

Boat Budgets

Taking ownership and responsibility for a boat, regardless of size, requires much planning. Some of the most frequently overlooked or underestimated aspects of this planning involves estimating the resources required to maintain a vessel. There are many factors which will influence an operation and maintenance budget estimate. For instance:

1. boat schedule;
2. size;
3. engineering systems aboard;
4. top speed,
5. operational environment; and,
6. geographic location,

will all play a role in determining what represents "adequate" resources to safely maintain and operate a boat. A rough rule of thumb can be applied to most boats, based on size, as follows:

Trailerable boats: \$100/foot of length

Non-Trailerable boats: \$1000/foot of length

The specific items that are included, or must be considered, when attempting to estimate the cost of owning and operating a research motorboat or small research vessel are provided in the table below. This list does not present items that must be aboard every vessel, it is intended to spur the thought process and provide an idea of what MAY be required equipment aboard a research boat. Many of these costs are inherent to the operation of qualified Class II motorboats and larger craft. The typical "open boat" with an outboard motor, operated on a day basis wouldn't be subject to many of these criteria/items.

Safety

- **EPIRBs**
 - Category I or II (406 MHz)
- **PFDs**
 - Work Vests (Type III)
 - Type I PFDs
 - Mustang (Type V)
 - Ring Life Bouys (Type IV)
 - Immersion Suits
 - Whistles, lights, batteries
- **Distress Signals**
 - Flares
 - Smokes
- Flag
- Whistle
- **Life Raft/Buoyant Appliance**
 - Annual Inspections
 - Five Year Inspection
 - Hydrostatic releases
- **First Aid Kit**
- **Paddles/Oars**
- **Sea Anchor**
- **Hand Powered Bilge Pump/Bailer**
- **Anchor and Anchor Rode**
- **Emergency Tiller**

Personnel

- **Boat Manning Levels**
 - Captain/OIC/Coxswain
 - Deck Hand(s)
 - Engineer(s)
 - Scientific Staff as operators for smaller boats
 - Additional operators/mate for >12 hour operations watch standing
- **Training**
 - Basic Operator Training
 - USCG Licensing
 - Application Fee
 - Testing Fee
 - License/MMD Fee
 - License Testing Preparation Classes
 - RADAR Class
 - GMDSS
 - High Speed Conning and Navigation
 - Basic Safety Training
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- Cold Water Survival
- Wilderness Survival
- Beach landing/near surf Operations training
- First Aid/CPR
- Engineering Training
 - Welding
 - Electrical
 - Hydraulics/Pneumatics
 - Engine Certifications
- Deck Hand Training
 - Able Bodied Seaman
 - Lifeboatman
 - Marlinspike Seamanship

- **Personal Safety Gear**

- Hard Hat
- Crash Helmets (Surf Ops)
- Respirators
- Gloves
- Footwear
- Safety Glasses

Engineering

- **Consumable Supplies**
 - Oil Filters (Main Engine, Generators, Marine Gear)
 - Air Filters/Breathers
 - Lubrication & Fuels
 - Gear (transmission) oils
 - Crankcase oils
 - Gas/Diesel/2-Cycle Oil
 - Greases
 - Oil bath air filters
 - Air compressors
 - WD-40/Penetrating Oil/Cutting Oils
 - Sacrificial Anodes/Zincs
 - Degreasers/cleaners
- **Hand Tools**
 - Wrenches (English/Metric)
 - Ratchet sets (English Metric)
 - Taps and Dies
 - Soldering Iron
- Pliers, Screw Drivers, Hex wrenches, bolt cutters, hammers/mallets, etc.
- **Power Tools**
 - Drills/Drill Bits
 - Saws
 - Grinders
 - Needle Guns
- **Potable Water System**
 - Filters
 - Chlorine
 - Testing
- **Sanitary (Head) System**
 - Chlorine Tablets
 - System Maintenance
 - Pump-out Facility
- **Hydraulic System**
 - Filters
 - Spare hoses/fittings
 - Fitting wrap/thread seal
 - PTO/motor maintenance
- **Pneumatic System**

- Air flask maintenance
- Compressor maintenance
- **Electrical System**
 - Routine Battery maintenance
 - Major Generator overhauls (10 yr period)
 - Distribution panel inspection, periodic cleaning
- - Shore power cables
 - Fuses, lamps, bulbs
 - Solder, wire, connectors, tape
- **Sea/Check/Gate/Glove valve cleaning/inspection/test**
- **Engine Overhauls**
- **Routine winch maintenance**
- **O-rings, gaskets, seals, thermostats**

Deck

- **Mooring Lines**
- **Winch cable/warp/lines**
- **Block/sheave maintenance**
- **Shackles/hammer-loks/thimbles/chain**
- **Paint, Primer**
- **Paint Supply**
 - Brushes
 - Rollers
 - Pans
 - Sprayer
 - Surface Prep: Grinder/wire wheel/chippers/needle gun
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- **Wheelhouse/Navigation**
 - VHF, HF, RADAR, Depth Sounders, Cell Phone, Sat Phone
 - NAVTEX, Weather Fax
 - PC w/ Charting Software and GPS
 - Tide Tables, Charts, Coast Pilot, Nautical Almanac
 - NOAA Hull Registration, Documentation
 - Compass

Galley

- **Food**
- **Plates, Cups, Utensils**
- **Sanitary/Cleaning Supply**
- **Berthing Supply**
 - Soap
 - Towels
 - Linens
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- Pillows
- **Appliances**
 - Reefers
 - Stove
 - Microwave
 - Toaster
 - Coffee Maker

Miscellaneous

- Trailer Maintenance
- Dock space/rent
- Winter Storage
- Winterization
- Recommissioning
- Spark plugs
- Fuel
- Spares (Propeller w/ attaching hardware, fuses, filters, turbo, clutches, zincs, etc)
- Phone bills
- Electric bills
- Water charges