that are under-represented. **For each under-represented feature, the maps in Appendix C show alternative locations where the feature is mapped.**

The rapid assessment also provides a measure of each suggested sanctuary zone to assist consideration of the adequacy of those zones. **Note: It is better to have fewer, larger sanctuary zones than many smaller ones.**

Comprehensiveness

Each option was assessed for the inclusion of examples of shoreline types and seafloor (benthic) habitats in the suggested sanctuary zones.

This zoning option includes the following shoreline types and seafloor (benthic) habitats:

- ✓ Rocky reef
- ✓ Seagrass
- ✓ Soft bottom habitat
- ✓ Unmapped

This zoning option does not include the following shoreline types and seafloor (benthic) habitats:

- * Macroalgae
- * Bedrock platform
- * Cliff
- * Coarse sand beach

Representativeness

Each option was assessed against the proportion of environmental values² represented in the suggested sanctuary zones. To consider the full diversity and variability of the coastal and marine features, this

² In this assessment an environmental value includes seafloor habitats and shoreline habitats and ecologically important features available within the outer boundary.

assessment included benthic habitat types at different depths, shoreline types at different exposures and a range of other ecologically important features. Each zoning option was assessed for the proportion (as a %) of environmental values represented in the suggested sanctuary zones. Proportions were broken into 4 categories: $\geq 20\%$, between 10% and 19%, $< 10\%$ and 0%.

Environmental values represented within the possible zoning options as a proportion of their availability within the park

Environmental values that are represented in the zoning option at a level $\geq 20\%$:

- ✓ Estuary
- ✓ Surveyed reef fish sites
- ✓ Seagrass (0 to -10m)

Environmental values that are represented in this zoning option between 10-19%:

- ✓ Cosema endangered macroalgae
- ✓ Rocky reef (0 to -10m)
- ✓ Soft bottom habitat (0 to -10m)

Environmental values that are represented in this zoning option at a level $< 10\%$:

- ✓ Coastal wader bird sites
- ✓ Rocky reef (-10 to -30m)
- ✓ Unmapped (0 to -10m)
- ✓ Unmapped (-10 to -30m)

Environmental values that are not represented (0%):

- x Emergent land
- x Offshore islands
- x Sea bird sites
- x Macroalgae (0 to -10m)
- x Macroalgae (-10 to -30m)
- x Soft bottom habitat (-10 to -30m)
- x Unmapped (-30 to -50m)
- x Bedrock platform (exposed)
- x Bedrock platform (moderate)
- x Cliff (moderate)
- x Cliff (sheltered)
- x Coarse sand beach (moderate)
- x Coarse sand beach (sheltered)
- x Seagrass (sheltered)

Note:

- A more detailed assessment of environmental values and the percentage included in each zoning option can be viewed in Appendix A.
- Environmental values included within each suggested individual zone can be viewed in Appendix B.
- The locations of environmental values that are not included or are under represented are shown in Appendix C.

Adequacy

Each of the suggested zones was measured for their approximate lengths (from coast to offshore or longitudinal lengths) and widths (coastline or latitudinal lengths), these are shown in Table 1. The total area of each of the four options was then calculated, as shown in Table 2

Note: The guideline is that a zone should include whole habitats or areas with minimum linear dimensions of 7-10 km (or 5km where State waters are limited to 3 nautical miles). Smaller dimensions are likely to have a value but not for all organisms.

Table 1. Approximate length, width and size of each suggested zone (areas rounded to the nearest whole number).

Zone	From the coast to offshore (length) (km)	Coastline along shore (width) (km)	Size of zone (km ²)
A3	6	3	23
B2	11	4	46
C3	5	6	18

Note:

- size is not necessarily length x width, it is dependent on the shape of the zone.
- the total area of the Lower Yorke Peninsula Marine Park is approximately 847km².

Area of Zoning Option

Only one zoning option was developed with zones suggested at 3 locations.

The total area (km²) and the percentage sanctuary zones for the option can be seen in Table 2.

Table 2. Total area and percentage of sanctuary zones in the zoning option

Suggested zoning option	Total area of sanctuary zones (km ²)	% of sanctuary zones located in the marine park
Option 1	87	10

Appendix A

Table 3: The percentage of each environmental value included in zoning Option 1.

	Option 1 Total in all Zones (%)
Ecological Importance	
Coastal Wader Birds	5
Cosema Endangered Macroalgae	19
Emergent Land	0
Estuaries	50
Offshore Islands	0
Surveyed Reef Fish Sites	40
Sea Bird Sites	0

	Option 1 Total in all Zones (%)
Underwater Habitats	
Macroalgae (0 to -10m)	0
Macroalgae (-10 to -30m)	0
Rocky Reef (0 to -10m)	15
Rocky Reef (-10 to -30m)	8
Seagrass (0 to -10m)	20
Seagrass (-10 to -30m)	4
Soft-bottom Habitat (0 to -10m)	18
Soft-bottom Habitat (-10m to -30m)	0
Unmapped (0 to -10m)	9
Unmapped (-10 to -30m)	6
Unmapped (-30 to -50m)	0
Total	10

	Option 1 Total in all Zones (%)
Shoreline Habitats	
Bedrock Platform (Moderate)	0
Bedrock Platform (Sheltered)	0
Cliff (Moderate)	0
Cliff (Sheltered)	0
Coarse Sand Beach (Moderate)	0
Coarse Sand Beach (Sheltered)	0
Seagrass (Sheltered)	0
Total	0

Note: percentages rounded to the nearest whole number

Environmental values represented
Represented ≥20%
Represented between 10-19%
Represented <10%
Not Represented 0%

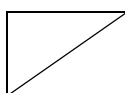
Appendix B.

Table 4. Environmental values represented in each suggested zone.

Ecological Importance	A3	B2	C3	Total in Marine Park (count)
Coastal Wader Birds	4	5	1	195
Cosema Endangered Macroalgae			3	16
Emergent Land				6
Estuaries	1			2
Offshore Islands				1
Surveyed Reef Fish Sites			2	5
Sea Bird Sites				8

Underwater Habitats	A3	B2	C3	Total in Marine Park (km2)
Macroalgae (0 to -10m)				25
Macroalgae (-10 to -30m)				5
Rocky Reef (0 to -10m)	0	1	1	14
Rocky Reef (-10 to -30m)			0	1
Seagrass (0 to -10m)	12	26	4	213
Seagrass (-10 to -30m)	0		0	18
Soft-bottom Habitat (0 to -10m)	4	0	0	26
Soft-bottom Habitat (-10m to -30m)				4
Unmapped (0 to -10m)	0	6	0	69
Unmapped (-10 to -30m)	1	13	12	400
Unmapped (-30 to -50m)				73
Total	17	46	18	847

Shoreline Habitats	A3	B2	C3	Total in Marine Park (km)
Bedrock Platform (Moderate)				3
Bedrock Platform (Sheltered)				15
Cliff (Moderate)			2	6
Cliff (Sheltered)				5
Coarse Sand Beach (Moderate)	2	5	2	39
Coarse Sand Beach (Sheltered)	4		1	12
Seagrass (Sheltered)	2			2
Total	8	5	5	83



Shoreline habitats were not included in the represented habitats. Currently the working zones allow fishing from all shore access points, there is opportunity for representing these habitats when the final shore access points are determined.

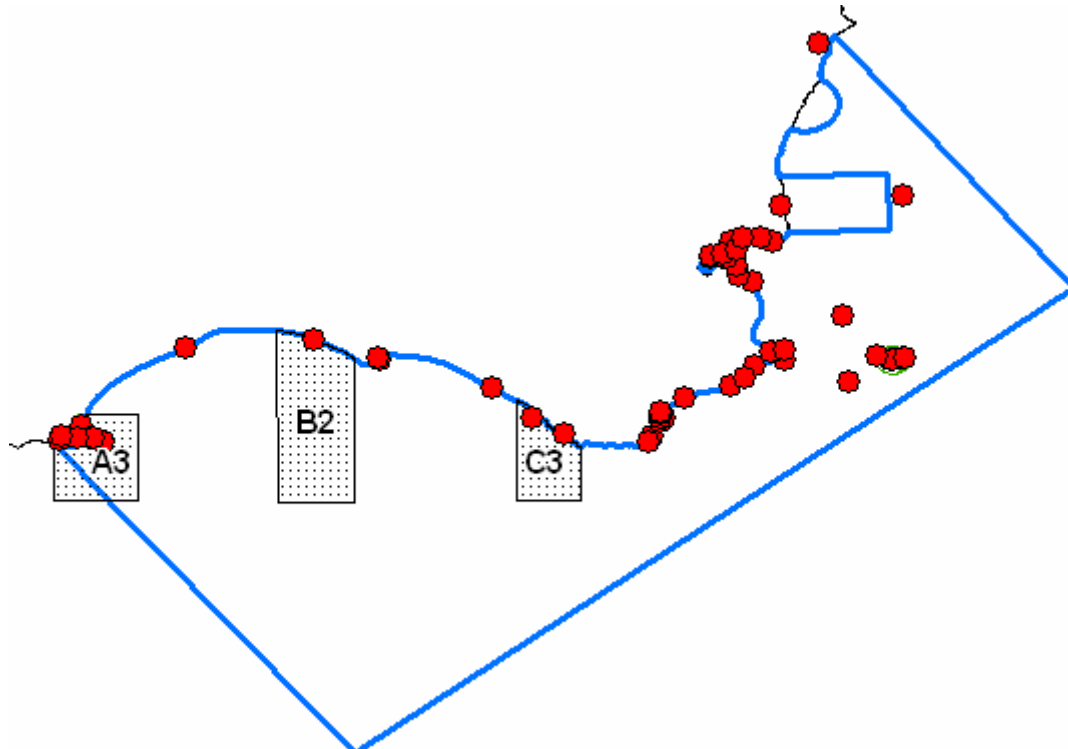
Note: numbers have been rounded to the nearest whole number

Appendix C. Location of the environmental values <10% represented.

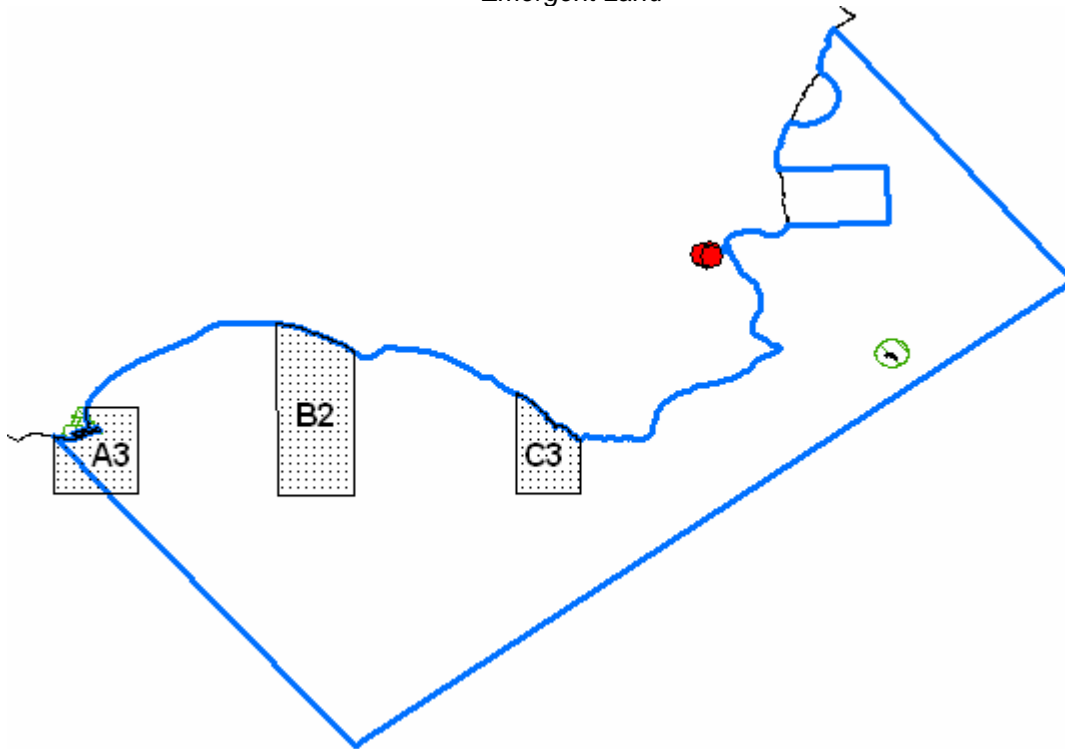
Environmental values that have <10% representation are shown in red, identifying where they could be represented within the marine park.

Note: maps are best viewed in colour

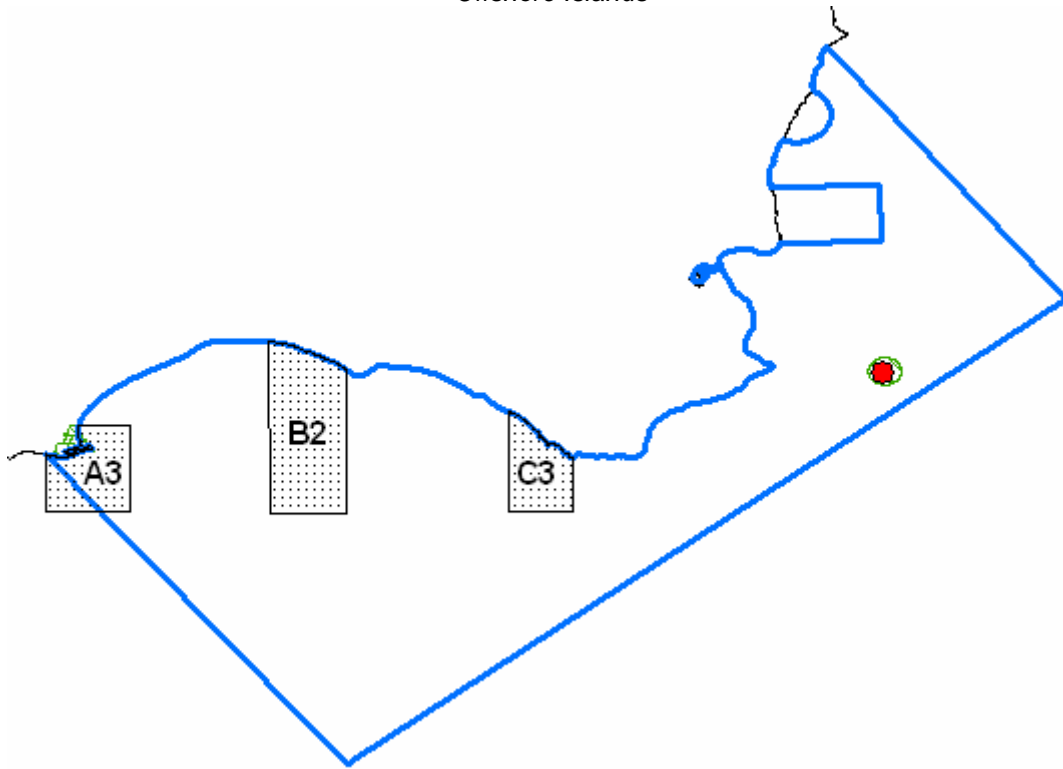
Coastal waders



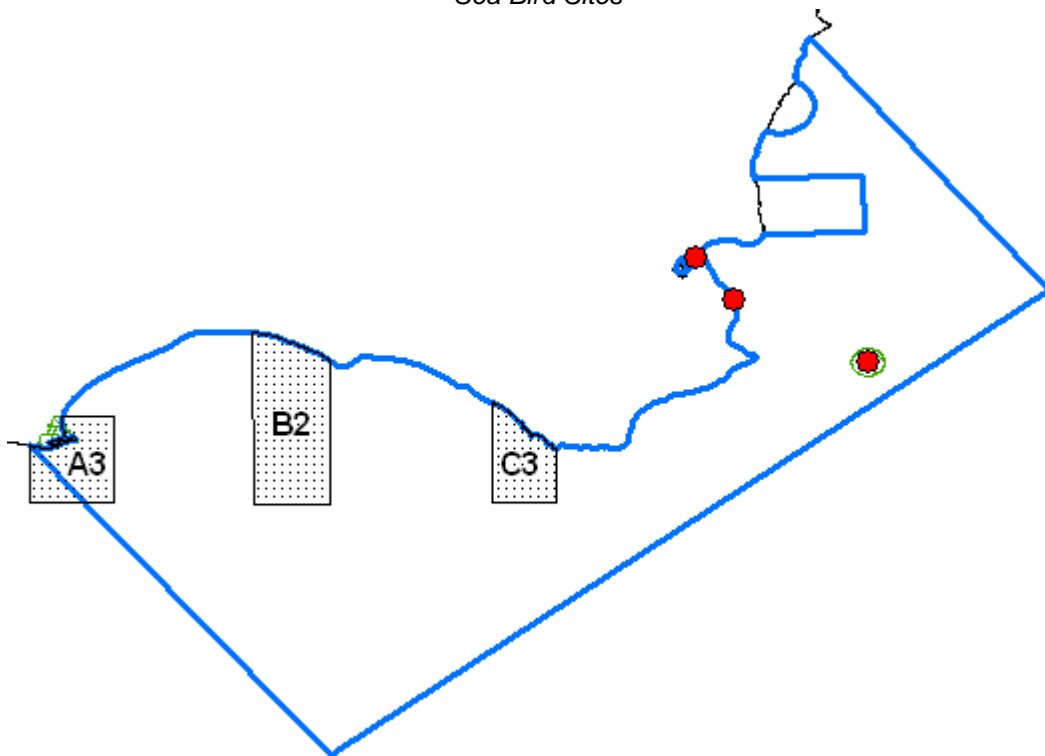
Emergent Land



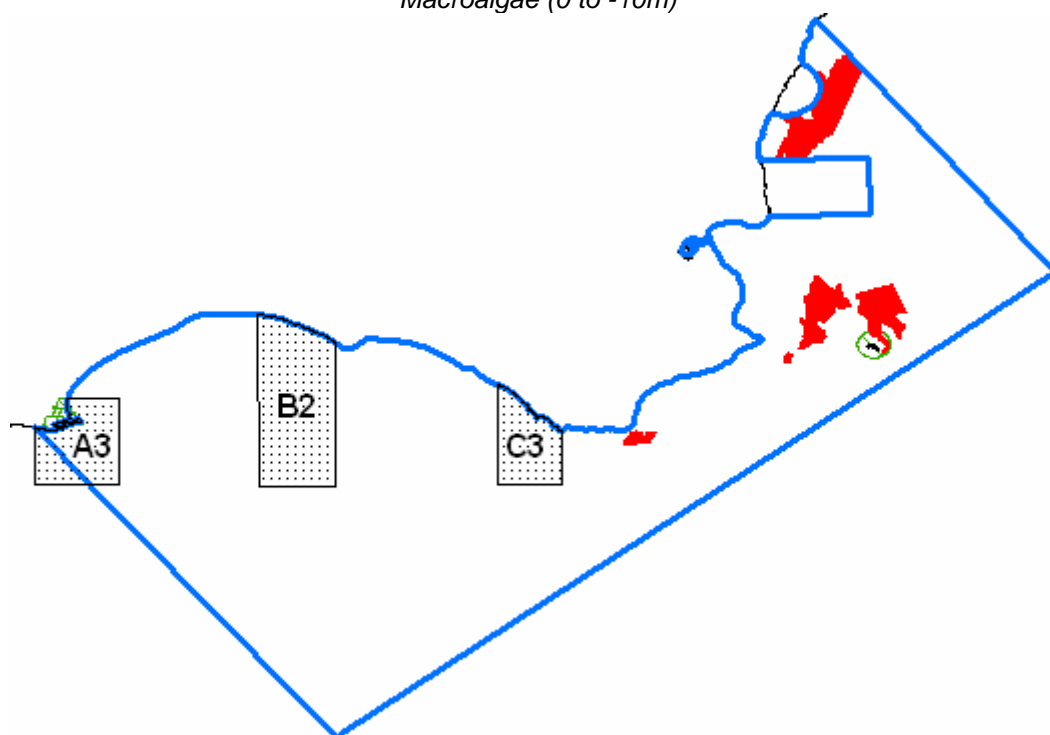
Offshore Islands



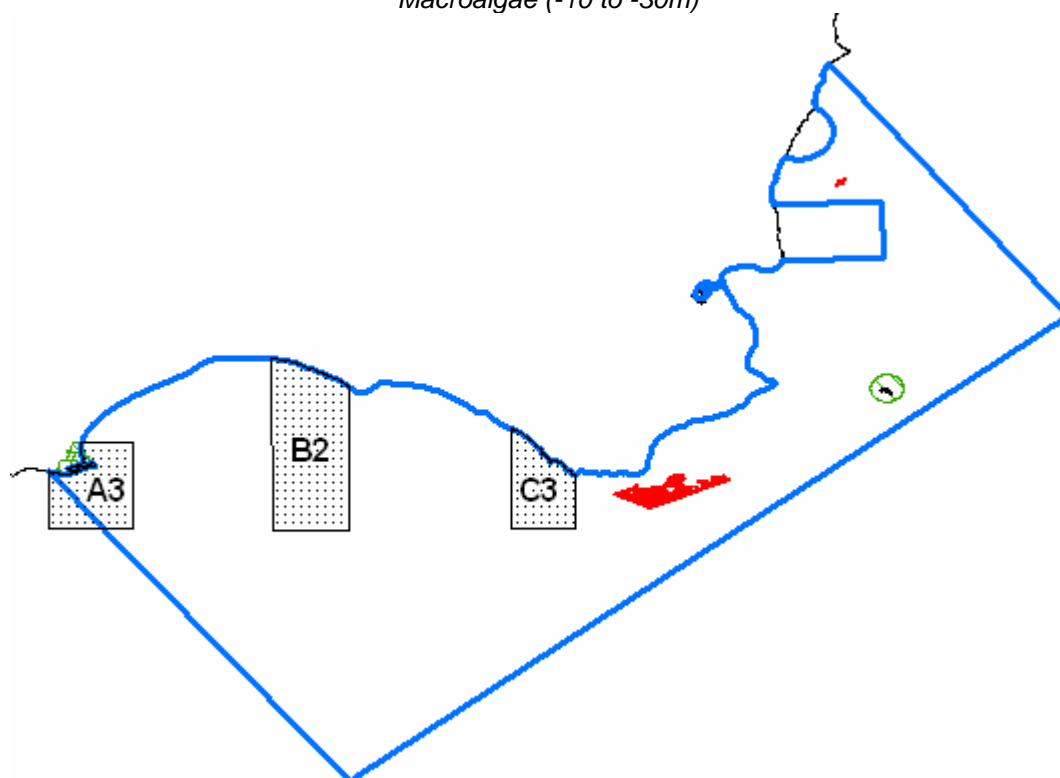
Sea Bird Sites



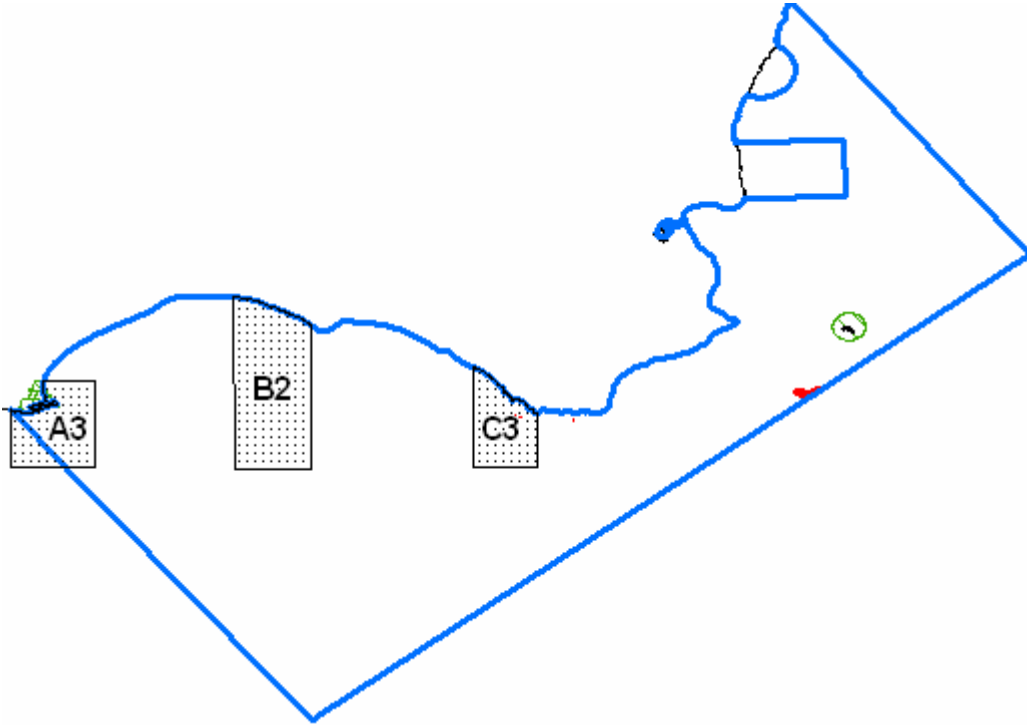
Macroalgae (0 to -10m)



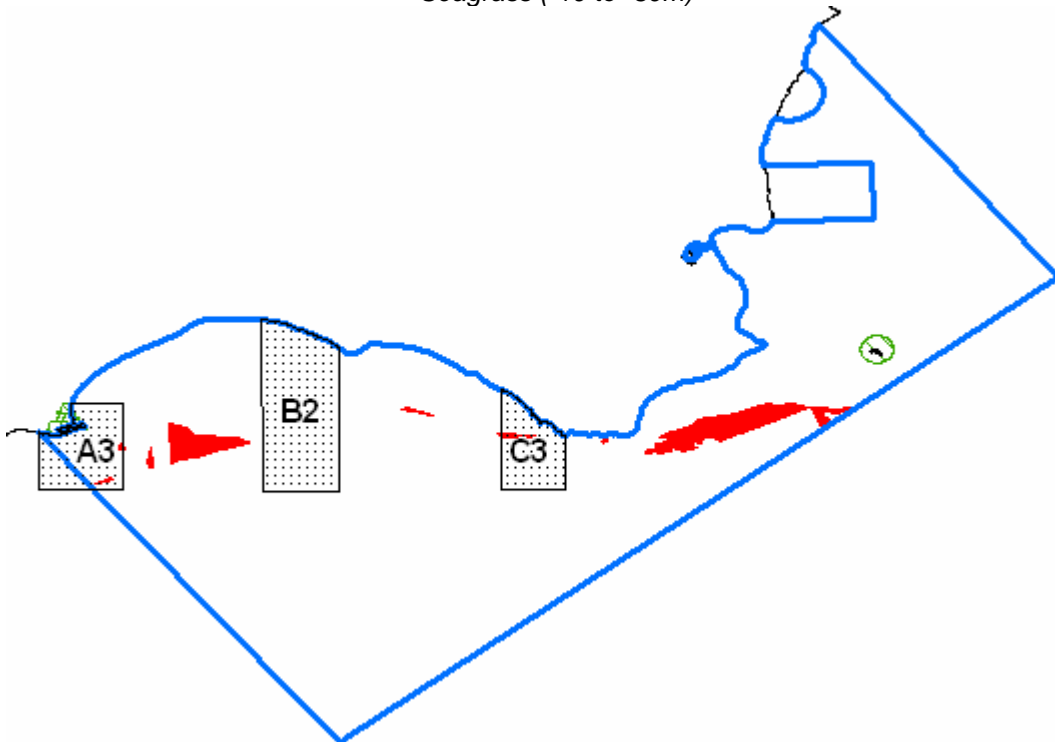
Macroalgae (-10 to -30m)



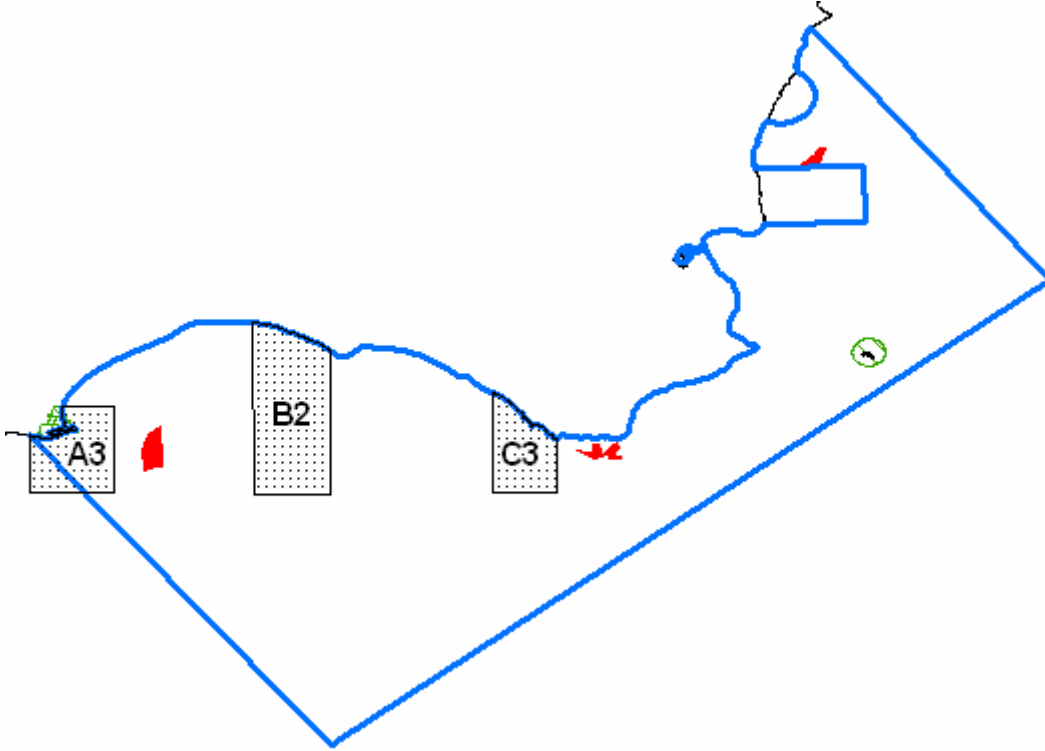
Rocky Reef (-10 to -30m)



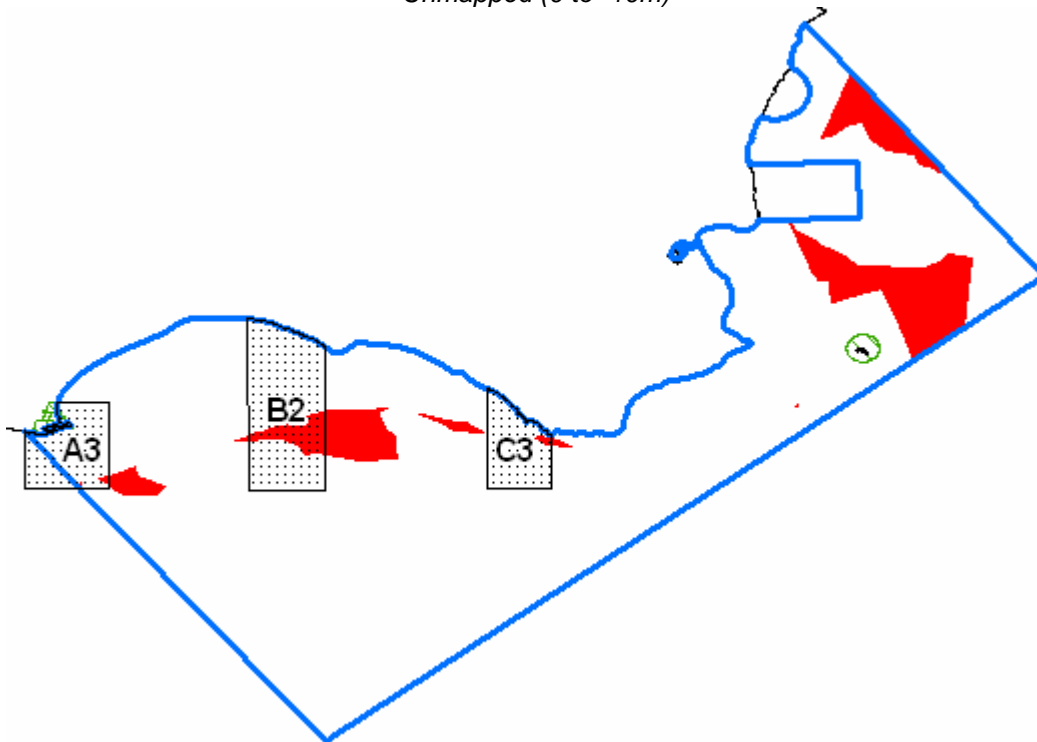
Seagrass (-10 to -30m)



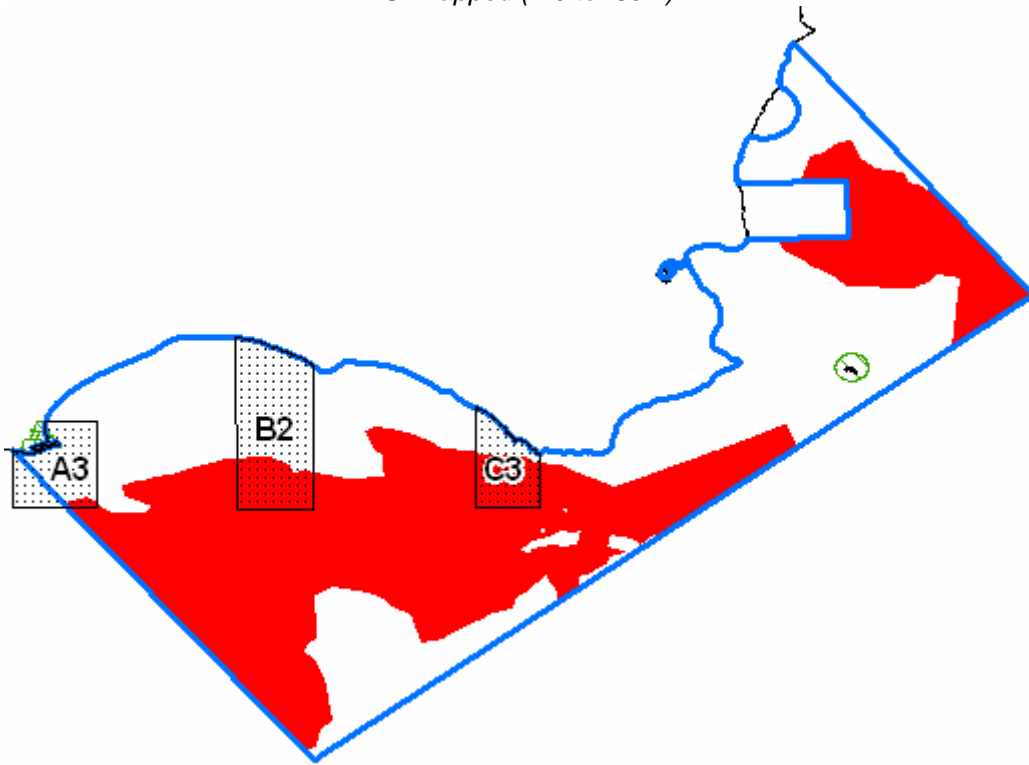
Soft-bottom habitat (-10 to -30m)



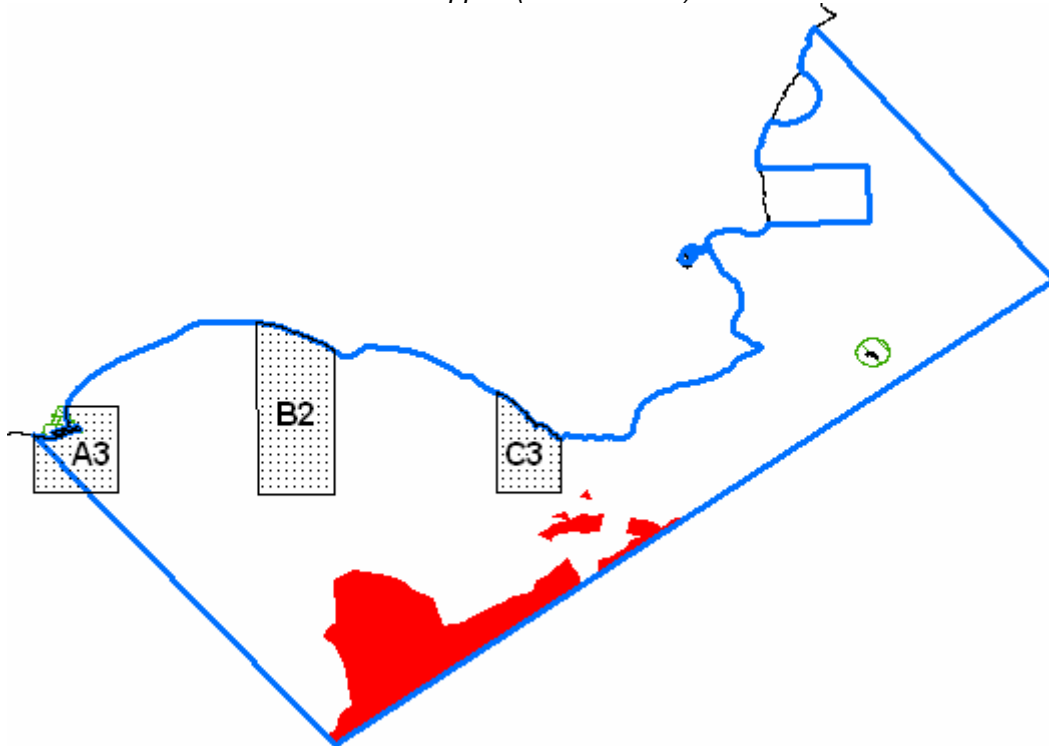
Unmapped (0 to -10m)



Unmapped (-10 to -30m)

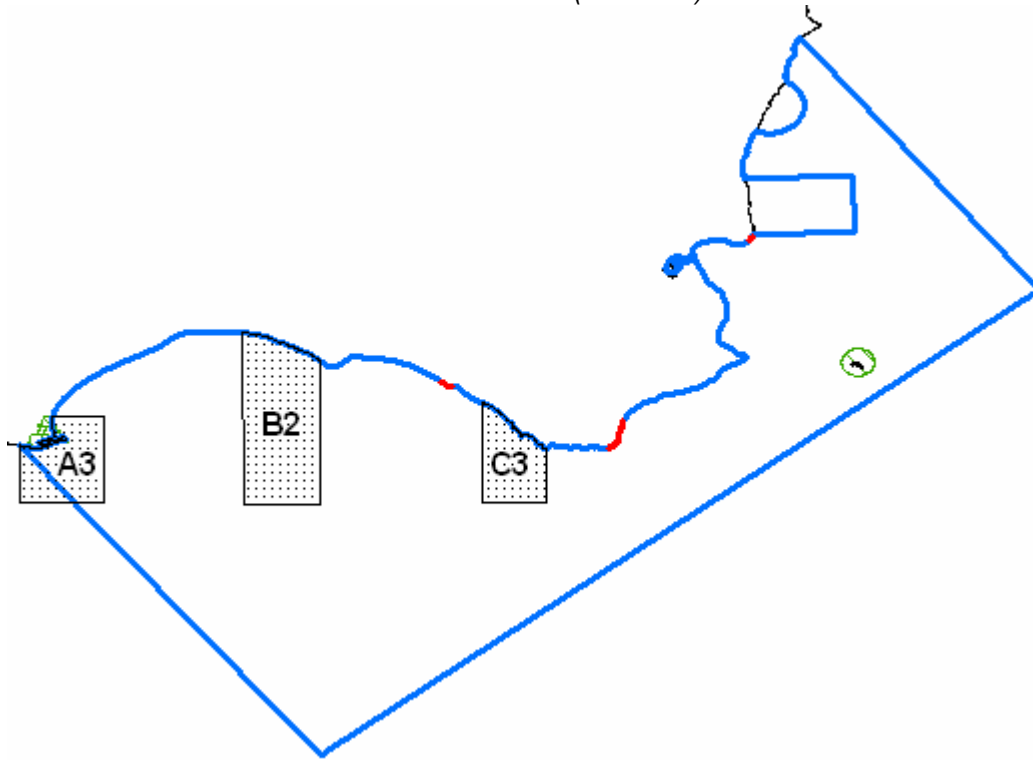


Unmapped (-30m to -50m)

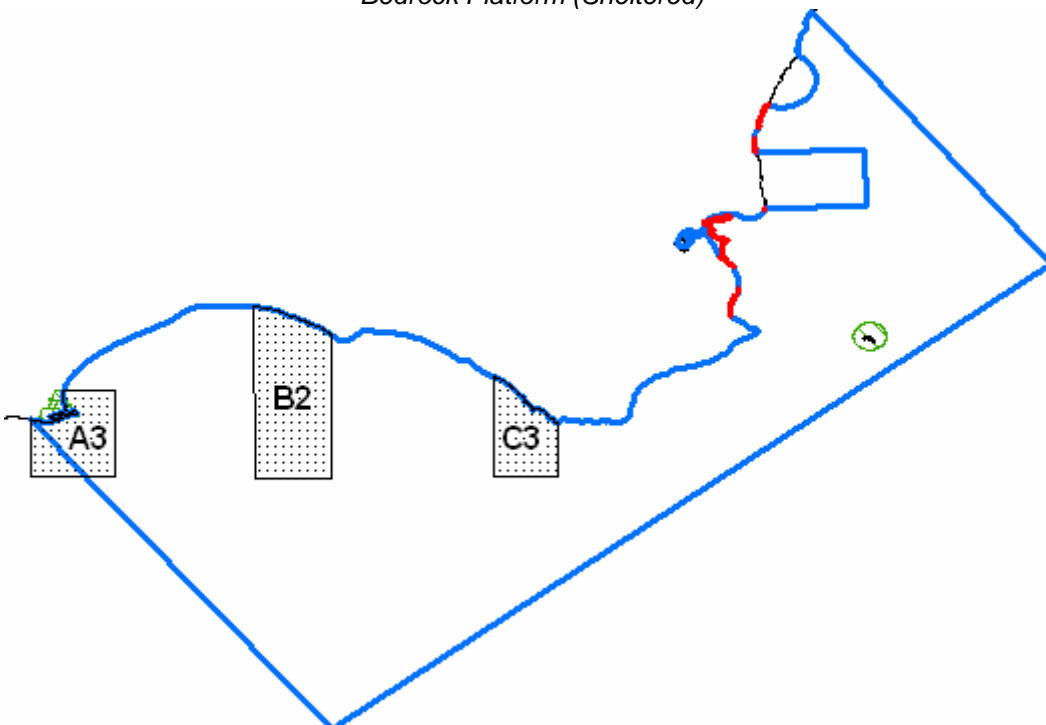


Note: DENR understands from community feedback that the gradient change in the 30-50m depth class is only 1-2m and therefore, following verification, this environmental value may not need to be included.

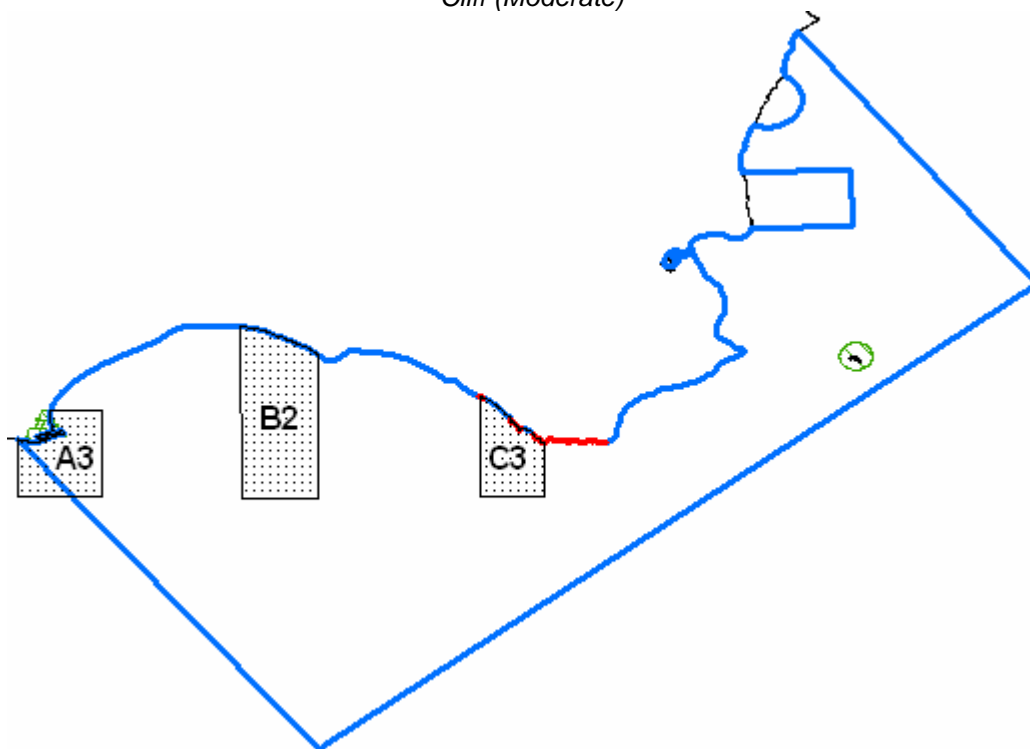
Bedrock Platform (Moderate)



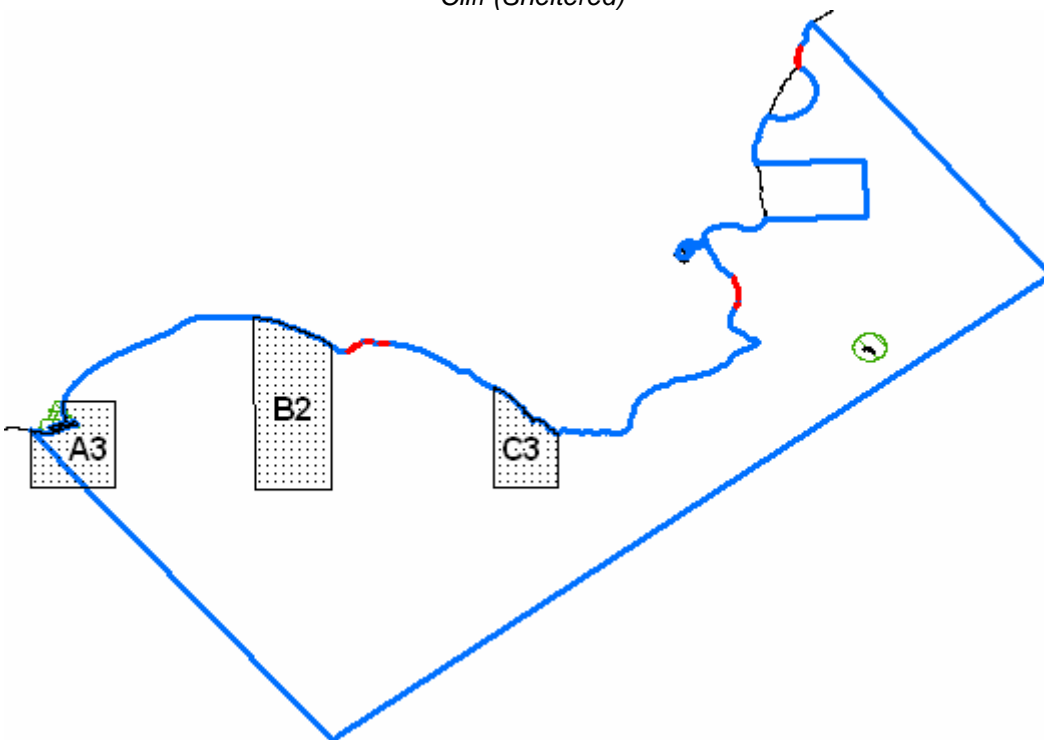
Bedrock Platform (Sheltered)



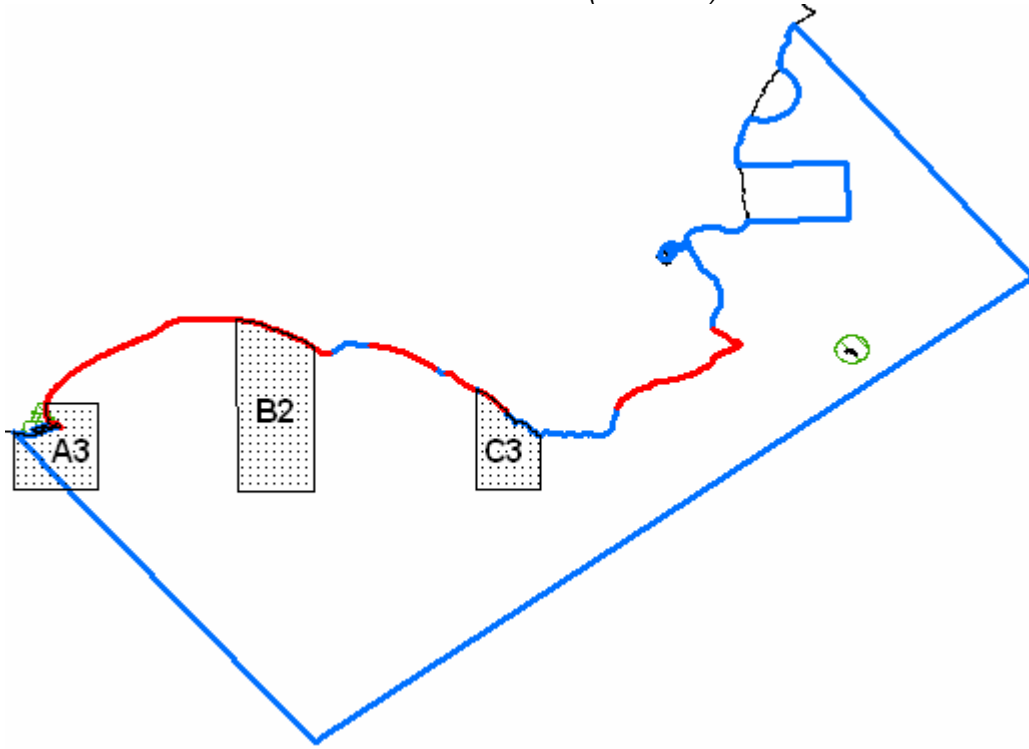
Cliff (Moderate)



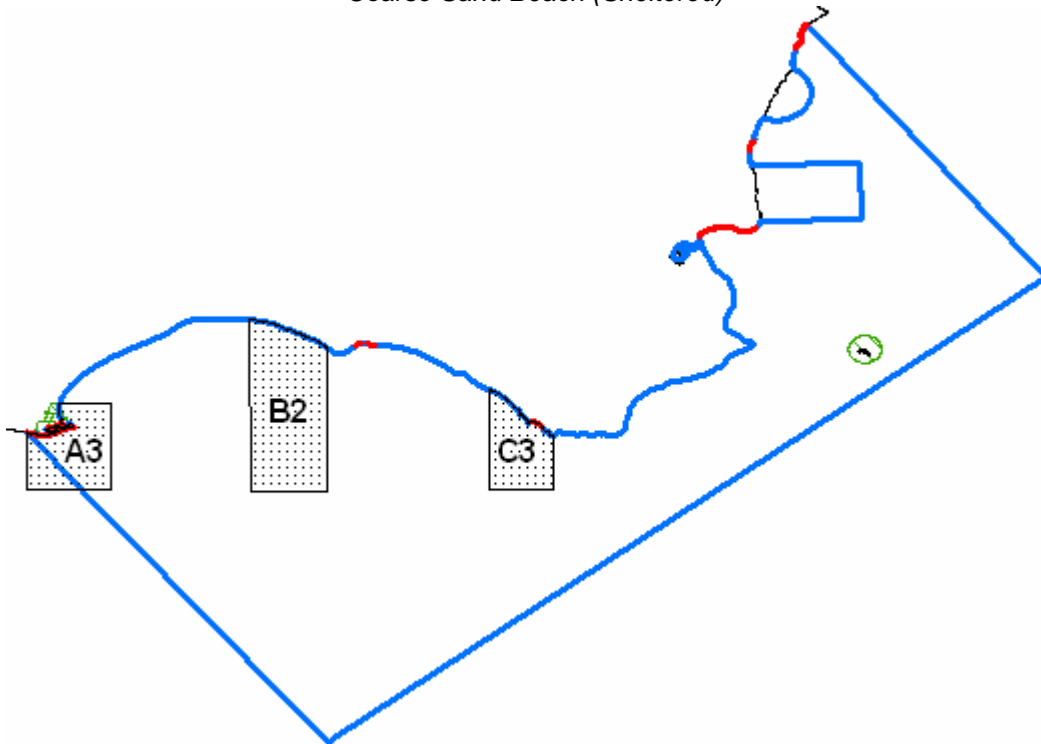
Cliff (Sheltered)



Coarse Sand Beach (Moderate)



Coarse Sand Beach (Sheltered)



Mapping information:

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