

Damage Prevention and Control

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Damage Prevention

- Human Aspect
- Flooding
- Steering
- Fire
- Rig Failure

Damage Control

- Problem Solving



Human Aspect



Human Aspect

- Fitness (general health, strength, balance, and endurance)
- Protection from the elements (clothing and sun protection)
- Food and Water
- Rest
- Seasickness
- Training and teamwork
- Damage Control Kit (med kit)



Photo credit: Connor Bailey

Flooding



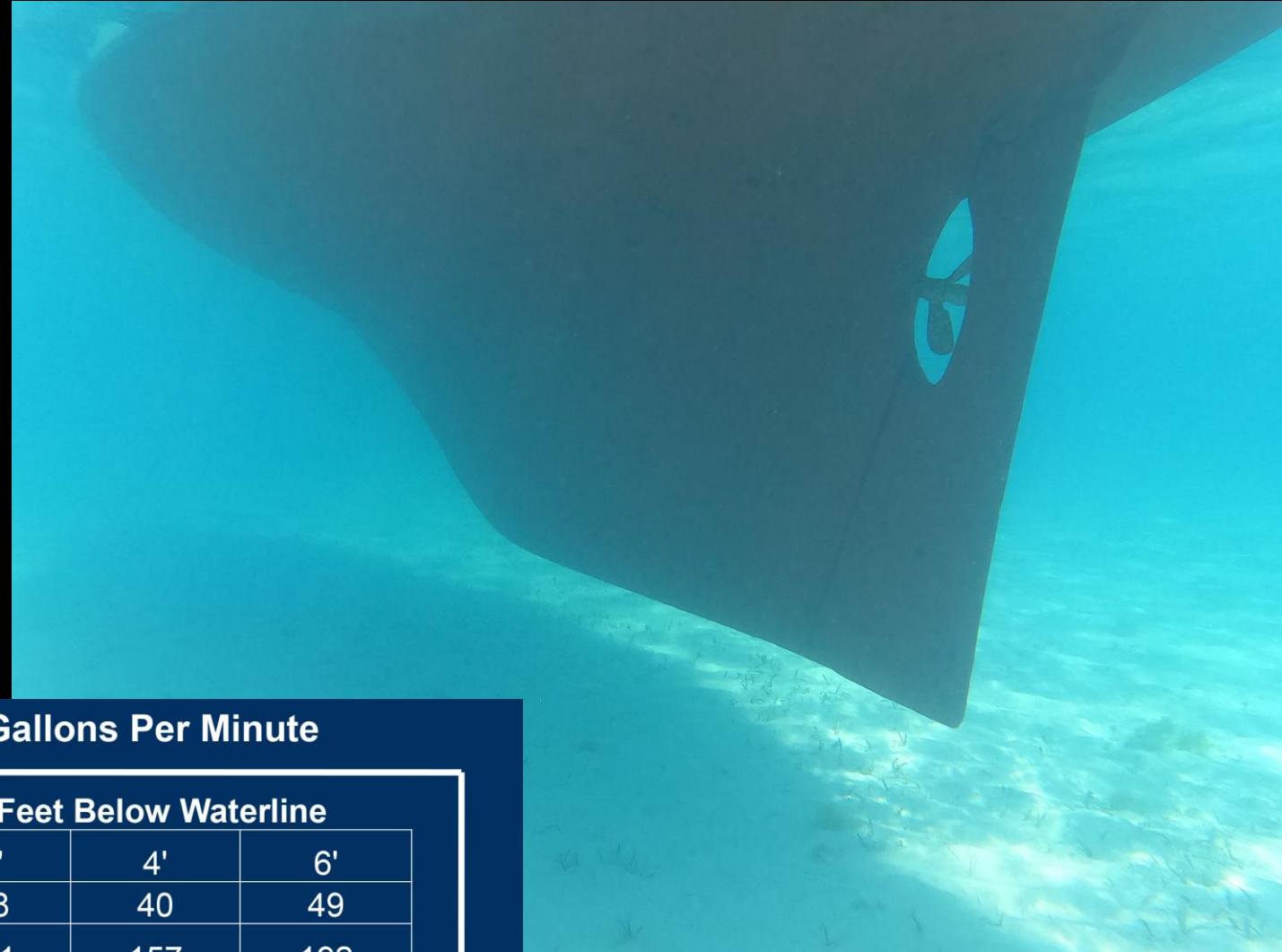
Flooding Prevention and Preparation

- Hull integrity and compartmentalization
- Seacocks, through-hulls, and hoses
- Stuffing boxes and rudderpost seals
- Secure equipment (especially heavy items)
- Clean, bright bilge
- Bilge Alarms
- ...



Flooding Prevention and Preparation

- Companionway Boards
- Hatches
- Map out points of ingress
- Manual Pumps
- Electric Pumps
- Damage Control Kit



Water Flow in Gallons Per Minute

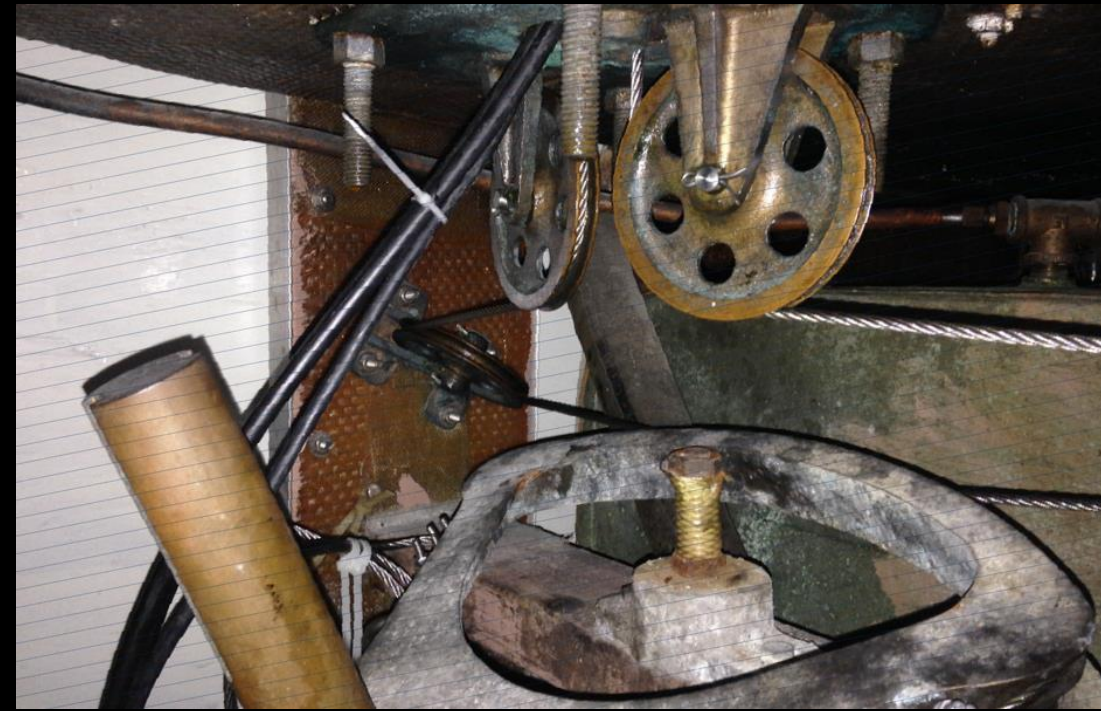
		Feet Below Waterline		
		2'	4'	6'
Hole Diameter	1"	28	40	49
	2"	111	157	192
	3"	250	354	433

Steering



Steering System Preparation

- Rudder
- Rudderpost
- Tiller and Hardware
- Wheel Steering Equipment
 - Inspection, Tensioning, Lubrication, and Replacement Schedule
- Emergency Tiller
- Autopilot
- Back-up Steering System
- Damage Control Kit



Fire



Fire Prevention and Preparation

- Wiring, fuses, and breakers
- Disconnects
- Electronics
- Cooking System
- Onboard Fuel
- Engine (overheating and alternator)
- Batteries
- Wind Generators and Solar Panels
- Smoking (just don't do it on a boat)

- Composite Hulls
- Fire Blankets
- Extinguishers



Rig Failure



Photo credit: Ronnie Simpson

Rigging Preparation

- Mast (incl. spreaders and hardware)
- Standing Rigging (wire/rod/synthetic and fittings)
- Mast Step
- Chainplates
- Tuning
- Furler(s)
- Running Rigging
- Hardware (clutches, blocks, winches...)
- Sails
- Damage Control Kit





Problem Solving



Problem Solving (Damage Control)

- Take a strategic problem-solving approach
- Slow the situation down as much as possible
 - Buys time to think and get assistance
 - Avoids mistakes
- Leverage Preparation and Training
- Three-Phase Approach



Phase One: Information Gathering

- Triggered by alarms or observation – something isn't right
- Take in your full surroundings , inside the boat and waters around it
- Answer the following:
 - Is my crew in immediate danger?
 - Is my vessel in direct peril?
 - What is the impact on the environment around me?
- This should be accomplished in a matter of seconds
- A first pass will indicate if more information can be gathered or if immediate action is necessary



Phase Two: Identify Options

- Distill available information into pertinent details
- Develop potential plans of action based on end goals
- What is critical and what can wait?
- Experience and training help accelerate this process
- Remember the importance of communication within any plan
- If time allows, rest, get a snack, or make a warm drink to help think more clearly



Phase Three: Weight Choices and Select a Path

- Balance benefits and risks – everything carries a tradeoff
- What is the impact on the crew, vessel, and external environment?
- Play out “what if...” scenarios
- Frame the solutions from the viewpoint of others – helps avoids bias from personal discomfort
- Don’t be afraid to later admit your selected solution is wrong, just run through the process again







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