

#### SUBTIDAL BENTHIC HABITAT MAPPING IN MIDCOAST MAINE

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# **PROGRAM OBJECTIVES**

- Expand multibeam coverage for Maine's coastal waters/update nautical charts
- Refine existing seafloor substrate/textural maps
- Investigate sand & gravel resources for beach nourishment
- Classify and map Maine's subtidal benthic habitat and inventory biological communities
- Assess nearshore sediment transport



Geographic Del orme HERE Geonames ord and other contributor



# **VIDEO ANALYSIS GOALS**

- Identify flora and fauna (and/or evidence of their presence).
- Quantify flora and fauna presence at documented timestamps for reference.
- Compare video evidence of habitat with grab sample and bathymetric data.
- Data remains consistent with that of CMECS.



# **BENTHIC SAMPLING METHODS**





# **ANALYSIS METHODS**

#### Adopted RI video analysis methods and worksheets

Individual Count

### OR

Cover Rank

OR

Presence Rank

Cover Rank	Range									
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2	1 to <30% of screer	1								
3	30 to <70% of screen	n								
4	70 to <90% of screet	n								
5	>90% of screen									
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1	Biota present in vide	0.								
<sup>*</sup> If a value of 1	is recorded at a given	timest	tamp <mark>, it v</mark>	/ill not be	e record	ed again	througho	out vide	o if seen	again
Columns not la	beled with "Cover Rar	nk" or	"Presenc	e" record	Inumbe	r of biot	a present	atgive	n timesta	amp.
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290	9/13/2017	M0175	0:04:29																						
291	9/13/2017	M0175	0:04:40																						
292	9/13/2017	M0175	0:04:43																						
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# APPROACH

- For species that cannot be individually counted, a percent cover rank is determined.
  - GIMP program used to count pixels to determine percent cover.
- For species that are consistently too numerous to count, a simple mark of presence is recorded.
- Consistency in identification will help correct any misidentifications.





### **EXAMPLE PERCENT COVER WITH GIMP**



# LIMITATIONS

- Inaccurate fish identification due to distance from camera.
- Inability to identify species with certainty due to lack of camera detail.
- Inaccurate fish counts due to inability to track fish and distance from camera.
- Inaccurate identification due to rate of camera ascent and descent.





# RECOMMENDATIONS

### **VIDEO ACQUISITION**

- Possibility of a lever arm.
- Consistent camera housing and lighting.

#### ANALYSIS

- Have a second analyst review the videos.
- Algae functional groups should be used as an unidentifiable species column.
- Need to determine the ability to compare counts, coverage and presence/absence



# **CMECS RECOMMENDATIONS**

#### **Co-occurring Elements**

- The class, subclass, group, and community should be identified to more accurately illustrate the habitat
- At what point (biomass, percent cover, etc.) is the cutoff for a co-occurring element? How abundant does it need to be to be considered a co-occurring element? Should there only be so many co-occurring elements?

#### Infauna and Epifauna

- How should infauna presence be determined when there is many more of one species while the other has far fewer but greater biomass?
- Should be separate CMECS categories

#### Classification

- The biotic community examples listed vary in their level of taxonomic classification. Communities should be recorded to the same taxonomic level when possible.
- The term "bed" inaccurately describes many of the communities seen in the video and infaunal analyses. A dominating biomass during the infaunal analysis may be just one or two individuals.
- Should everything I have seen throughout the video analysis end up in the biotic component of CMECS? The timestamp video analysis is used to capture the presence of everything seen throughout the videos. This shouldn't be the case for CMECS. CMECS should be used to illustrate the dominant aspects of the habitat.
- How do I classify a co-occurring element when, for example, there are many polychaete species present but no species is dominant? A branching decision tree with increasing species specificity could be used.

