Regional/Local Research Vessels challenges in construction (capacity, dimensions, consumptions, etc.) to support UN decade of the oceans

INSTITUTO ESPAÑOL DE OCEANOGRAFÍA

26th ERVO

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Vessel classification

Traditional View

EuroOcean Vessel Data Base

	Nº of Vessels	Mean Lenght
Local/Coastal	159	20
Regional	45	45
Oceanic	28	60
Global	70	87

	Survey length	Crew	Nº berths	Daily working rate
Local/Coastal	1 Day / less than 1 week	3 - 6	6	8- 12 h (max 24 h)
Regional	2 - 3 weeks	13	13-15	24 h
Oceanic	28	18-20	20 - 30	24 h
Global	70	20 or more	> 30	24 h

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A matter of size …

What we need …

- ***What we want to do***
- ***Where***
- ***When***
- ***How (instrumentation & people)***

Rules & Conventions

Maritime Labour Convention

Autonomy

"Multipurpose"

Space

Space

Greening

Budget

Vessel Size ….

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What we need …

What we want to do

Where

When

How (instrumentation & people)

Case of Study: “Specifications for a new small vessel for coastal use”

- “Multipurpose vessel that can work with different systems”
- The priority function should be the support of teams of divers and the management of small ROVs, photographic sleds, anchoring equipment and common procedures such as fishing with plankton nets and the use of CTD
- The beam and low freeboard is a factor to take into account to maximize the working surface and access to the sea
- A large surface area at the stern is essential, open space and habitability and work spaces at the bow
- The optimal number is between 6-8 scientists + crew
- Team of people needs to be able to spend the night to maximize their time at sea
- Provision of adequate equipment to obtain geomorphological characterizations (cartography, bathymetry, habitat quality) in shallow areas, such as multibeam, SSS and Topas
- Sampling with rock dredges and fishing operations is considered secondary, although it should not be ruled out

What we need …

What we want to do

Where

When

How (instrumentation & people)

Case of Study: “Specifications for a new small vessel for coastal use”

- 2 associated inflatable boats (about 4.5-6 m) to be stowed on board, not towed, preferably without removing the work surface
- Hydraulic boom/Crane/davit for the boat and for loading and unloading equipment.
- Optional gantries and associated winches can help with maneuvers with ROV and CTD
- Winch to be able to recover anchors,
- Lateral A or T Frame to help maneuvers of divers.
- Loading area with compressor and bottle storage (20 feet ISO Container or in machinery area and accessible through cargo hoses on deck. Panel for loading 4 bottles and minimum flow rate of 250 liters/min.
- Wet laboratory and dry work area
- Continuous salt water system, for nurseries or samples in tanks.
- Sample storage (refrigerators) and freezers
- Underway system using NMEA signal with temperature, depth and position data
- Underwater positioning system for different devices. Divers positioning systems and geolocation of sampling stations.
- The possibility of equipping with multiparametric probes (thermosalinograph , fluorometer , pH-meter)

Challenge …

Is it possible to meet all these requirements on a local/coastal vessel that is supposed to be small in size ??

&

How can we meet all these requirements with a green ship approach (LNG, batteries, methanol, ammonia, …) with at least 1-2 weeks of autonomy?

Do we have to change our traditional concepts and find a new and completely different design and approach to spaces?

We have reached the “limits” and we should think of another way of designing surveys?