



# SEAGRASS MAPPING of Lipsi

SEPTEMBER, 2017



# OUTLINE

- **Sonar data conversion**
- Satellite data in GIS
- Sonar data in GIS
- Interpolation of data



# Sonar data



- .sl2 file from sonar - tracking file
- convert .sl2 files to vegetation and depth text files



## All My Trips

QUICK SEARCH:

Search

Clear

[advanced](#)

## Uploads

Mine (1)			Merged (1)		Organization (0)		EcoSat Surveys (0)	
LAKE			LAST TRIP		# OF UPLOADS			
▼ Aegean Sea			about 14 days ago		210			

DATE

filter trips by date range

UPLOAD TOOLS

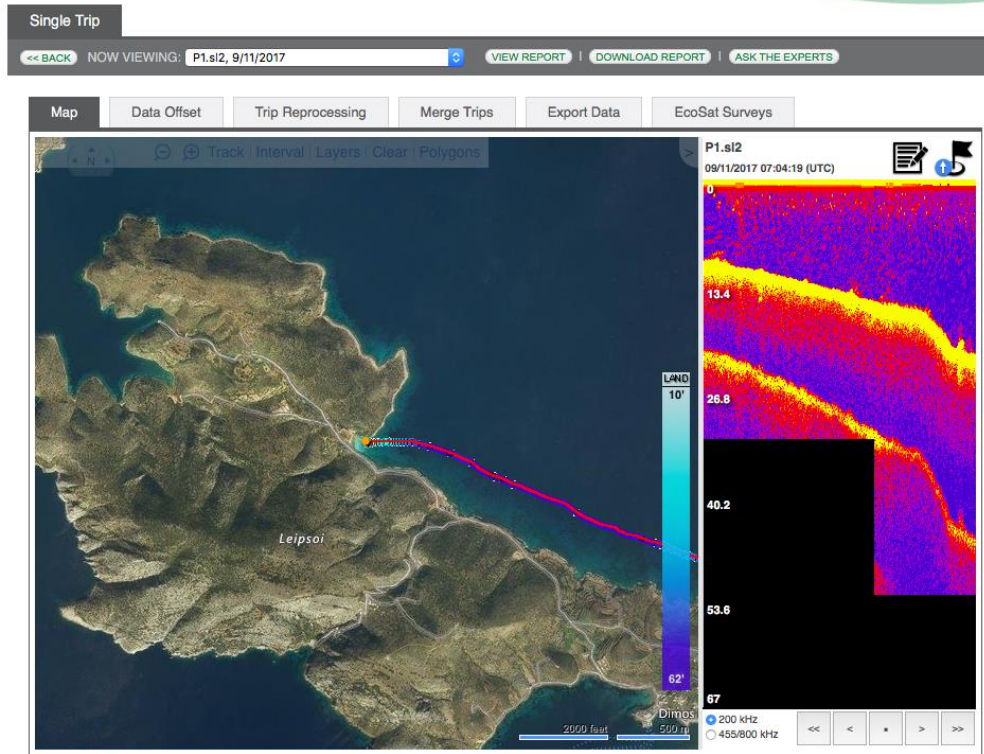
tools for uploading Sonar Logs

- [Web Upload](#)
- [Install Biobase Upload Tool](#)





# BIOBASE



SEPTEMBER, 2017

# BIOBASE

Map

Data Offset

Trip Reprocessing

Merge Trips

Export Data

EcoSat Surveys

## Export Data or Imagery

Start here by selecting either the data or the imagery you wish to export.

P1.sl2,  
09/11/2017 07:04:19 (UTC)

1

Source

2

Options

3

Data Rows

4

Export

### Source of Data

Select the type of data you wish to export from BioBase.

Select Export Type

- ☒ Depth
- ☐ Point
- ☒ Grid
- ☐ Vegetation
- ☐ Composition
- ☐ Imagery

**Data Export Notes:**  
Vegetation BioVolume - percent values from 0 to 1  
Composition Hardness - values 0 - 0.25 (soft), 0.25 - 0.4 (med), 0.4 - 0.5 (hard)

Help

Next >

Reset



# Depth data

Record, Longitude, Latitude, DepthInFeet

1, 26.781591983412, 37.27187250362, -120.07088129465  
2, 26.781648277371, 37.27187250362, -114.85289719555  
3, 26.78170457133, 37.27187250362, -109.62623698695  
4, 26.780916455902, 37.27191761569, -154.54612292393  
5, 26.780972749861, 37.27191761569, -153.44307733884  
6, 26.78102904382, 37.27191761569, -152.20626928376  
7, 26.781085337779, 37.27191761569, -150.70492178403  
8, 26.781141631739, 37.27191761569, -148.95299063903  
9, 26.781197925698, 37.27191761569, -147.00200995695  
10, 26.781254219657, 37.27191761569, -144.79352032124  
11, 26.781310513616, 37.27191761569, -142.24417026413  
12, 26.781366807575, 37.27191761569, -139.48126894344  
13, 26.781423101534, 37.27191761569, -135.76760500014  
14, 26.781479395493, 37.27191761569, -131.38420904701  
15, 26.781535689453, 37.27191761569, -125.99742268659  
16, 26.781591983412, 37.27191761569, -120.27451638488  
17, 26.781648277371, 37.27191761569, -114.63304968672  
18, 26.78170457133, 37.27191761569, -109.13913037837  
19, 26.781760865289, 37.27191761569, -104.06150759024  
20, 26.781817159248, 37.27191761569, -99.207304226705  
21, 26.781873453208, 37.27191761569, -94.665397952381  
22, 26.781929747167, 37.27191761569, -90.386803595204  
23, 26.780634986106, 37.271962727759, -156.97868603432  
24, 26.780691280065, 37.271962727759, -156.63836872221  
25, 26.780747574024, 37.271962727759, -156.25920210509  
26, 26.780803867984, 37.271962727759, -155.83810827252  
27, 26.780860161943, 37.271962727759, -155.34939611977  
28, 26.780916455902, 37.271962727759, -154.78427476668  
29, 26.780972749861, 37.271962727759, -153.81770305587



# Vegetation data

Record,Longitude,Latitude,BioVolume  
1,26.78088870346,37.271918964078,-0.00015236375499661  
2,26.780946498451,37.271918964078,-0.00015646610628803  
3,26.781004293443,37.271918964078,-9.5527739690178E-005  
4,26.781062088434,37.271918964078,6.9774106603192E-005  
5,26.781119883425,37.271918964078,0.00032465188299981  
6,26.781177678416,37.271918964078,0.00062070168751224  
7,26.781235473408,37.271918964078,0.00094684819120635  
8,26.781293268399,37.271918964078,0.0011060683586335  
9,26.78135106339,37.271918964078,0.0015445619021753  
10,26.781408858381,37.271918964078,0.0023681347099328  
11,26.781466653373,37.271918964078,0.0041714281379132  
12,26.781524448364,37.271918964078,0.0062009404281306  
13,26.781582243355,37.271918964078,0.0082589836362488  
14,26.781640038347,37.271918964078,0.010038471340254  
15,26.781697833338,37.271918964078,0.011551161888094  
16,26.781755628329,37.271918964078,0.012275657693995  
17,26.78181342332,37.271918964078,0.013519748930503  
18,26.781871218312,37.271918964078,0.014890931010515  
19,26.781929013303,37.271918964078,0.016092312945921  
20,26.780657523495,37.271965426822,-8.4781061018227E-005  
21,26.780715318486,37.271965426822,-9.4776901797155E-005  
22,26.780773113478,37.271965426822,-0.00010251554597039  
23,26.780830908469,37.271965426822,-0.00011988405184783  
24,26.78088870346,37.271965426822,-0.00014092224575152  
25,26.780946498451,37.271965426822,-0.00014269569821268  
26,26.781004293443,37.271965426822,-9.7397074941978E-005  
27,26.781062088434,37.271965426822,1.4446172731839E-005  
28,26.781119883425,37.271965426822,0.00016851728924723  
29,26.781177678416,37.271965426822,0.00034508388961477

BioVolume = the percentage of the  
watercolumn that exist out of  
vegetation





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## Sentinel-2



Free available Sentinel 2 image  
31-08-2017  
0% cloud cover  
10x10 m resolution



# Land mask



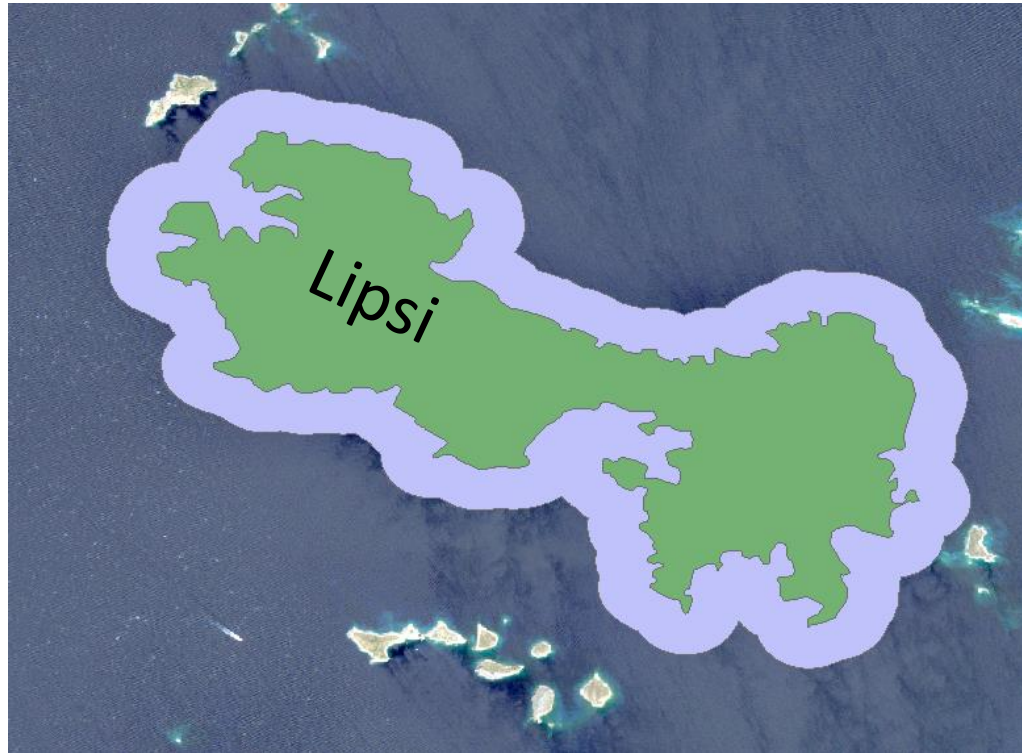
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## Buffer area

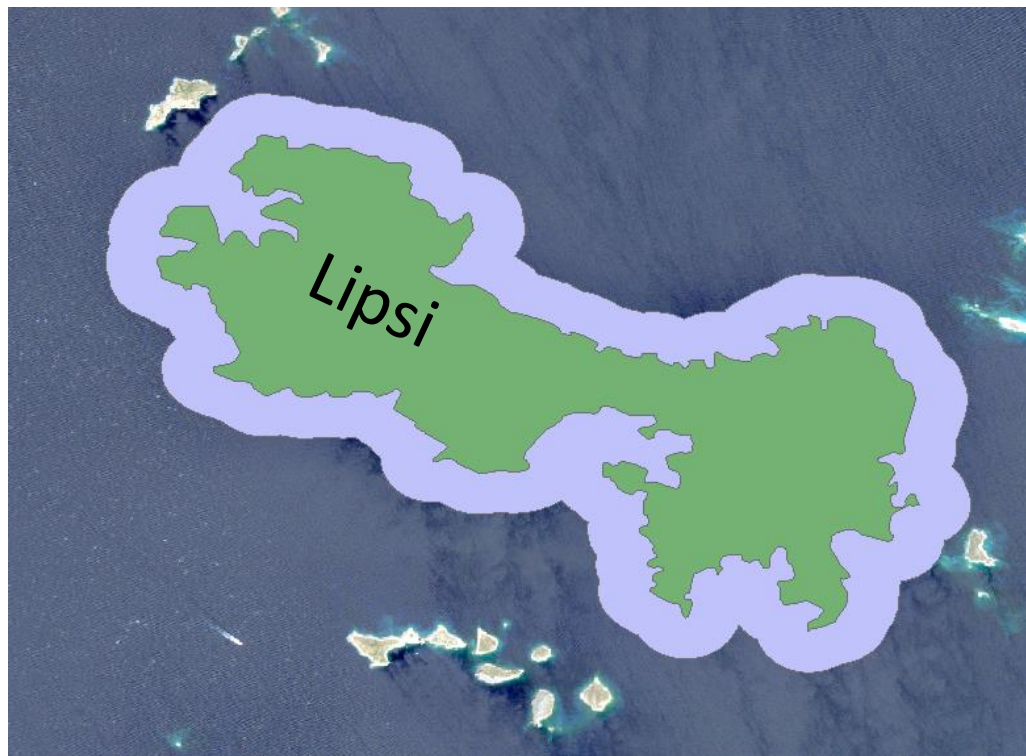


500m buffer around Lipsi island





# Grid



10 x 10 m grid



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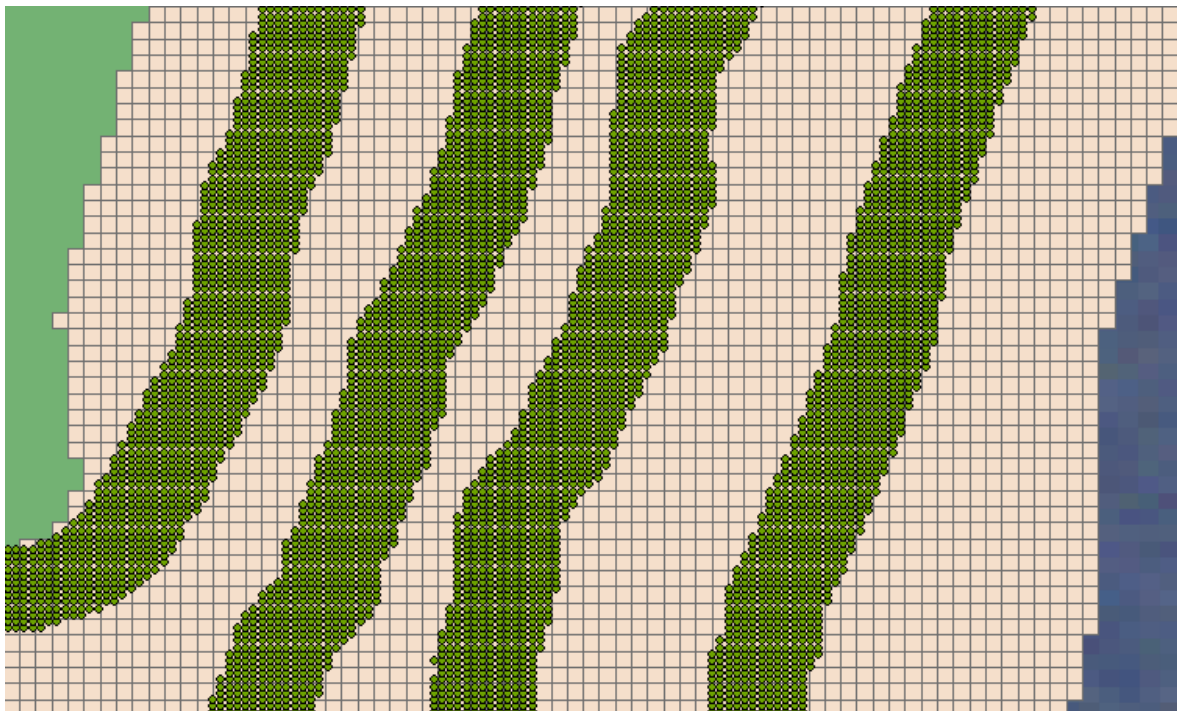


# Sonar data



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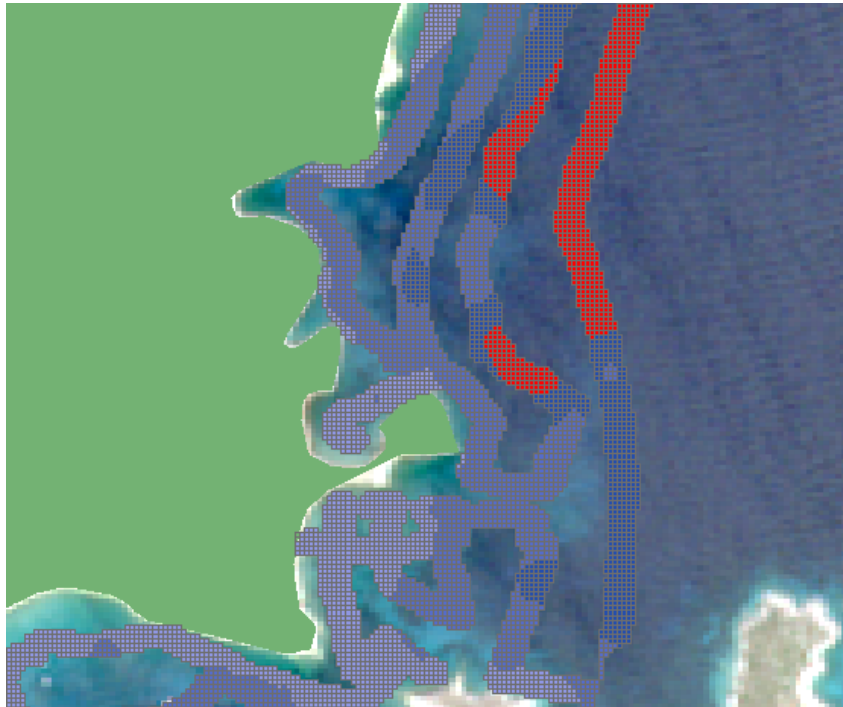
# Sonar data



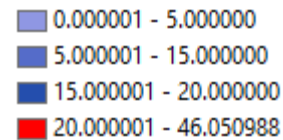
SEPTEMBER, 2017



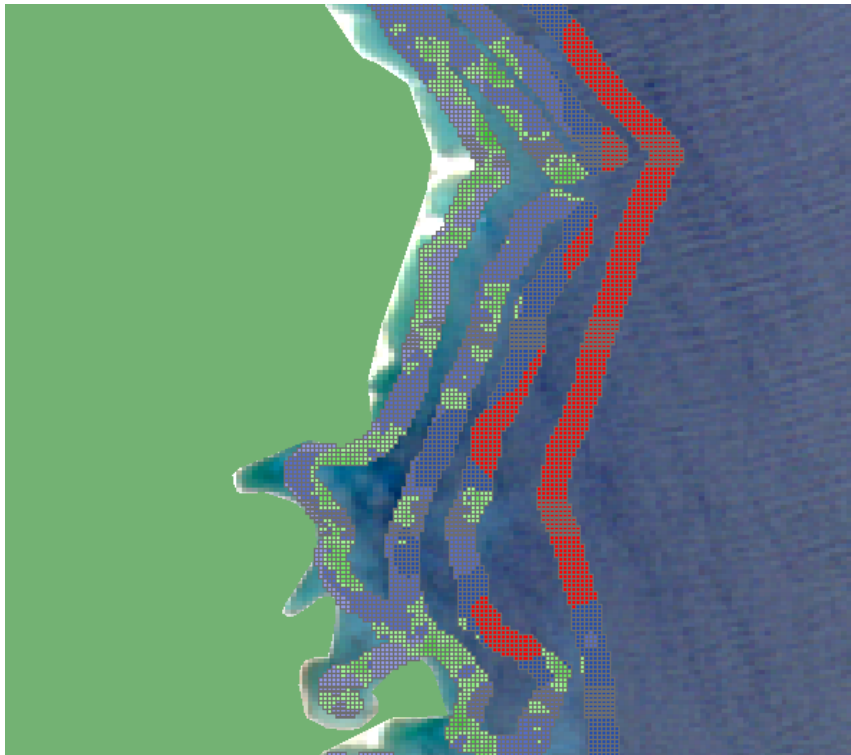
# Depth map



Depth in m



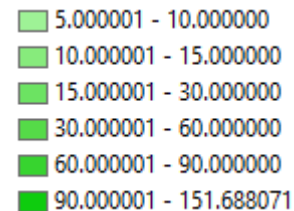
# Vegetation map



Obtained by:

$$\text{Plant\_length} = \text{BioVolume} * \text{Depth}$$

Plant length in cm

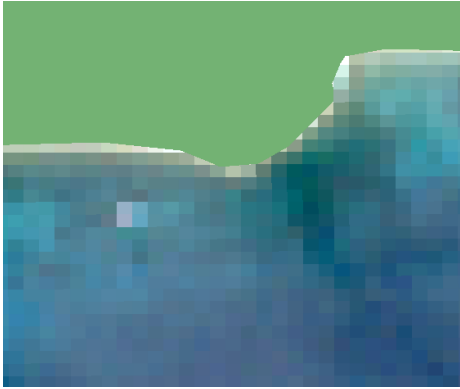


# OUTLINE

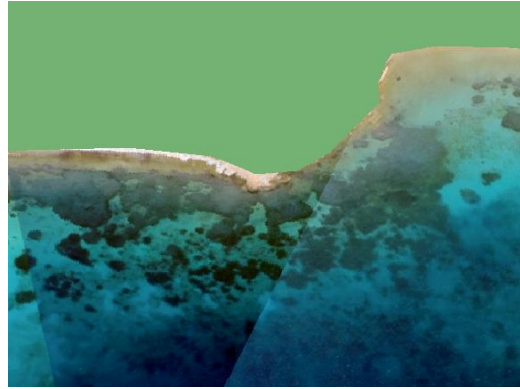
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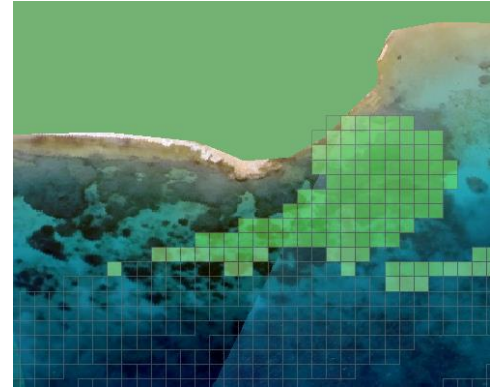
# Interpretation



Satellite image



Drone image



Vegetation cover





# Accuracy assessment test

- Diving
- Underwater camera
- Drone images
- Satellite images



## Goal

An integrated toolset to map easy large areas of seagrass, by the combination of satellite, drone, sonar and diving methods.



# SEAGRASS MAPPING

QUESTIONS?



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