Ship Replacement (Renewal) Programming Thumb Rules
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As we head down the road toward crafting a UNOLS modernization plan, it might be useful to have some idea about how much it will cost to buy and operate these craft and how long it will take. Here are some data points for your information.

HOW MUCH WILL IT COST TO BUY?

Global ships	$60M
Ex: REVELLE, ATLANTIS	$52M (FY'92 $'s)
Oceans-Class - High Seas	$54M AGOR-26
Oceans-Class - Ice Capable	$60M (no examples)
Oceans-Class - Temperate/Monohull	$35-45M
Cape-Class - Replacement/Regional/~150-ft.	$25-30M
Local/Regional ~100-125-ft.	$7M to $15M
(depending on complexity of design)	

Ships always cost more than initial estimates.
Examples:

	Estimate	Actual
ATLANTIS II	$3M	$5M
OCEANUS	*____	____
NOAA FFRV40	$45M	$64M
AGOR-24/25	$38M	$52
KNORR/MELVILLE Conversion	$35M	$52M
AGOR-26	$45M	$54M+
CONNECTICUT	*____	____
SMITH (RSMAS)	*____	____
BLUE FIN replacement (SkIO)	*____	____
*Data not available		

- Ten percent of construction costs should go into design (of first article); another ten percent should be reserved for change orders.

HOW MUCH TO OPERATE? (per year)

- Global ship   ~ $5M (lots of data available)
- Oceans (SWATH) $3.6M (Depends on crew size. If the crew is 16 as advertised then 16/22 x 5 = $3.6M)
- Oceans (ICE) $5M (Fuel costs will drive this up - smaller crew)
- Oceans (conventional) ~210-ft. $3.6M
- Regional   ~150-ft. $2.5M
- Local 100-125-ft. $1.25M
- Manned Submersible $2.0M
- ROVs $2.5M
- New-FLIP   ?

THUMB RULES:

- Annual operating cost is about 10 percent of capitalization cost.
- Operating budget has been flat.
- Science is 2 to 3 times ship operating cost.

HOW LONG DOES IT TAKE?

- Dead times in the system

  - Programming (time between money put into agency   2 years   budget request and
    the money 'turning green')

  - Contracting / Design   2 years   After money is
    'green'

  - Construction

    Large ships   3 years
    (Examples: AGOR-24/25, FFRV40)
    Oceans Class   2-2.5 years

- Examples:

  KNORR/MELVILLE
    - Idea starts '83
    - Navy endorsement (Programmed)'84
    - Money green '86
    - Work begins '89
    - Back in service '92
  AGOR-23
    - Idea starts '83
    - Programmed '84
    - Money green '86
    - Delivery '90
    - In service '91
  AGOR-24/25
    - Idea starts '83
    - Programmed '88/'89
    - Money green '91/'92
    - In service '96/'97