GENERAL "REGIONAL" REQUIREMENTS **FINAL - 10/31/2000**

CRITERIA	New Vessel Requirement	Comments	Priority	
			Required	Desirable
GENERAL				
Multidisciplinary Research	Yes		X	
24-hour Operations	Yes		X	
Acoustically Quiet	Yes		X	
Standard #1 - Radiated Noise	ICES Report No. 209		X	
Applicable Speed	11 knots			X
	6 - 8 knots		X	
Standard #2 - Airborne Noise	IMO Resolution A.468 XII	Code for Noise Levels Aboard Ships	X	
Applicable Speed	12 knots		X	
Low Stack Emissions	Yes	For Atmospheric Sampling	X	
HVAC	Maintain Temp 70-75 F, 50% relative	Throughout work and living spaces	X	
	humidity, 9-11 air changes per hour			
	in all season throughout operating area			
Ship Control	Maximum Comms and Visibility for		X	
	Scientific Operations			
Scientific Antenna Mounts (Main Mast)				
Easily Accessible	Yes	(i.e. catwalk)	X	
Height above water	~40 feet (for bridges)	REGION SPECIFIC		X
Multiple Mounts	Yes		X	
Bow tower	Yes		X	
Removable	Yes			X
Weight Capacity	100 lbs.			X
Various Locations	Yes			X

Dedicated Cable Trunks				
Scientific Systems	Yes		X	
Ship's Acquisition Systems	Yes		X	
Temporary Scientific Cable Passes	Yes	Numerous (4-6" DIA)	X	
ARRANGEMENT				
Accommodations (Scientific)			X	
Permanent Berths	12	Expandable to 16 (use of lounge)		
Maximum Berths	20	Expandable to 20 (Van)		
Quiet Scientific Work Area (lounge)	Yes		X	
head/shower	1 per 4 persons	(or 1 per 2 cabins)	X	
Maximum compliment (day trip)	30		X	
Cabins	2 person			X
Separate Ship's Acquisition Systems Room	Yes	Easily Accessible from Labs	X	
Workshop Area	Yes	(Small, Combined Technician & Science)		X
Dedicated Science Storage (10% of lab sqft)	Yes			X
Dedicated Chemical Storage Area	Yes	HAZMAT Certified (Modular)	X	
Central Tank Storage Area	Yes			X
All Discharges Over Port Side	Yes	No gray water overboard from galley	X	
Tankage to hold all wastes aboard	Yes (24 hour period)	During Sampling on Station	X	

LABS				
Lab Space (Not including Vans)				
Dry	400 sqft	Clear, usable space	X	
Wet	250 sqft	Clear, usable space	X	
CTD "Garage"	Yes	Incorporated with Wet Lab	X	
Lab Arrangement	NOT serve as Passageway	(Access to ship and deck NOT	X	
		through lab spaces)		
Large Dockside Loading Hatch (Labs)	Yes	6.5' x 5' minimum	X	
Cleanliness	Maximize with materials and design		X	
Counters/Cabinets/Furnishings				
Materials	Laboratory/Marine quality	Where Applicable	X	
Mounting	1-1/2" x 1-1/2" channel	"Uni-strut", 24" O/C	X	
Modular/movable	Yes		X	
Counter Tops	3/4"	Able to be drilled (screws, fasteners)	X	
		equiv. to plywood but non-flammable		
Fume hoods				
Number	2	Van, Dry Lab	X	
Sink in Hood	Yes	one		X
Modular/Movable	Yes	Several vent locations in labs	X	
		Optional Wet Lab Location	X	
Sinks (Chemical)				
Number	3	1 Wet Lab (deep), 2 Dry Lab	X	
Modular/Movable	Yes		X	
Lab Power (110 Vac)	20 Amps/10 lineal ft of bench space	(Wet and Dry Labs)	X	

Power Stability	Yes	by individual UPS	X	
Lab Auxiliary Power	20 Amps, 220 and 440Vac	For large auxiliary equipment in labs	X	
Ship Service Air (Labs)	Yes	Wet and Dry Labs	X	
Volume	low		X	
Pressure	100 psi		X	
Free of Oil	Yes		X	
Moisture Content	Low		X	
"Uncontaminated" Sea Water	Yes	Labs, Deck, and Vans	X	
Central Vacuum Line	Yes			X
Auxiliary Ventilation	Yes	1 air change in 4 minutes (Minimum)	X	

REFRIGERATORS/FREEZERS				
Scientific Freezers (Modular)				
Number	2	"Modular" implies self contained	X	
Volume	20 cuft and 10 cuft	unit rather than compartment in ship		X
Temperature	-20 C and -80 C		X	
Location	Labs		X	
Scientific Refrigerators (Modular)				
Number	1 - 2		X	
Volume	20 cuft each			X
Temperature	4 C		X	
Location	Labs		X	
Climate Control Capability	Yes	Modular Incubator	X	
		(May be in portable lab van)		
Built in Scientific Freezer (Compartment)	Yes	May use freezer van option		X
Volume (cu/ft)	200 cuft			X
Temperature	-20C			X

DECK				
Camber to Deck	Minimal/Straight	For attachment of equipment	X	
Aft Deck Working Area				
Gross	1200 sqft			X
Net (Less all obstructions, vans, etc.)	400 sqft	Clear, usable space	X	
Clear rail length	25 feet	Minimum (Starboard side)	X	
Removable bulwarks/rails	Yes (P/S & Stern)	Port, starboard and stern	X	
Deck loading	1200 lbs./sqft		X	
Total deck payload	30 Tons	Minimal ballast, Full Tow Load	X	
Deck Tie downs ("Woods Hole" Type)	Threaded, 1" DIA on 2-foot centers		X	
Clear Foredeck Area	300 sqft	Clear, Usable space		X
Stern Ramp	Yes	Full width of A-frame	X	
Able to be covered	Yes		X	
Air tuggers	Yes			X
Removable Bulwark cleats	Yes	For Tag lines		X
Auxiliary (Scientific) Deck Power	110Vac Available		X	
	220Vac and 440Vac	Sized for Winches, Vans, etc.	X	
		Single and 3-phase available		
Auxiliary Deck Ship's Service Air	Yes		X	
Volume	High	For air tuggers/ acoustic arrays		X

PORTABLE VANS				
Vans				
Size	Variable	Up to 20-foot ISO Container	X	
Number Carried	2		X	
Location	Aft Deck only	In various arrangements	X	
Access to Lab	Yes		X	
Power (Each)	40 A/220 and 20 A/440 Vac	Single and 3-phase ability	X	
Types carried	Freezer	3-Phase Power	X	
	Isotope	1-Phase Power	X	
	General purpose	1-Phase Power	X	
	Berthing	1-Phase Power	X	

REGION SPECIFIC (mid-Atlantic)

FINAL - 10/31/2000

CRITERIA	New Vessel Requirement	Comments	Priority	
			Required	Desirable
Endurance	21 days	(50% station-50% cruising-10% reserve)		X
	14 days		X	
Maximum Range	2500 nautical miles			X
Speed				
Maximum	14 knots			X
Cruising	10 -12 knots		X	
Minimum	0.1		X	
Control	+/- 0.1 from 0.1 - 5 knots		X	
Sea-keeping				
Maintain Full Scientific Ops.	10 knots through SS 4	(Moorings, gear deployment)	X	
Maintain Limited Scientific Ops.	SS 6	Safely and comfortably	X	
		(Vertical wire operations only)		
Station-keeping				
(At best or desired heading, maintain station and vertical over-the-side operations)				
Sea State	4		X	
Wind	20 knots		X	
Current	2 knots		X	
On Station	+/- 10 meters		X	
Trackline	+/- 10 meters		X	
Heading	+/- 5 degrees		X	
Dynamic Positioning	Yes	As Required for Station Keeping		X
"Sea-Kindly"	Yes		X	

Design Freeboard (Aft)	4-6 feet		X	
Navigational Draft	8-10 feet		X	
Ice Strengthening	Transit Harbor Ice			X
Towing Capability	2000 lbs. @ 10 knots	Minimum ballast/30 tons payload	X	
	20,000 lbs. @ 4 knots (trawling)	Minimum ballast/30 tons payload	X	
Scientific Payload	30 Tons	Minimum ballast/Full Tow Loads	X	
Lifting Capability at Sea	16,000 lbs. 20-feet above main deck	Minimum ballast/15 tons payload	X	
Diving Support Facilities				
Compressor	No (As needed)	REGIONAL REQUIREMENT		X
Entry platform	No (As needed)	REGIONAL REQUIREMENT		X
Tank storage/dive locker	No (As needed)	REGIONAL REQUIREMENT		X
Workboat(s)				
Number	2		X	
Size	18-foot semi-rigid inflatable		X	
	20-foot rigid hull	Small A-frame and cabin	X	
		For sampling shallow regions		
Permanently Aboard	Yes (semi-rigid inflatable)			
	No (rigid hull)	In place of 20-foot van		
Stairs or "cut-out" in side		For loading/boarding small boats		X
3 or 4-point anchor capable	Yes		X	
Sea State	4			X
ROV/AUV Capable	Yes (Small-Medium sized)		X	

REGULATORY/OPERATIONAL ISSUES

FINAL - 10/31/2000

CRITERIA	New Vessel Requirement	Comments	Priority	
			Required	Desirable
Crew Size (Berths)	8-10	Including Technicians (2)		X
Two-watch system	Yes		X	
Registered (Domestic) Tonnage	<300			X
International (Convention) Tonnage	<500		X	
Hull Form	Mono-hull			X
Length	<150 feet		X	
Beam	~35 feet			X
Design Service Life	30 years		X	
Documented	No		X	
Inspected	No			X
State Numbered	Yes		X	
Designated as an "Oceanographic R/V"	Yes		X	
SOLAS	No	Dictated by Tonnage		X
GMDSS	No	Dictated by Tonnage		X
ISM Code Compliant	Yes	Dictated by Tonnage		X
STCW (Crew)	Yes			X
"Foreign" Voyage	Yes		X	

"International" Voyage	No		X	
ABS Classed	Yes		X	
Load Line	Yes		X	
Intact Stability Requirements	Yes		X	
Damaged Stability Requirements	Yes	(As required)		X

SCIENTIFIC OUTFIT **FINAL - 10/31/2000**

CRITERIA	New Vessel Requirement	Comments	Priority	
			Required	Desirable
LIFTING APPLIANCES				
Cranes (Main/Aft)	Yes		X	
Capacity (at sea)	5000 lbs. @ 20 feet over side -or-		X	
	8000 lbs. @ 5 feet over stern		X	
Capacity (alongside)	20,000 lbs. @ 20 ft over side	For Loading Scientific Vans	X	
Reach over side (Maximum)	25 feet		X	
ROV Capable	Yes			X
Motion Compensated	Yes			X
Capable of Towing	Yes			X
Articulated/knuckle-boom	Yes	Reach near deck/water surface	X	
Various Locations	No	Fixed Location	X	
Foredeck Crane	Yes			X
Capacity (at sea)	1000 lbs. @ 10 feet over side		X	
Capacity (alongside)	2000 lbs. @ 20 feet over side		X	
Capable of Towing	Yes			X
Reach over side (Maximum)	20-feet			X
Articulated/knuckle-boom	Yes	Reach near deck/water surface	X	
Various Locations	No	Reach P/S side	X	
Stern Load Handling Appliance	Yes		X	
Type	"A" Frame	With "T" extensions	X	
Capacity (Safe Working Load)	8 Tons		X	
Reach Over Stern	12 feet		X	
Reach Inboard	12 feet		X	
Clear Width	12 feet		X	
Clear Height	20-feet		X	
Tow Capable	Yes		X	
Various Locations	No		X	
Removable	Yes	Able to install fixed gantry		X

Side Load Handling Appliance	Yes	2 required for P/S sides	X	
Type	Frame	Usable for anchor handling	X	
Capacity	4 Tons		X	
Reach Over Side	10 feet		X	
Clear Width	N/A			
Clear Height	16 feet		X	
Various Locations	No	Fixed locations Port & Stbd (Aft)	X	
Tow Capable	Yes		X	
Removable	Yes		X	
Bow Load Handling Appliance	Yes		X	
Type	Frame or Davit	Or foredeck crane		X
Capacity	1 Ton		X	
Reach Over Side	12 feet		X	
Clear Width	N/A		X	
Clear Height (Over Bulwark)	6 feet		X	
Removable	No		X	
Various Locations	No	Port and Stbd Sides	X	
Bulwark Removable under frame	Yes		X	
Tow Capable	Yes		X	
Portable Davit			X	
Capacity	500 lbs.		X	
Reach Over Side	6 feet		X	
Clear Height (Above Deck)	6 feet		X	
Various Locations	Yes	P/S Aft and Forward	X	
Powered Winch	Yes		X	

WINCHES				
General Winch Requirements				
Optimum Operator Visibility	Yes		X	
Reliable Comms	Yes		X	
Cable Monitoring Systems	Yes		X	
CTD Winch(es)				
Number	1		X	
Wire	3000m of .322 (or .375)	REGIONAL REQUIREMENT	X	
	6000m			X
Data transmission	Yes ("state of the Art")		X	
Capacity(Line Pull)	4000 lbs. (Full Drum)	REGIONAL REQUIREMENT	X	
Line Speed	0 - 2.5 m/sec		X	
Various Locations	No	0-1 deck	X	
Control	"fine"	+/- 5% of line speed	X	
Interchangeable Drums	Yes	Not at sea	X	
Towing/Trawl/Coring		REGIONAL REQUIREMENT		
Number	2		X	
Wire (Per Drum)	2500m	1/2"- 7/8" wire rope, or E&M cable	X	
	5000m			X
Data transmission	Yes	One only	X	
Capacity(Line Pull)	20,000 lbs. (Full Drum)		X	
Line Speed	0 - 1.5 m/sec		X	
Various Locations	No	In winch room below main deck	X	
Control	"good"	+/- 10% of line speed	X	
Interchangeable Drums	Yes	Not at sea	X	
Constant tension/"Auto-trawl"	Yes			X

Hydro Winch(es)	Yes	REGIONAL REQUIREMENT	X	
Number	1 - 3		X	
Wire	1000m	1/4" wire rope, E&M cable, Kevlar	X	
Data transmission	Yes		X	
Capacity(Line Pull)	1000 lbs. (full drum)		X	
Line Speed	0 - 1.0 m/sec		X	
Various Locations	Yes		X	
Control	"fine"	+/- 5% of line speed	X	
Interchangeable Drums	Yes	Or separate winches		X
Deck Winch(es)	Yes		X	
Number	2		X	
Wire	500m	3/8" wire rope or E&M cable	X	
Data transmission	Yes		X	
Capacity(Line Pull)	4000 lbs.		X	
Line Speed	0 - 1.0 m/sec		X	
Various Locations	Yes		X	
Control	"fine"	+/- 5% of line speed	X	
Interchangeable Drums	Yes	Or separate winches		X

ACQUISITION SYSTEMS				
Note: These systems would be considered standard to the ship				
Conventional echo sounding				
Full Ocean	Yes			X
Deep	Yes (12 kHz, 200-3000m)		X	
Shallow	Yes (50/200 kHz, 500m)		X	
Color	Yes			X
Multibeam	Yes	With water column/side scan capability	X	
ADCP				
Deep	Yes (300 KHz, 200m)		X	
Shallow	Yes (1200kHz, 35m)		X	
CTD/Rosette	Yes	12 bottle	X	
Surface Mapping/Meteorological System	Yes		X	
Sub-Bottom Profiler	Yes			X
Side Scan Sonar	Yes			X
Chirp Sonar	Yes			X
LAN ("Local Area Network")	Yes		X	
Sector Scan Sonar (Forward Looking)	Yes		X	
Scientific Sounder (38 & 120 kHz)	Yes			X
Trace Metal Clean Rosette and Pump	Yes			X
Pumping Undulating CTD System	Yes			X

TRANSDUCER MOUNTING				
Type	"pod" or "retractable keel"		X	
Number	1		X	
Location/Arrangement	For Maximum Performance of Systems		X	
Size	To suit acquisitions systems		X	
Minimize bubble-sweep	Yes		X	
Improve "Sea-Kindliness"	Yes			X
Standard Bolting pattern	Yes		X	
Cable Passes/sized for various X-dcrs	Yes		X	
Change x-ducers w/o haul out	Yes		X	
Dedicated Scientific Sea Chests	Yes		X	
Number	3		X	
Location/Arrangement	For minimal bubble sweep		X	
Separate from Ship's Systems	Yes		X	
POSITIONING				
Navigation/Positioning				
DGPS	Yes		X	
Dynamic Positioning	Yes	As required for Station Keeping		X
Heave (+/- xx m/s2)	Yes	For max performance of systems	X	
Pitch (+/- xx degrees)	Yes	For max performance of systems	X	
Roll (+/- xx degrees)	Yes	For max performance of systems	X	
Heading (+/- xx degrees)	Yes	For max performance of systems	X	
Precision Trackline	Yes		X	
Lab displays	Yes		X	

COMMUNICATIONS				
Internal Communications				
Data (transmission, monitoring, recording)	Yes (Labs, Vans)		X	
Voice (Labs, Vans, Bridge, Galley, etc)	Yes		X	
On Deck (Hand-held Radios)	Yes (with hands-free head sets)		X	
Video cameras (deck viewing)	Yes		X	
External Communications				
Satellite	Inmarsat B or M		X	
Voice	Yes		X	
e-mail/internet	Yes		X	
FAX	Yes		X	
High Speed Data	Yes		X	
Dependability	High		X	
Range	Full Operating Area		X	
Cellular				
Voice	Yes		X	
e-mail/internet	Yes		X	
FAX	Yes		X	
High Speed Data	Yes		X	
Dependability	High		X	
Range	Inshore (Out to ~20nm)		X	
Radio				
Shore	Yes		X	
Marine Freq.	Yes		X	
Aircraft Freq.	Yes		X	
Satellite Monitoring				
Data and Images (near real-time)	Yes		X	