



MBSHC

# SPAIN

Report to MBSHC24

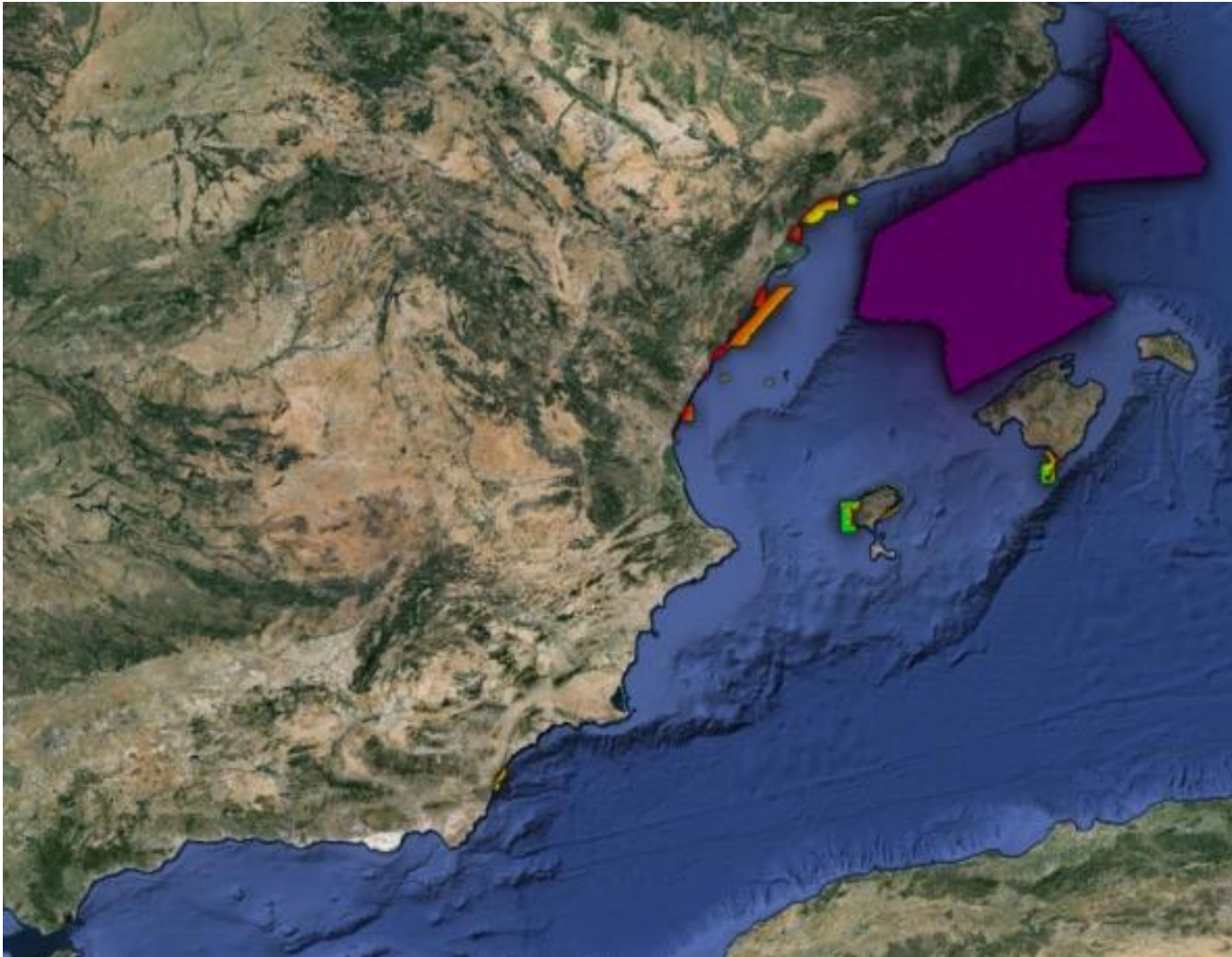
Constanta, Romania  
2 – 4 July 2024

By INSTITUTO HIDROGRÁFICO DE LA MARINA



MBSHC24

## Key Achievements between two conferences



**IHM PLANNING &  
ADQUISITION MAIN GOAL:**  
Increase the resolution in  
shallow waters

**CARTOGRAPHIC PRODUCTION**

**ENC**

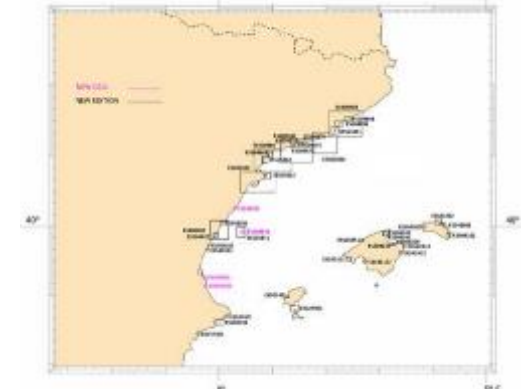
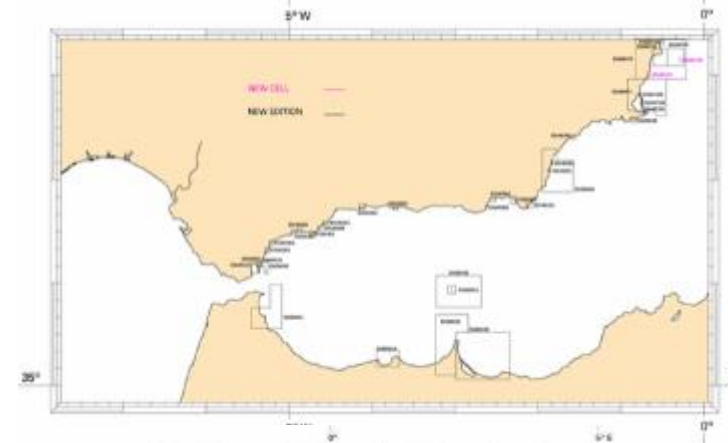
97 ENC's produced in this area  
(6 new ENC's & 91 new editions)

Purpose 2	Purpose 3	Purpose 4	Purpose 5	Purpose 6
General	Coastal	Approach	Harbour	Berthing
1	4	17	71	4

Table 1. Distribution of ENC production in the MBSHC area

MBSHC ENC Production until May 1, 2024					
Purpose	Total	Published	Pending	% Published	% Pending
2	1	1	0	100%	0%
3	10	10	0	100%	0%
4	44	44	0	100%	0%
5	118	115	3	97,45%	2,55%
6	21	5	16	23,8%	76,2%
<b>Total</b>	<b>194</b>	<b>175</b>	<b>19</b>	<b>90,2%</b>	<b>9,8%</b>

Table 2. Distribution of ENC production and percentage in the MBSHC area



## INT paper charts

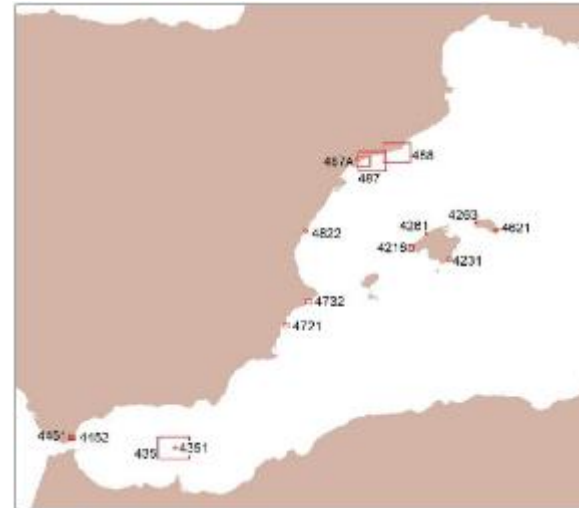
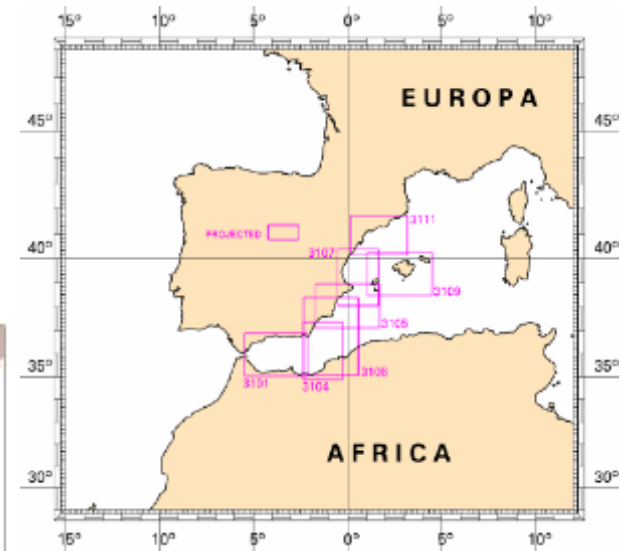
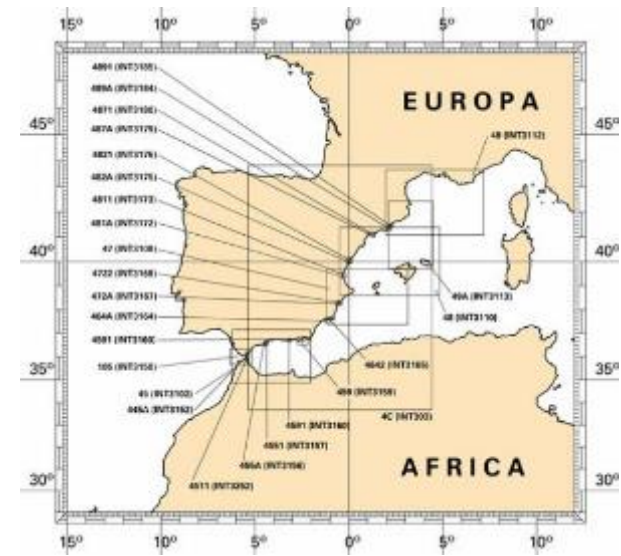
- 25 charts published, 7 pending for publishing in 2024/2026 period.

Scale	Assigned	Produced
Small 5.000.000-1.000.000	1	1
Medium 350.000-100.000	13	6
Large 80.000-10.000	18	18
<b>TOTAL</b>	<b>32</b>	<b>25</b>

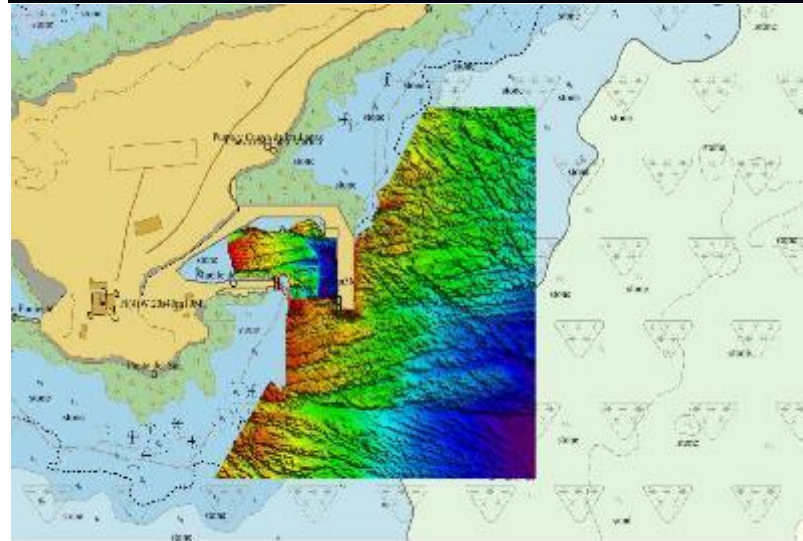
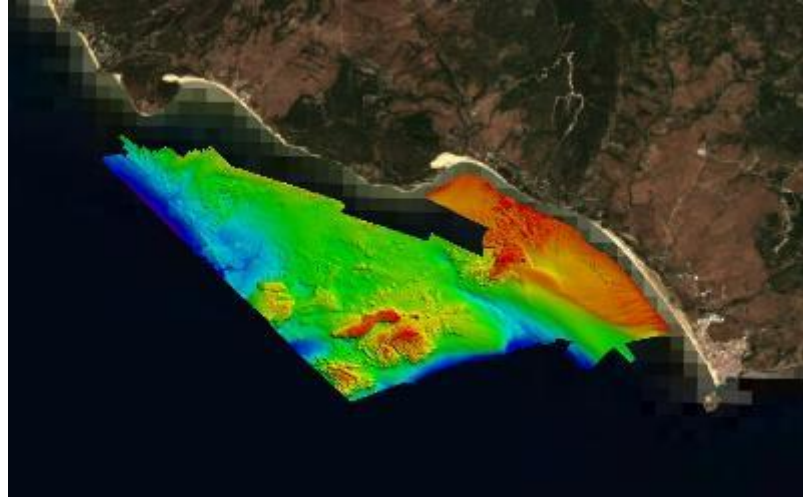
Table 7. INT charts assigned to Spain

## National paper charts

- 15 new charts published

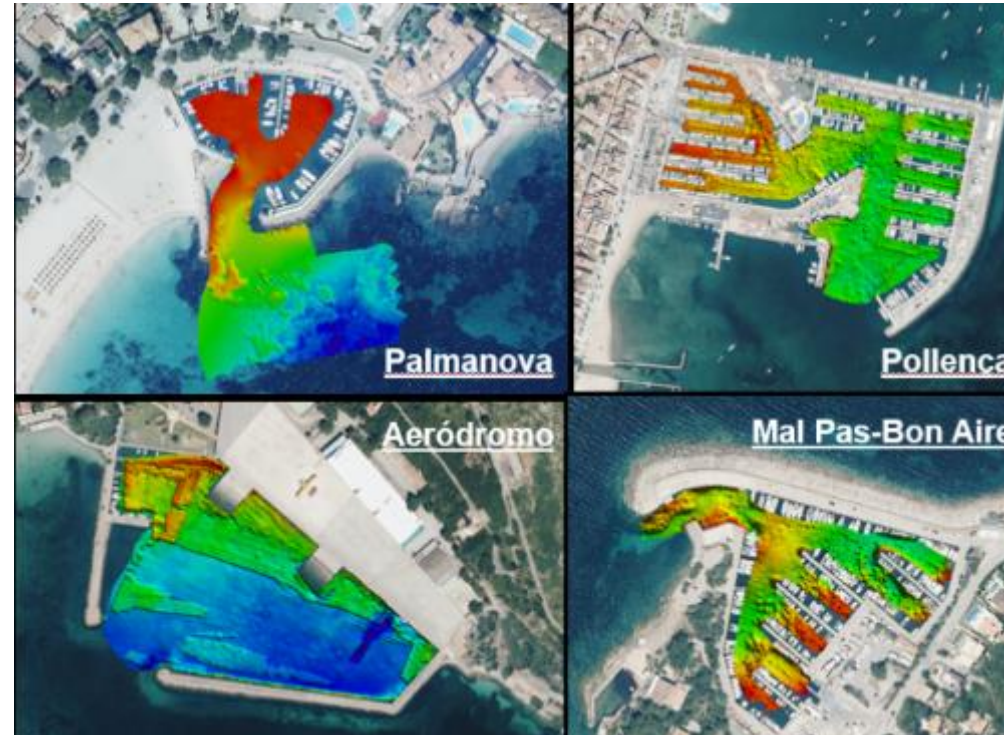


## USV "SONDA" CLASS



- OPEN COASTAL WATERS
- 50-HOUR AUTONOMY
- 6,5 MTS LENGTH / 2,5 TM
- DEPLOYABLE FROM "MALASPINA" CLASS SHIP
- VEHICLE: MARITIME ROBOTICS MARINER
- 2040 KONGSBERG MB

## USV "VERIL" CLASS (2)



- INNER WATERS AND HARBOURS
- 8-HOUR AUTONOMY
- 2 MTS LENGTH / 120 KG
- DEPLOYABLE FROM ROAD/LAND
- VEHICLE: MARITIME ROBOTICS OTTER PRO
- 2040 KONGSBERG MB

## USV ASSESMENT

MORE PRACTICAL -> NEED LESS THEORETICAL FORMATION

EXPECT MORE AND MORE CHEAPER

SIMPLIFY THE WORKFLOW

NEED LESS HUMAN RESOURCES

LONG LEARNING TIME AND NEED TO DEVELOP SPECIFIC PROCEDURES

SPECIFIC MAINTENANCE SUPPORT

OVERALL ASSESMENT: VERY POSITIVE

**S-100 ROADMAP**

**CLOSE COOPERATION AT SPANISH SPEAKING HC LEVEL**

STANDARD	CURRENT STATUS OF IMPLEMENTATION	DISTRIBUTION / VALIDATION
<b>S101</b>	First test (3 ENC) sent to IC-ENC in February and July 2023	IC-ENC
<b>S102</b>	First test (2 ENC) sent to IC-ENC in May 2023	IC-ENC
<b>S104</b>	First test sent to IC-ENC in December 2023	IC-ENC
<b>S111</b>	First format test sent to IC-ENC in June 2024	IC-ENC
<b>S124</b>	Planned to start software development based on SHOM PING software	WWNWS
<b>S128</b>	Planned production by IC-ENC with IHM data	IC-ENC
<b>S129</b>	In process of needs identification	¿?



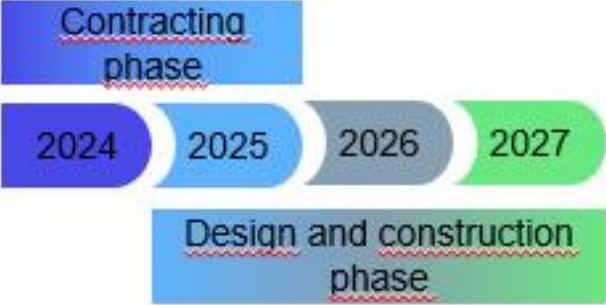
## TOP CHALLENGE: NEW SURVEY VESSELS



**PRESENT**



**FUTURE**

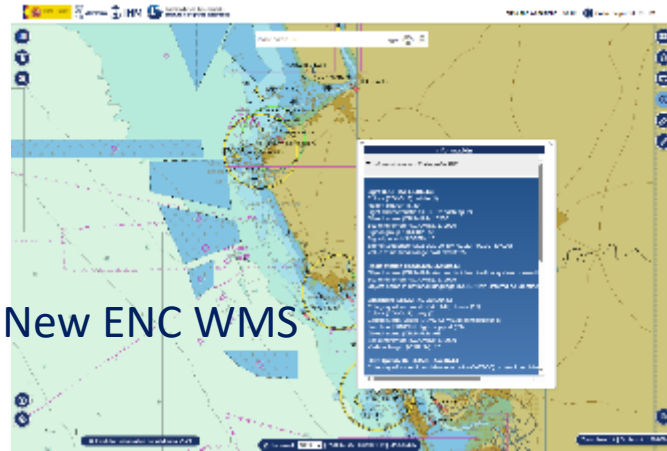


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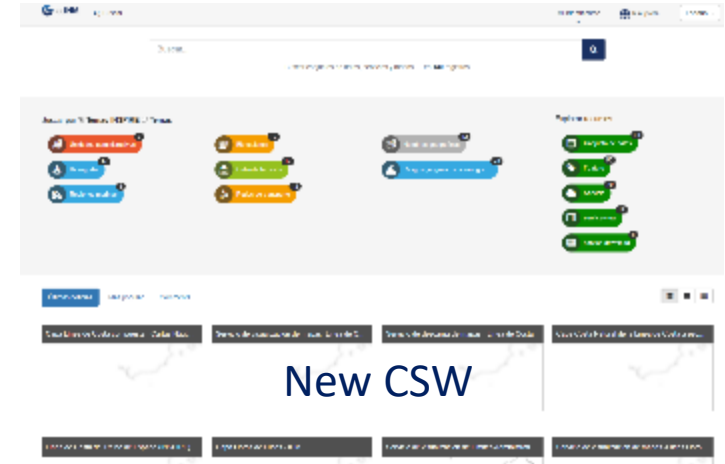
**MSDI IMPROVEMENTS**



New design



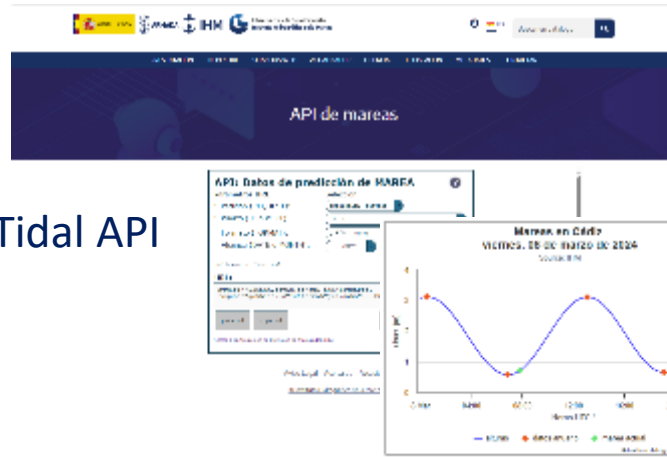
New ENC WMS



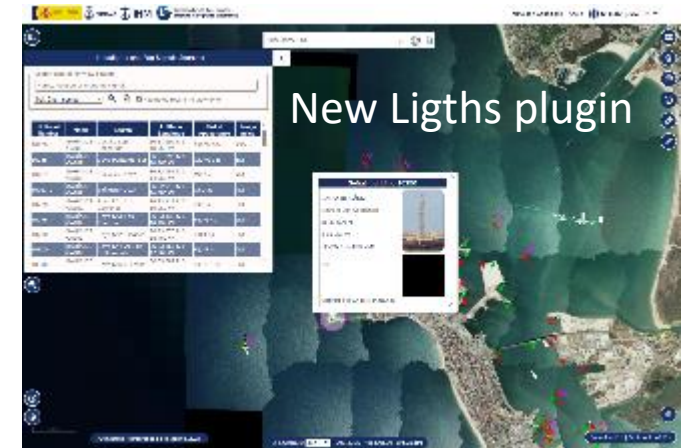
New CSW



New WMS/WCS  
hydrographic  
vertical reference  
surface

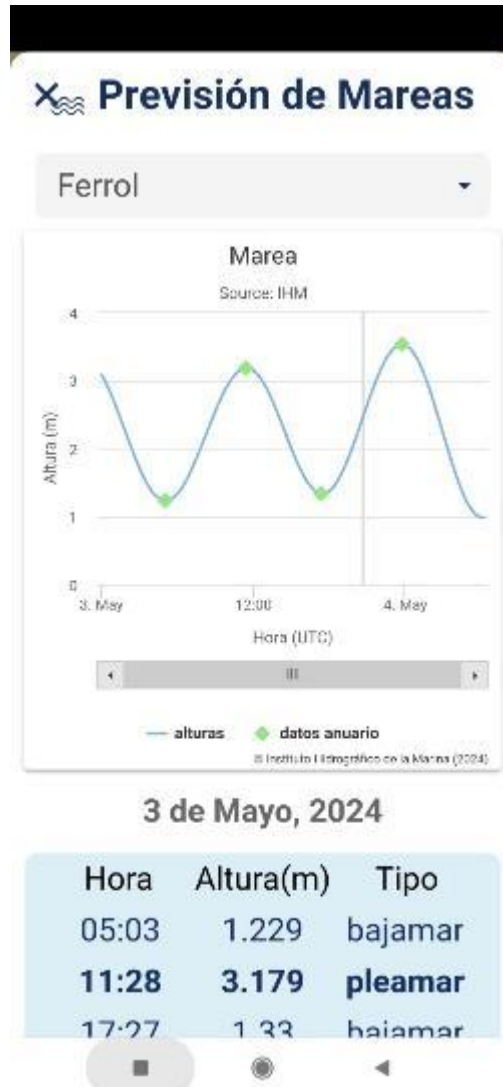


Tidal API



New Lights plugin

## MSDI IMPROVEMENTS: APP



### Señales marítimas

**03488 RÍA DE ARES-BETANZOS**

Mostrar en mapa

Puerto de ARES  
Dique de abrigo  
Extremo



Imagen proporcionada por la Autoridad Portuaria, CC-AA, etc.

**Característica diurna**  
43 25.345 N 8 14.264 W

Elevación: 12  
Altura: 6

**Característica luminosa**




## Summary

### **IHM VISION (S-100): MAXIMUM AUTOMATION OF ALL THE PRODUCTION STEPS**

> THE SOONER THE BETTER

> FIND THE WAYS TO DO MORE WITH LESS HUMAN RESOURCES

> IMPORTANCE OF SHARING EXPERIENCES

> CONSIDER SEEK FUNDINGS TO INVEST IN SOFTWARE DEVELOPERS

### **SPANISH HO PRIORITY: INCREASE RESOLUTION IN SHALLOW WATERS**

> AUTONOMOUS ASSETS / OTHER SOLUTIONS OTHER THAN MULTIBEAM

> CHALLENGE: EXPONENTIAL INCREASE OF DATA (STORE, MANAGE, SECURE)

## Actions required from MBSHC

- Note this NR presentation.
- Also note the full SP NR.



Figure 21. RPAS towing sensor