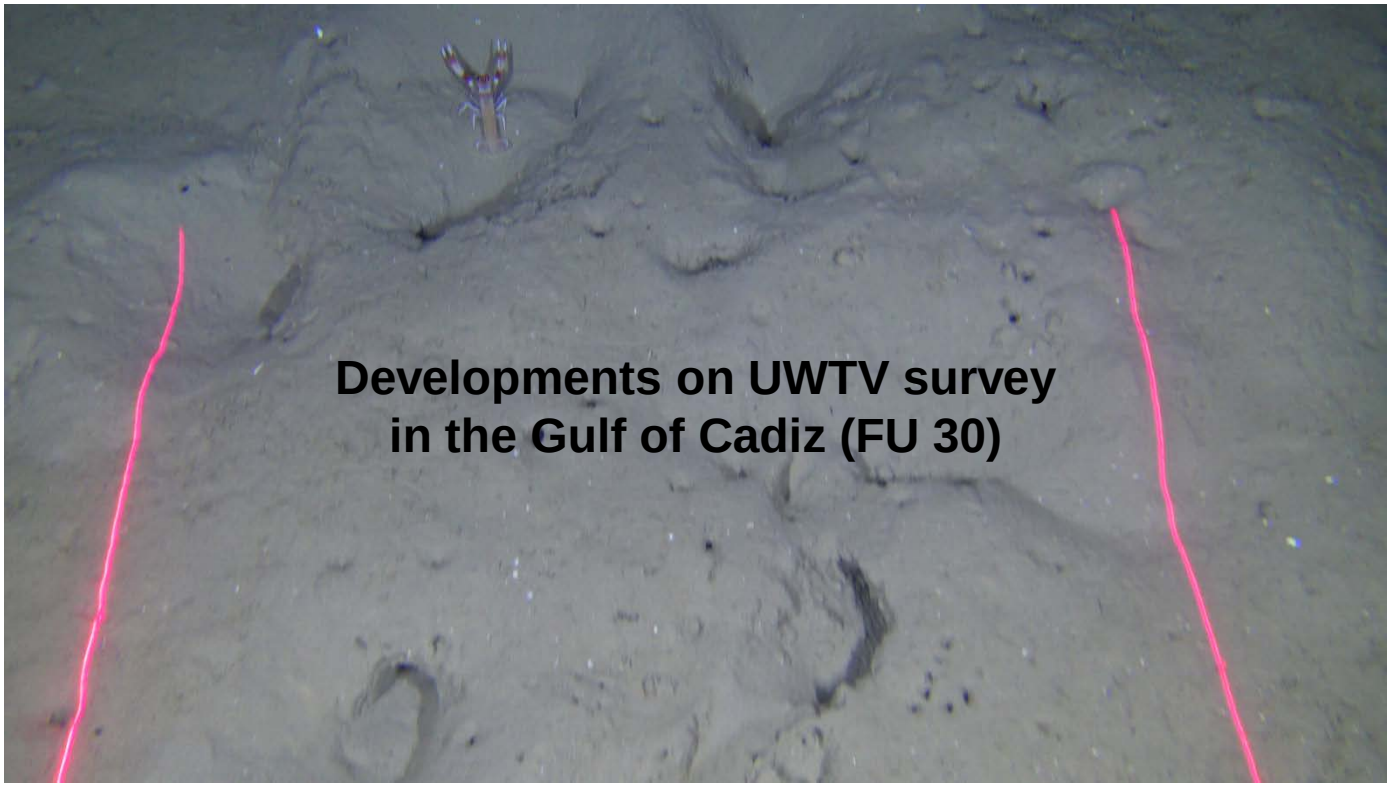


Y. Vila and C. Burgos

WGNEPS 2021
On-line meeting
16 – 18 November

ISUNEPCA_0721 UWTV SURVEY
FU30 (Gulf of Cadiz)

SURVEY SUMMARY

DATE	~~2-14 June~~
RV	Ángeles Alvariño
SURVEY DESING	Randomised isometric 4 nm grid
Nº PLANNED STATIONS	65
Nº STATIONS RE-DO	5
Nº STATIONS NULL	6
Nº STATIONS USED IN GEOSTATISTICAL ANALYSIS	59
DISTANCE OVER GROUND-SOURCE	Sledge position by HiPAP
OTHER ACTIVITIES	CTD on the sledge (valid 46) Dredges (29)

Survey 1 month later (7-19 July)

↓

Staff availability reduced

(3 people)

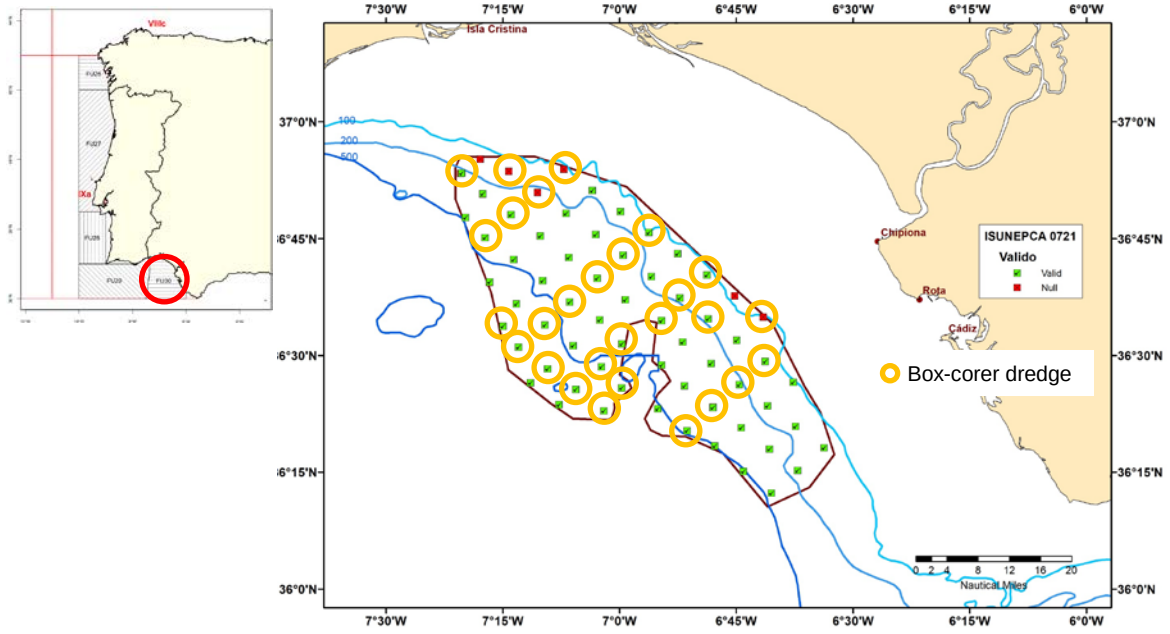
↓

Reduction of activities

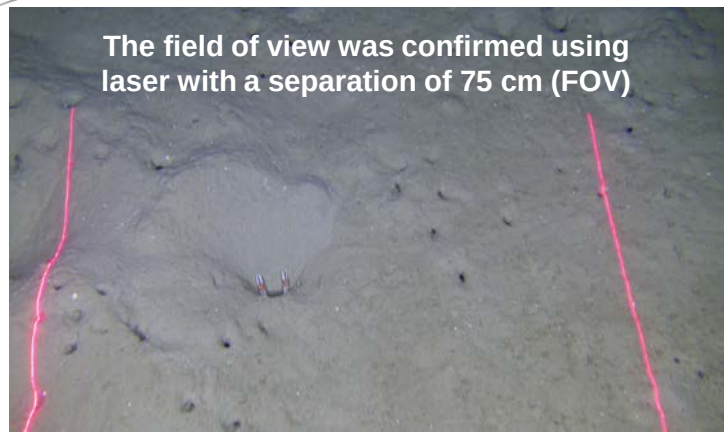
* To collect Ultra HD 4K videos (Photogrametric sledge)

* To collect oceanographic data (CTD in Sledge)

* To collect sediment samples (Box-corer dredge)



SURVEY PROTOCOL



- 11 mm diameter coaxial cable used

- Speed of sledge during the tow ranged between 0.6-0.7 knots

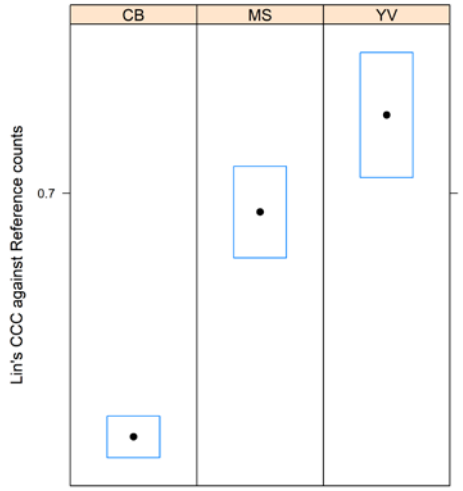
- Vessel position (DGPS) and sledge position (HiPAP transponder on the sledge) were recorded.

- The distance over ground (DOG) was calculated using the sledge position

-10 good minutes were recorded and counted

Nephrops BURROW RECOUNT PROCEDURE

- Training: FU 30 reference footages (WKNEPS 2018)



All counters
Lin's CCC >0.6

- First minute counted twice, as warm-up and as valid count

- All 2021 videos were reviewed by 3 counters independently

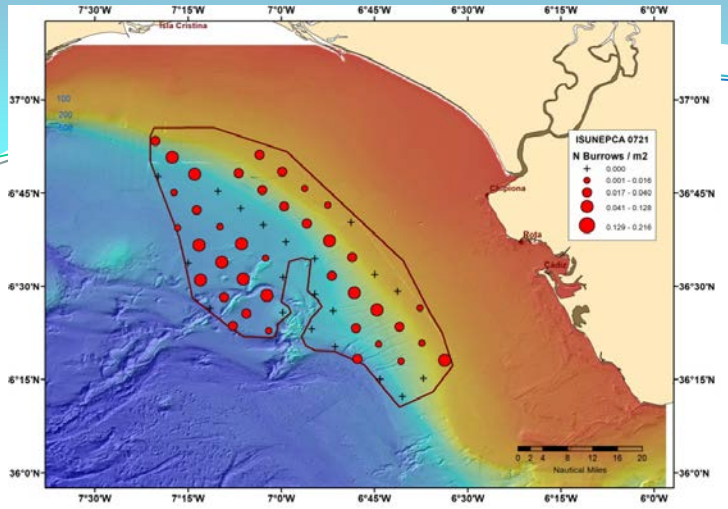
- Counts in the lab

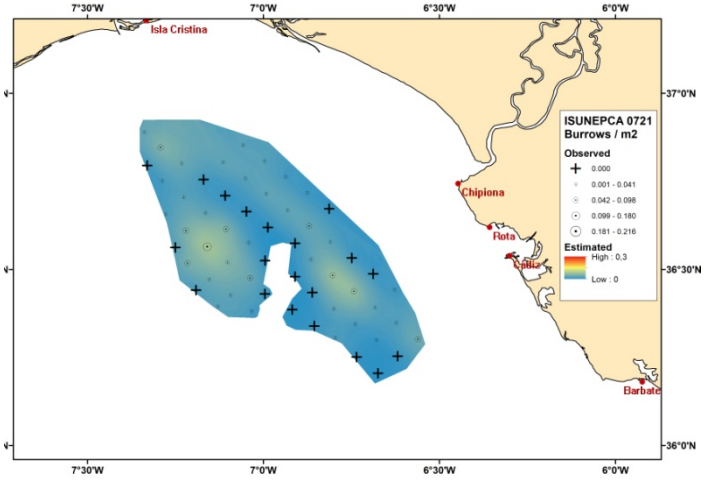
- Lin's CCC R code only provided results for 30% of analysed videos

- Very low counts by minute in 2021

- Counts with Lin's CCC <0.5 and NA were reviewed again by consense (98% total counts; 49 stations)

RESULTS





Year	Nª stations	Mean density adjusted	Area Surveyed	Domine area	Geoestatistical Abundance estimate adjusted	CV on burrow estimate
		Burrow/m2	Km2	Km2	Millions burrows	
2015	58	0.0905	3000	3000	298	7.6
2016	58	0.0776	3000	3000	233	7.3
2017	62	0.1336	3000	3000	371	8.7
2018	60	0.1197	3000	3000	329	6.0
2019	65	0.0377	3000	3000	113	9.7
2020*	NA	NA	NA	NA	NA	NA
2021	59	0.0238	3000	3000	73	11.5

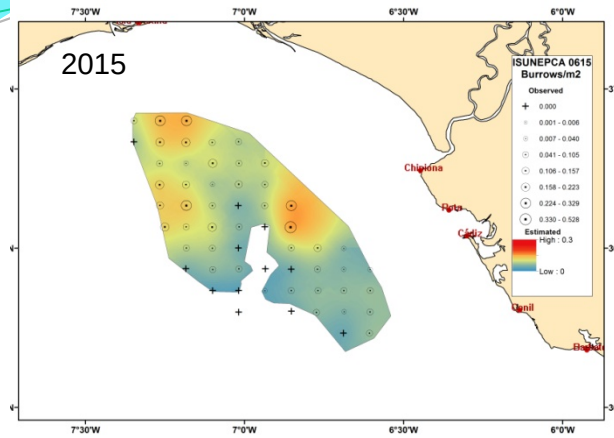
* UWTV Survey in 2020 was not carried out due the COVID-19 disruption.

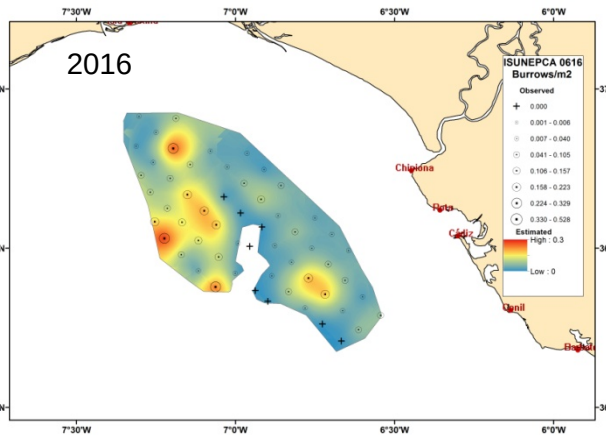
- *Nephrops* density and geo-statistical abundance estimates in 2021 lower than in 2019
- CV increased in 2021.

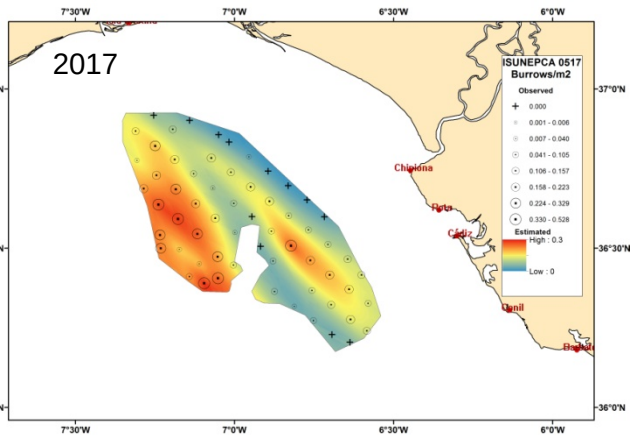
- *Nephrops* fishing effort in July higher than in June

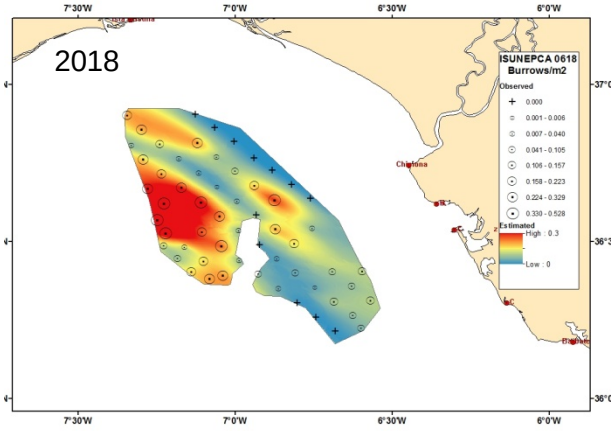
- Collapsed *Nephrops* burrows and trawl mark observed in 2021 was high

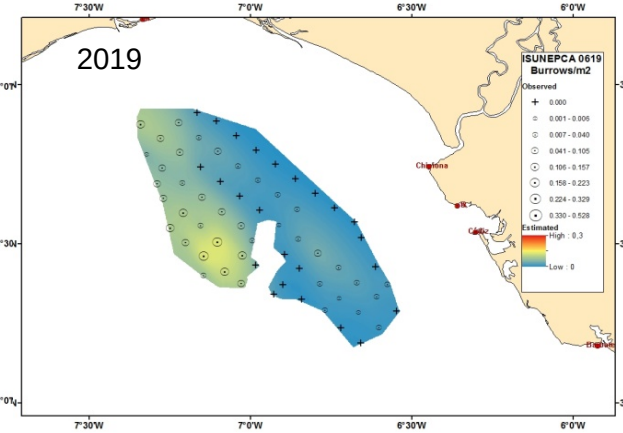
RESULTS

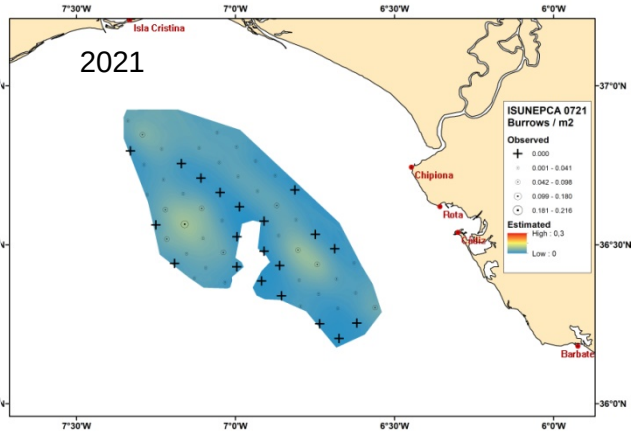

2015
ISUNEPCA 0615
Burrows/m2
Observed
0.000
0.001 - 0.006
0.007 - 0.040
0.041 - 0.105
0.106 - 0.157
0.158 - 0.223
0.224 - 0.329
0.330 - 0.528
Estimated
High : 0.3
Low : 0
Chipiona
Rota
Cádiz
Conil
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N


2016
ISUNEPCA 0616
Burrows/m2
Observed
0.000
0.001 - 0.006
0.007 - 0.040
0.041 - 0.105
0.106 - 0.157
0.158 - 0.223
0.224 - 0.329
0.330 - 0.528
Estimated
High : 0.3
Low : 0
Chipiona
Rota
Cádiz
Conil
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N

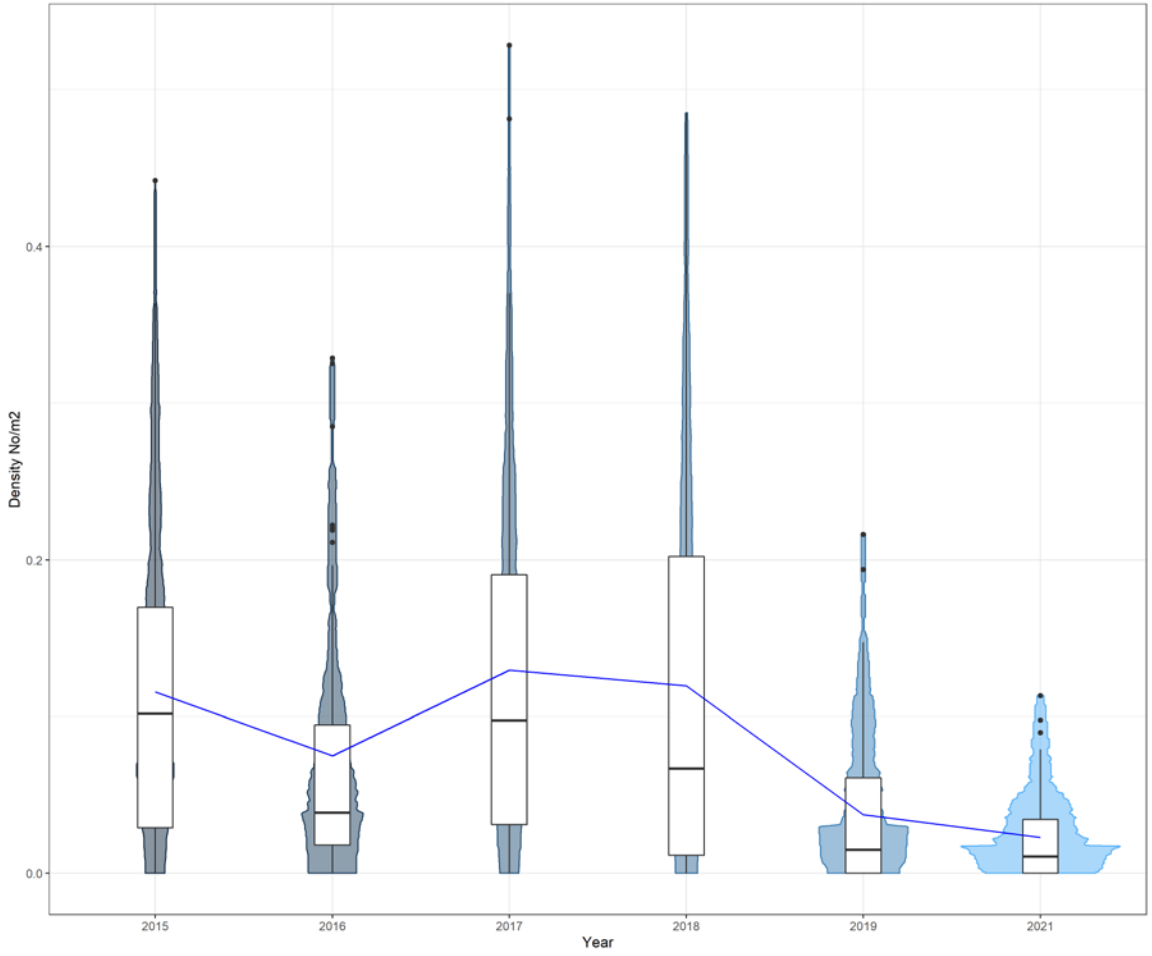

2017
ISUNEPCA 0517
Burrows/m2
Observed
0.000
0.001 - 0.006
0.007 - 0.040
0.041 - 0.105
0.106 - 0.157
0.158 - 0.223
0.224 - 0.329
0.330 - 0.528
Estimated
High : 0.3
Low : 0
Chipiona
Rota
Cádiz
Conil
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N


2018
ISUNEPCA 0618
Burrows/m2
Observed
0.000
0.001 - 0.006
0.007 - 0.040
0.041 - 0.105
0.106 - 0.157
0.158 - 0.223
0.224 - 0.329
0.330 - 0.528
Estimated
High : 0.3
Low : 0
Chipiona
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N

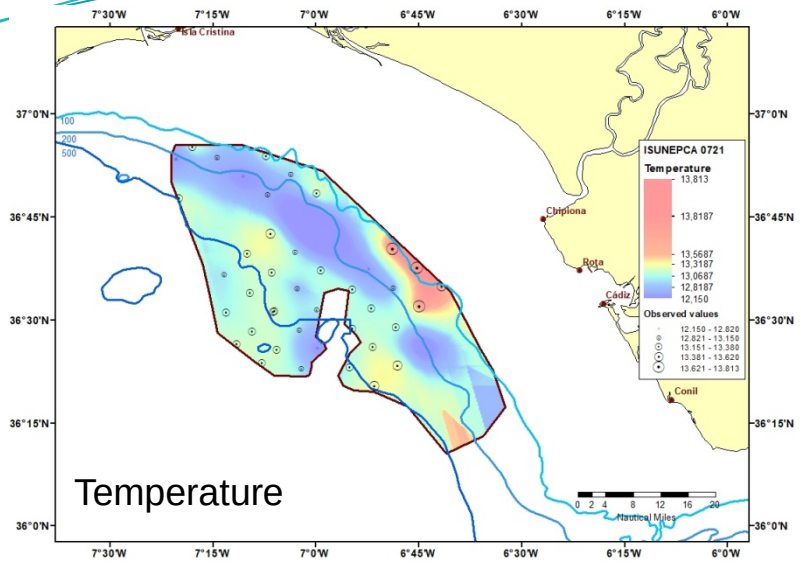

2019
ISUNEPCA 0619
Burrows/m2
Observed
0.000
0.001 - 0.006
0.007 - 0.040
0.041 - 0.105
0.106 - 0.157
0.158 - 0.223
0.224 - 0.329
0.330 - 0.528
Estimated
High : 0.3
Low : 0
Chipiona
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N

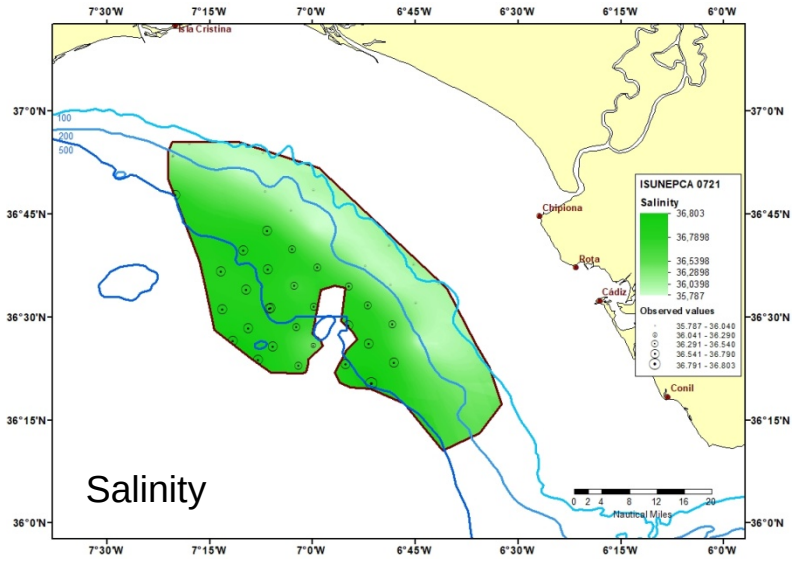

2021
Isla Cristina
ISUNEPCA 0721
Burrows / m2
Observed
0.000
0.001 - 0.041
0.042 - 0.098
0.099 - 0.180
0.181 - 0.216
Estimated
High : 0.3
Low : 0
Chipiona
Rota
Cádiz
Barbate
7°30'W
7°0'W
6°30'W
6°0'W
37°0'N
36°30'N
36°0'N

RESULTS



RESULTS





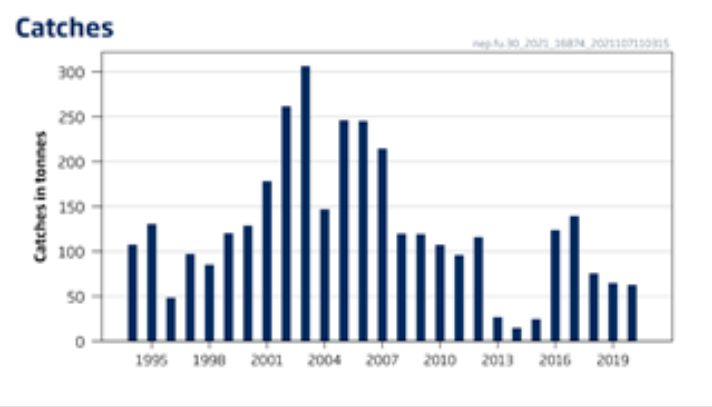
- Identification and quatification of macro-benthic fauna from footages

- Sediment analysis

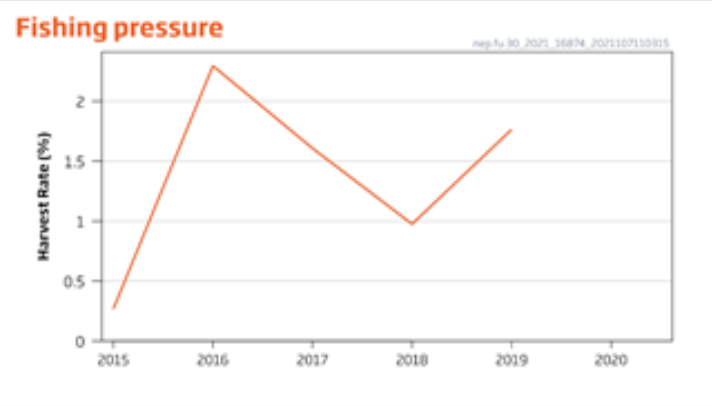
→ To be complete


Nephrops FU30 advice

Stock Category 3.2.1



- Benchmarked in 2016 (WKNEPH 2016)
- No reference points
- Upgraded from category 4 to 3 in 2019
- Underwater television (UWTV) survey trends-based assessment _ Rule 2 over 3



Stock development and assessment

- Landings and stock abundance decreased from 2017 to 2019
- No information on stock size in 2020 because the survey was not conducted due to COVID-19 disruption
- Discards negligible
- HR increased in 2019 and is not available in 2020
- Survey in 2021 was delayed 1 month. Very low abundance

Advice

- The index ratio is lower than 0.8 so uncertainty cap is applied

- The 20% change in advice is caused by the decrease in the abundance estimate

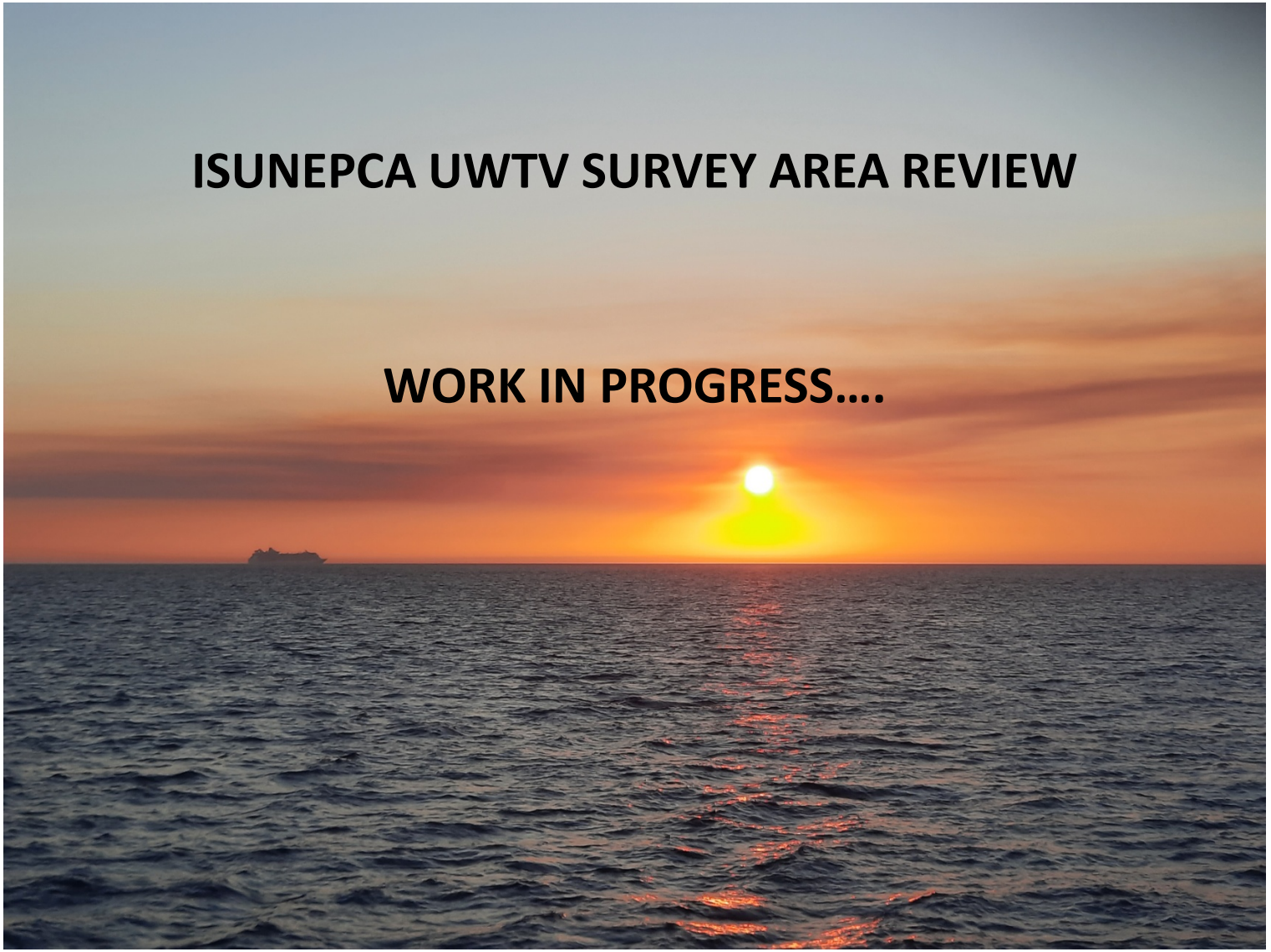
- Precautionary buffer applied in 2019 so it not been considered again

Index A (2020-2021; 2020 not available)		73 million individuals
Index B (2017–2019)		271 million individuals
Index ratio (A/B)		0.27
Uncertainty cap	Applied	0.8
Advised catch for 2021		62 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice**		50 tonnes
% advice change^		-20%

Quality of assessment

- Although COVID-19 restrictions in 2020 affected the data collection from commercial fleet, it did not impact the assessment.

- The delay in the survey in 2021 may have affected the abundance estimate because the fishing effort to *Nephrops* in July is higher than in June.

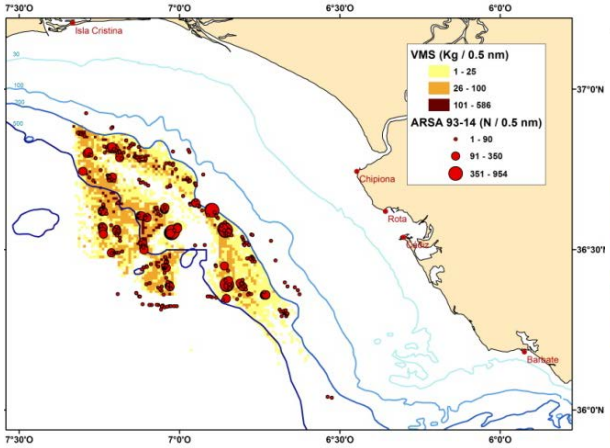

ISUNEPCA UWTV SURVEY AREA REVIEW
WORK IN PROGRESS….

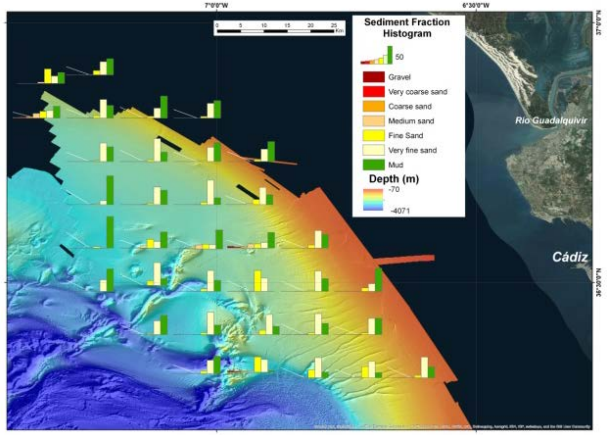
BACKGROUND

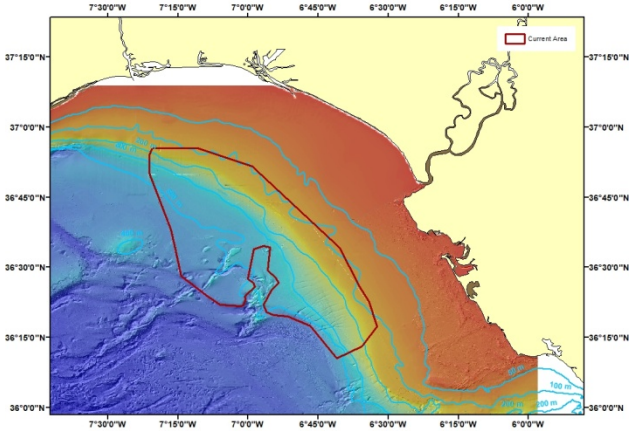
- Survey area established in Benchmark WKNEP 2016

- Based on

  - VMS and logbooks (2011-2012)
  - International Bottom Trawl survey (IBTS)_ARSA series (1994-2014)
  - Sediment samples (2014)





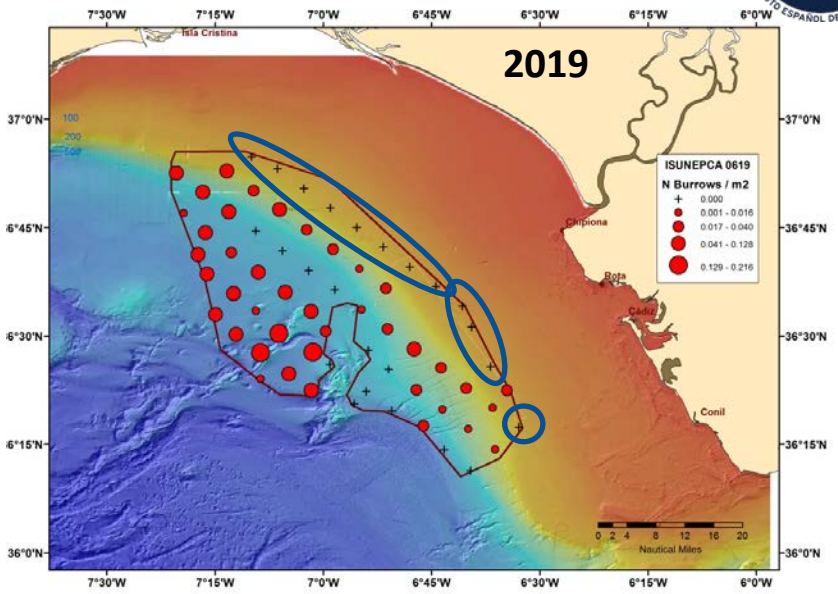


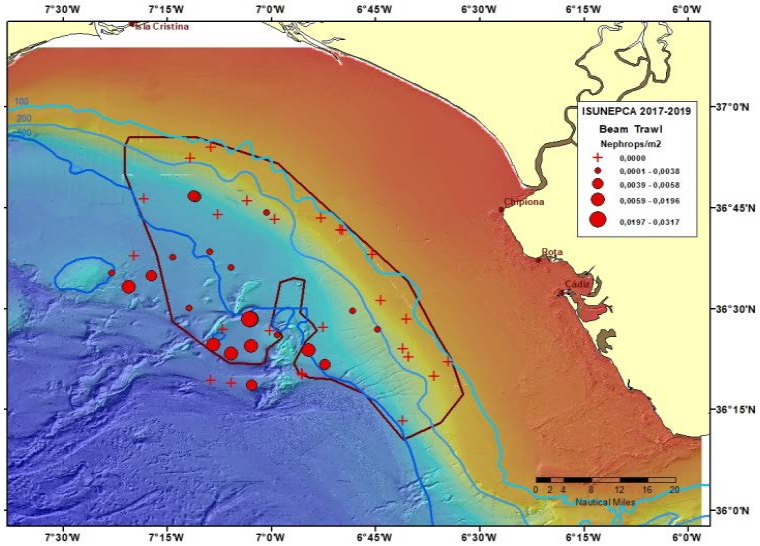
THE SHALLOWEST AREA

- ✓Very poor/Null visibility
- ✓Many other burrowing species
- ✓ Very low *Nephrops* density

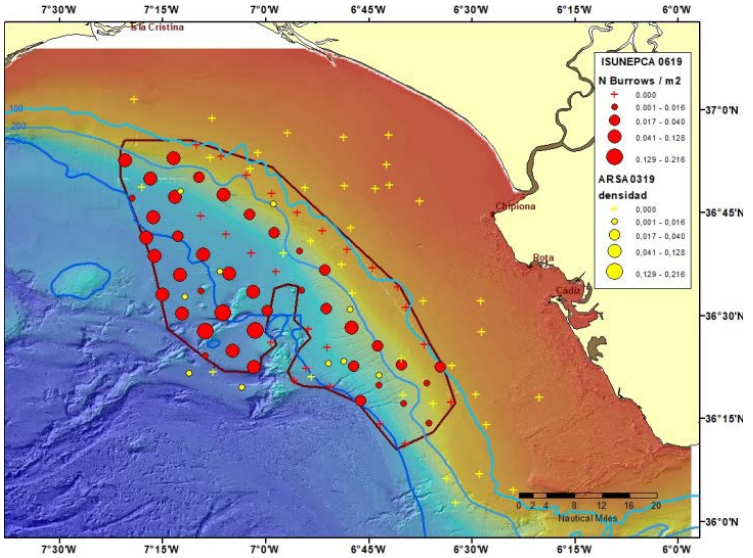
High incertainty in *Nephrops* burrows identification

Zero *Nephrops* density assumed in 2017, 2018 and 2019 UWTV surveys





Beam trawl series (2017-2019)



UWTV Stations & IBTS hauls (2019)

NEW & UPDATED INFORMATION

Andalucian Vessel Monitoring System (SLSEPA) based on GPRS/GSM (Global System for Mobile Comunications) (2019)

The Andalucian Regional Government has installed its own vessel monitoring system on fleets using GPRS/GSM cellular network technology that send data on vessel positions and speed every 3 minutes.

Updated Bottom trawl surveys information (1993-2020)

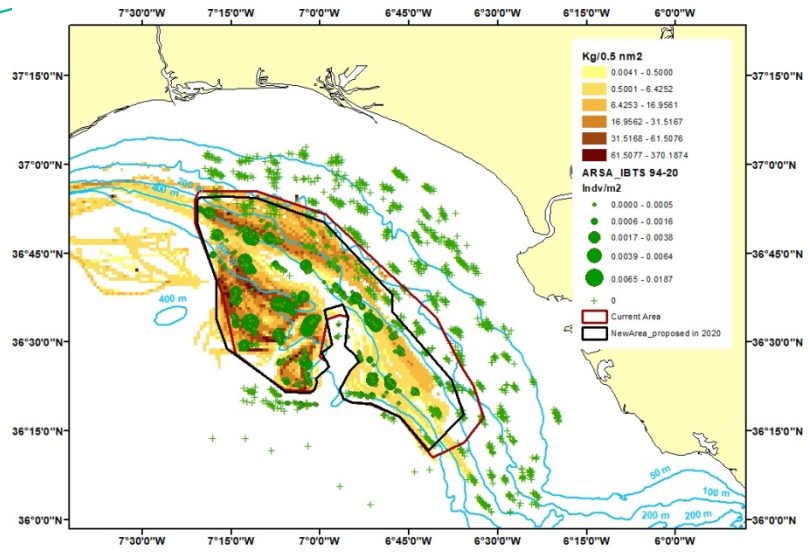
Beam Trawl information from ISUNEPCA UWTV surveys (2017-2019)

ISUNEPCA UWTV surveys information (2014-2019 & 2021)

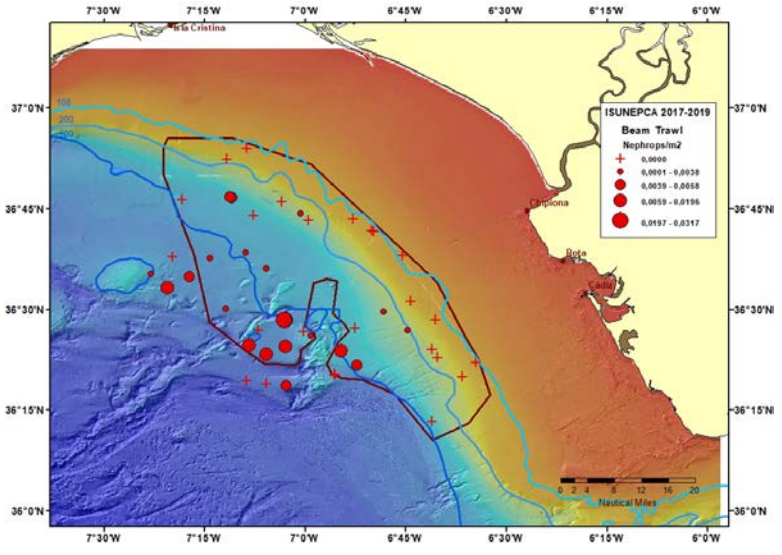
Sediment and habitat information

Sea bed morphology

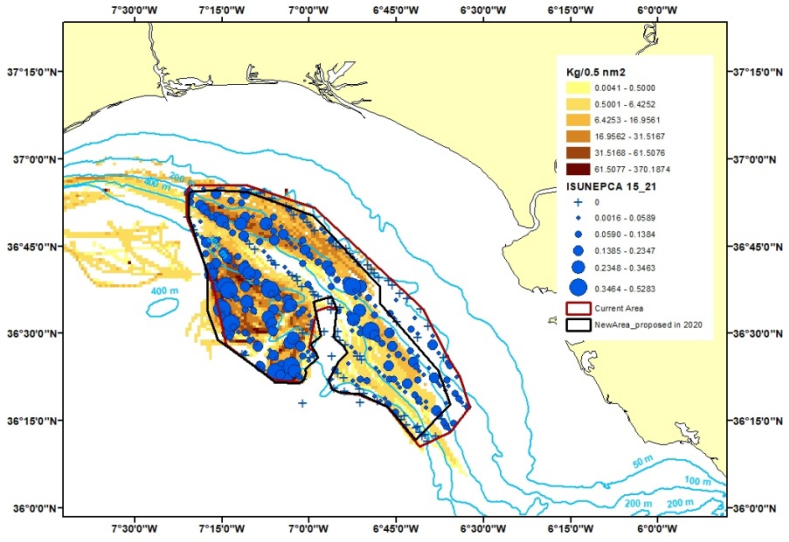
LAST WGNEPS 2020



SLSEPA and IBTS surveys



Beam trawl ISUNEPCA UWTV surveys

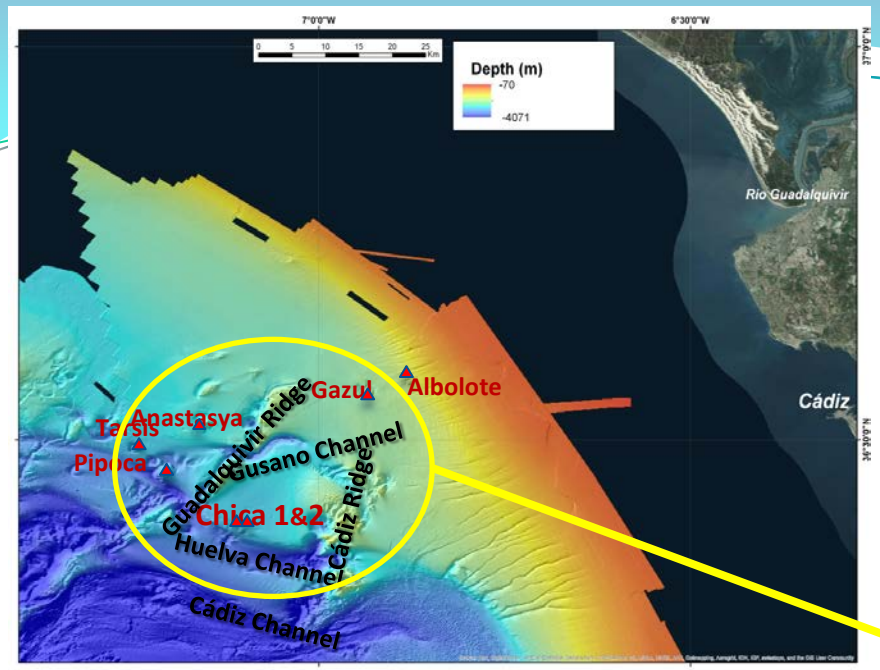


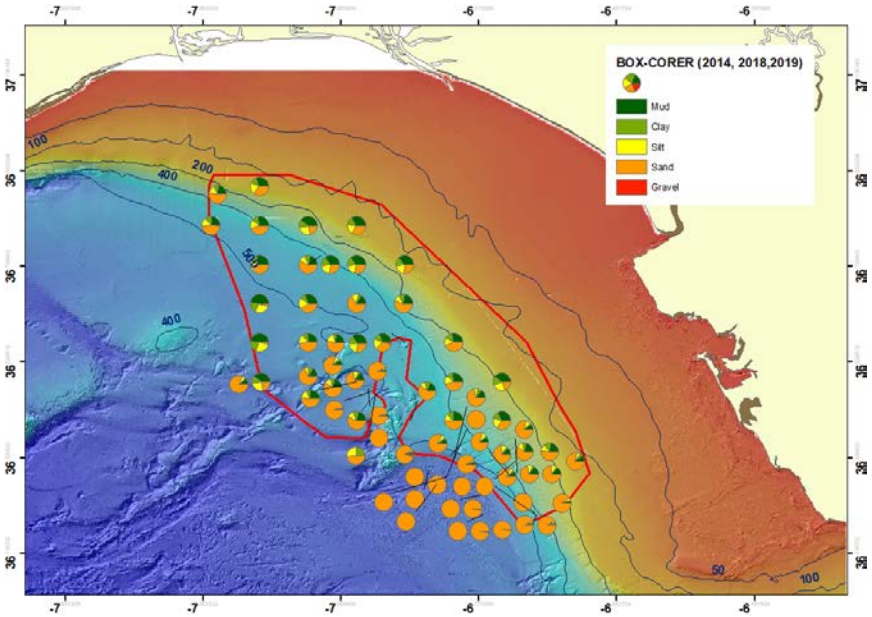
ISUNEPCA UWTV surveys

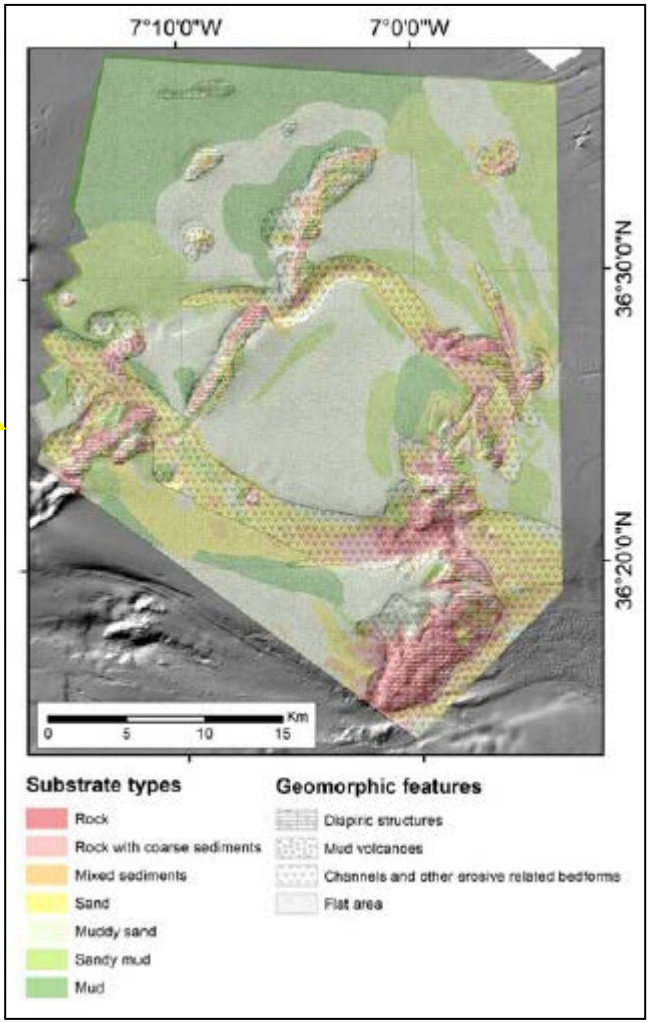
- ✓ SLSEPA: > 5Kg in 100-200 m stratum
- ✓ Bottom trawl surveys (1994-2020)
- ✓ Beam trawl ISUNEPCA (2017-2019)
- ✓ ISUNEPCA UWTV surveys (2015-2019)

WGNEPS 2021

Sea bed morphology & sustrate types

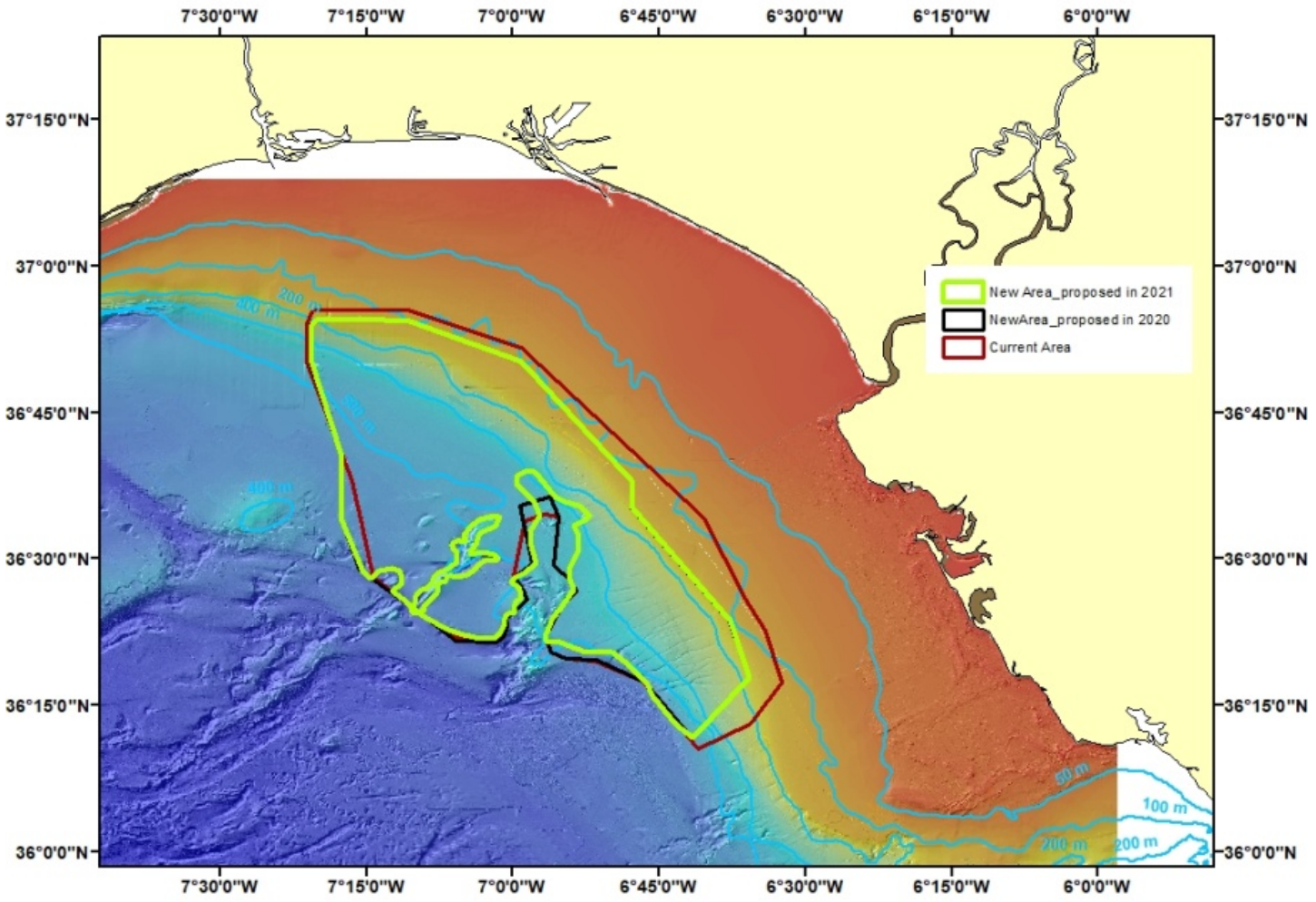




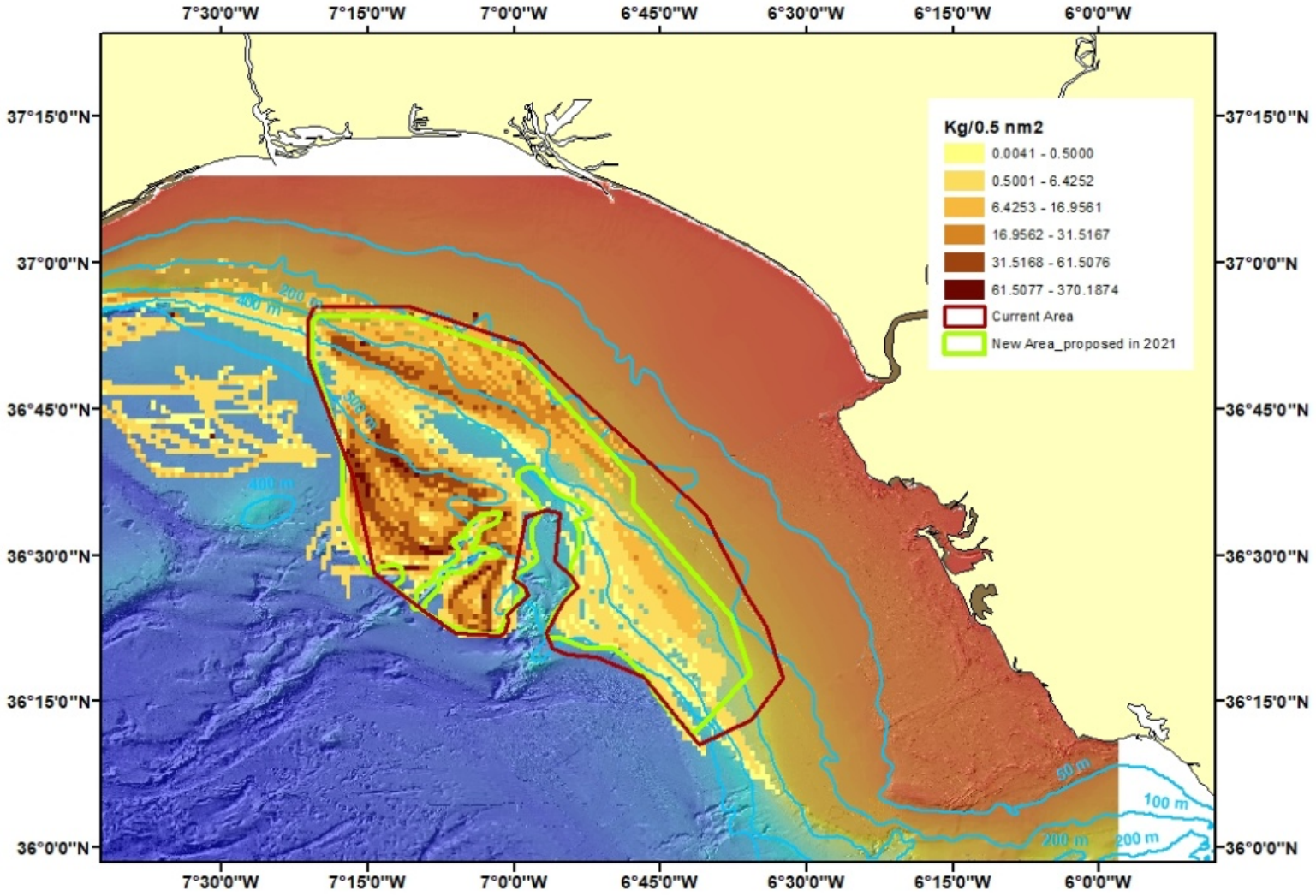


Lozano et al., 2019. https://doi.org/10.1016/B978-0-12-814960-7.00052-X

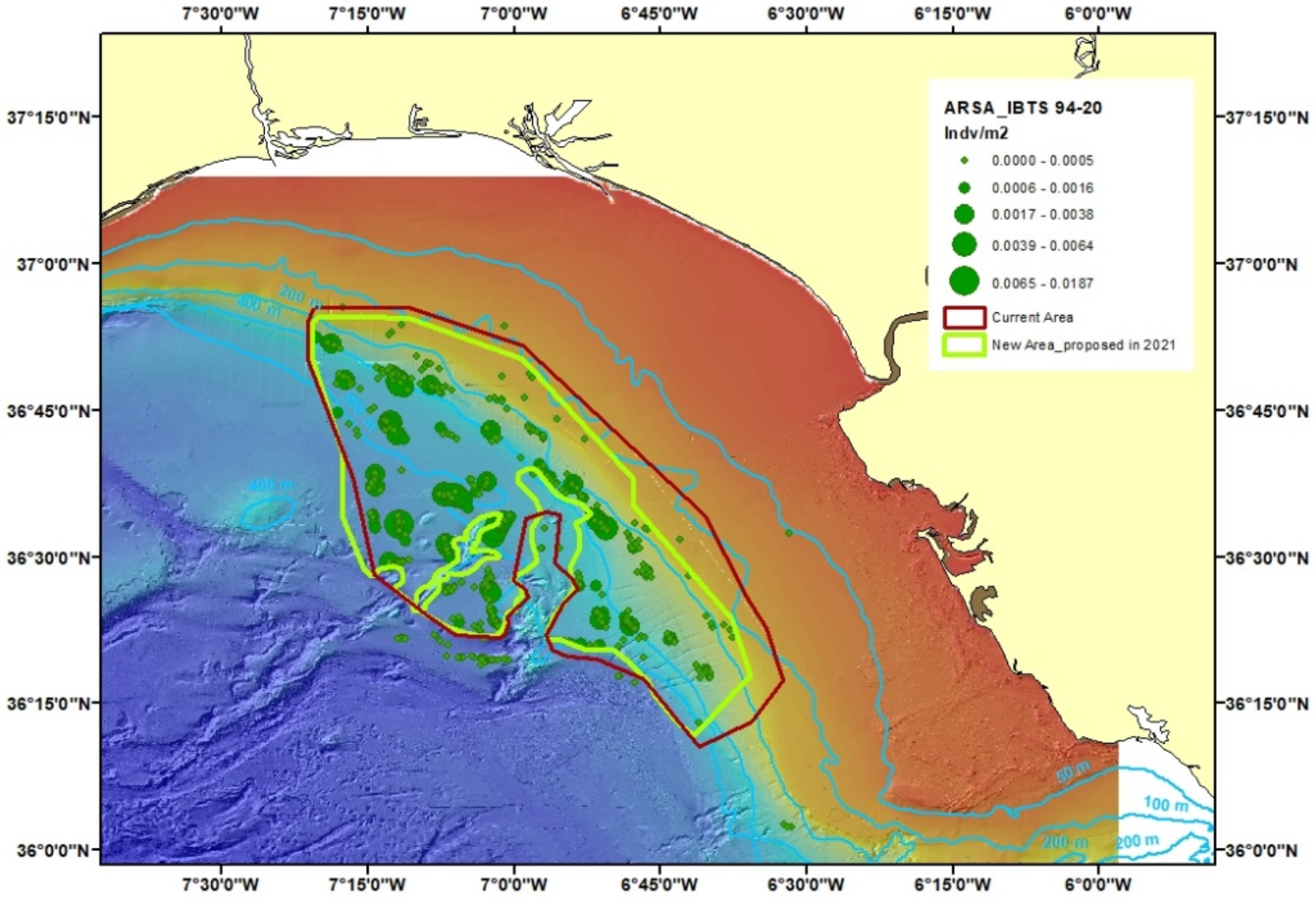
WGNEPS 2021


7°30'0"W
7°15'0"W
7°0'0"W
6°45'0"W
6°30'0"W
6°15'0"W
6°0'0"W
37°15'0"N
37°0'0"N
36°45'0"N
36°30'0"N
36°15'0"N
36°0'0"N
New Area_proposed in 2021
NewArea_proposed in 2020
Current Area
200 m
400 m
600 m
800 m
50 m
100 m
200 m

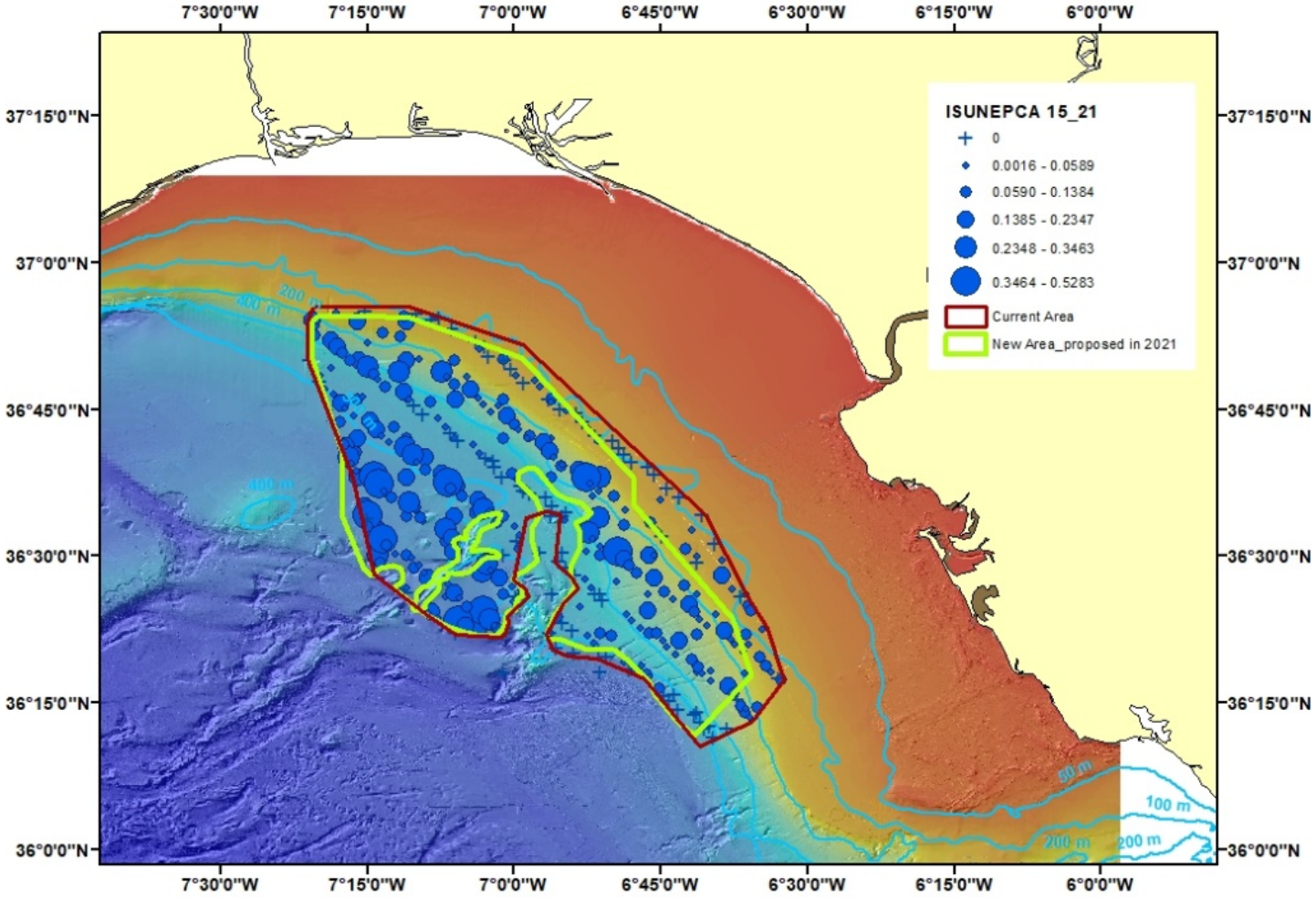
WGNEPS 2021


7°30'0"W
7°15'0"W
7°0'0"W
6°45'0"W
6°30'0"W
6°15'0"W
6°0'0"W
37°15'0"N
37°0'0"N
36°45'0"N
36°30'0"N
36°15'0"N
36°0'0"N
Kg/0.5 nm2
0.0041 - 0.5000
0.5001 - 6.4252
6.4253 - 16.9561
16.9562 - 31.5167
31.5168 - 61.5076
61.5077 - 370.1874
Current Area
New Area_proposed in 2021
200 m
400 m
50 m
100 m
200 m
200 m

WGNEPS 2021


ARSA_IBTS 94-20
Indv/m2
0.0000 - 0.0005
0.0006 - 0.0016
0.0017 - 0.0038
0.0039 - 0.0064
0.0065 - 0.0187
Current Area
New Area_proposed in 2021
7°30'0"W
7°15'0"W
7°0'0"W
6°45'0"W
6°30'0"W
6°15'0"W
6°0'0"W
37°15'0"N
37°0'0"N
36°45'0"N
36°30'0"N
36°15'0"N
36°0'0"N
200 m
400 m
50 m
100 m

WGNEPS 2021


7°30'0"W
7°15'0"W
7°0'0"W
6°45'0"W
6°30'0"W
6°15'0"W
6°0'0"W
37°15'0"N
37°0'0"N
36°45'0"N
36°30'0"N
36°15'0"N
36°0'0"N
ISUNEPCA 15_21
0
0.0016 - 0.0589
0.0590 - 0.1384
0.1385 - 0.2347
0.2348 - 0.3463
0.3464 - 0.5283
Current Area
New Area_proposed in 2021
200 m
400 m
50 m
100 m

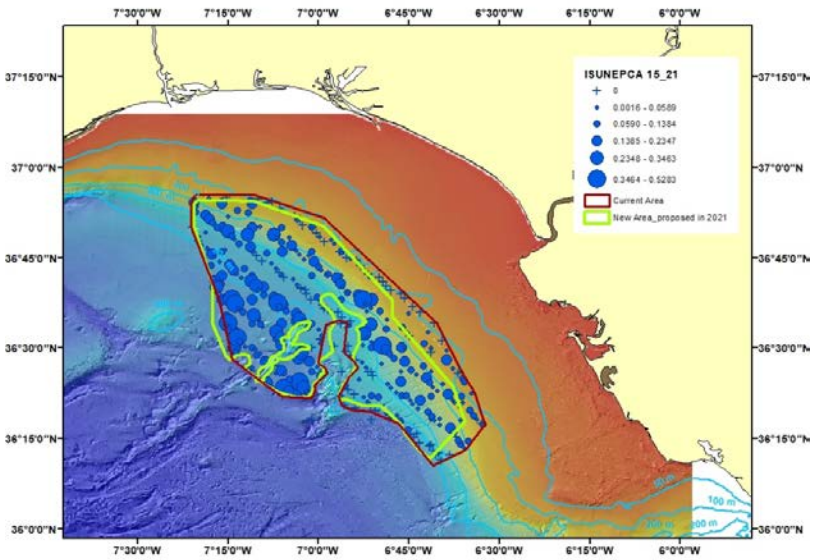
WGNEPS 2021

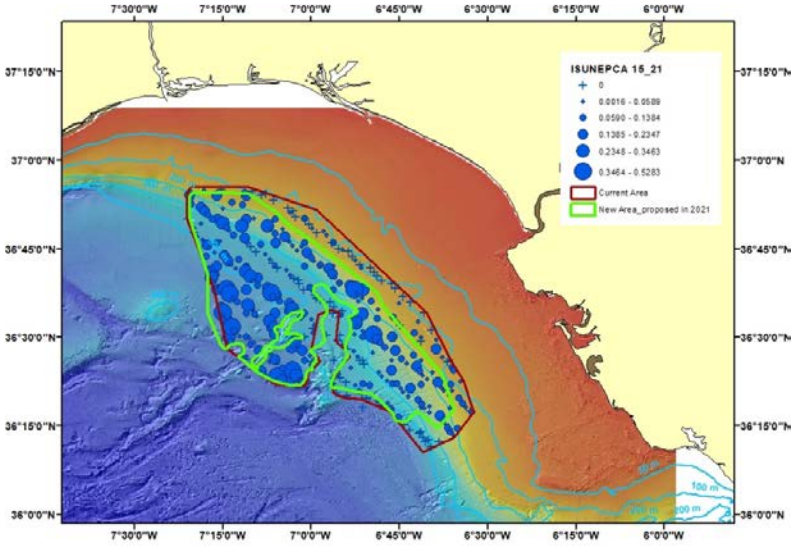
Next Actions

1. Stations in the shallower bottom

KEEP OR REMOVE

this part of the area from the survey area?





2. Review stations out of the new area proposed

3. Geo-estatistical re-estimation of abundance time series

4. Present results in the next WGBIE 2022

5. Reduce the grid size for next survey in 2022 (more stations, less distance between them)???

ANY COMMENTS ABOUT THESE ACTIONS?????


THANKS FOR YOUR ATTENTION