



# Leek Training

- 3 tbsp. olive oil
- 3 tbsp. unsalted butter
- 3 medium russet potatoes (about 2 1/4 lb.), peeled and chopped
- 3 leeks, white and light green parts only, thinly sliced
- 3 celery stalks, chopped, plus yellow leaves for garnish (optional)
- 3 garlic cloves, finely chopped
- 6 c. chicken broth
- 6 sprigs fresh thyme
- 1 1/2 tsp. kosher salt, plus more to taste
- 3/4 tsp. ground black pepper, plus more to taste
- 1 c. heavy cream, plus more for drizzling

In a medium Dutch oven, heat the oil and butter over medium heat. Add the potatoes, leeks and celery. Cook, stirring, until the leeks are tender, 6 to 8 minutes. Add the garlic and cook, stirring, until fragrant, about 30 seconds.

Stir in the chicken broth, thyme sprigs, salt and pepper. Bring to a simmer over medium-high heat. Reduce the heat to medium-low and cook, uncovered, until the potatoes are tender, 15 to 20 minutes.

Remove the thyme sprigs. Transfer about 4 cups of the soup to a blender. Remove the top insert from the lid and cover with a kitchen towel. Puree until smooth, 30 seconds. Add to Dutch oven with the remaining chunky soup. Stir in the cream and cook over medium-low heat, stirring, until the soup is slightly thickened, 10 to 15 minutes. Season the soup with more salt and pepper. Garnish with celery leaves, hot sauce, prepared fried onions and another drizzle of heavy cream, if you like.

Cuisine Club of America

Thanks to Mike Keyworth

# Actually, It's Flood Training

Leaks are a nuisance

Flooding is dangerous – it will sink you

The point is to first turn a flood into a leak

And then, stop the leak



# Find the Flood

- Much easier to find early, when there isn't a foot of water hiding the moving water
- You need to assess it
- If it's small, pump and then fix
- If it's big, forget pumping and work on stopping the flood



# The problem

- About 25 gallons per minute through a 1” hole
- That’s 12,000 pounds of water an hour – 6 tons.
- But, at most it’s around 4 feet down
- That’s only 2 psi
- You can stop it with your hand.
- If it’s big, stuff a cushion in it.



# Two Kinds of Flood

- Most floods come through existing holes
  - Thru hulls and their hoses
  - Rudder ports and shaft logs
- Some come through new holes
  - Rocks and reefs
  - Ships and boats
  - Containers
  - Sea creatures



# Things to Make It Easier

- Bilge alarms
  - Or, at a minimum, bilge pump run lights
- Chain locker as collision bulkhead
  - This is a minimum for any offshore boat
- Good access –movable floorboards throughout
- Multiple bilges



# Sweetwater – Swan 57 Sloop 1 Bilge



# Fintry – x Royal Navy Fleet Tender

7 Bilges, 10 Bottom Tanks





# Morning Light – Webbers Cove 42 Trawler 4 Bilges



# Steps

- Alert the crew
- Salt or fresh?
- Damage Control party finds the hole! Fast – before the water gets high
- Tack if it gets the hole out of the water, otherwise stop the boat
- Start the engine or generator and pump(s)
- At the Control Station
  - Make appropriate radio calls – Pan or Mavdav
  - Keep an eye outside



# Steps, continued

- Thinking outside the box
  - Single hander & sail bag
  - Lost rudder in Southern Ocean





DEWALT



*Argo* 1911 80' Trumpy, NRHP

# Steps, continued

- You're sinking – don't worry about damage
  - Argo
  - Bay of Biscay



# Follow up

- After you turn it from a flood to a leak
  - Rest some of the crew
  - Keep an eye on it



# Tools

- Screw gun
- Disc grinder
- Axe
- Hand saw – maybe not -- slow
- Multi-Screwdriver
- Light
- Chain Saw?





# Supplies

- Classic and modern plugs
- Rubber sheets and foam
- Push through mushrooms
- Hose clamps
- Sheet lead or copper (roof flashing)
- Long strong black wire ties
- Duct tape
- Underwater epoxy
- Shores & plywood
- Drywall screws
- Pillows, floorboards, etc.
- McMaster.com



# Five Floods

- You fix them – I watch
- I will stop you after it's clear that you know how to deal with it.
- No right answers – four out of the five have more than one solution

# Seacocks and Bilges

- Maintain your seacocks
- Tapered plug at every seacock
- Keep your bilges clean



# Pumping

- Hose friction reduces pump capacity
  - Big hoses on pumps
  - Minimize bends.
- So does head – 30 gpm flat, 15 gpm @6'
- Anti-siphon valves, cleaned annually
  - Bilge pump discharges
  - Wet exhausts
  - Heads (if overboard discharge)
  - Graywater sump pumps



# Manual Pumps

- Big Edson pump
  - Rated at 30 gallons a minute
  - Discharging up six feet, that's 1/20 HP
  - A person in really good shape can do 1/10 HP indefinitely with their legs
- Small Edson pump
  - 18 GPM



# US Half Dollar – 1.2”



The large Edson pump can keep up with a hole this size four feet down if operated by a person in very good condition.

Golf Ball – 1.7”



A hole this size, four feet down,  
needs the largest 12VDC pump

# Tennis Ball – 2.7”



A hole this size, four feet down,  
needs a 2” 240VAC pump



# Softball – 3.8”



A hole this size, four feet down,  
needs a 3” engine driven pump

Holes larger than a softball  
cannot be handled by any pump  
generally available on boats of  
less than 100 feet LOA.

## Three take-aways:

- Find the flood! Fast!
- Don't worry about damaging the boat.
- It's only 2 psi –
  - when you find it, you can stop it.



# Pumping – the Bad News

- Hole Size      GPM      Tons/Hr
- 3/4"            14            3
- 18            4            Small Edson pump (nominal capacity)
- 1"             25            6
- 30            7            Large Edson pump (nominal capacity)
- 1 1/2"        56            14
- 66            16            Largest 12 VDC electric pump (nominal capacity)
- 2"             100          24
- 200          48            2" 120 or 240 VAC pump
- 3"             225          54
- 300          72            3" 120 or 240 VAC pump
- Assumes 2 PSI -- about 4 feet below surface.

Questions?