

## Agenda

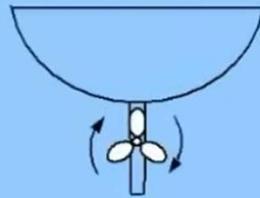
- *Theory*
- *Mooring Arrangements*
- *Undocking*
- *Parallel Docking*
- *Docking Bow Into Slip*
- *Backing Into Slip*
- *Summary*

## Pivot Point

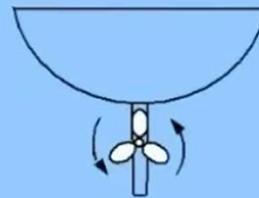


*A boat will rotate about its pivot point*

## Propeller Direction



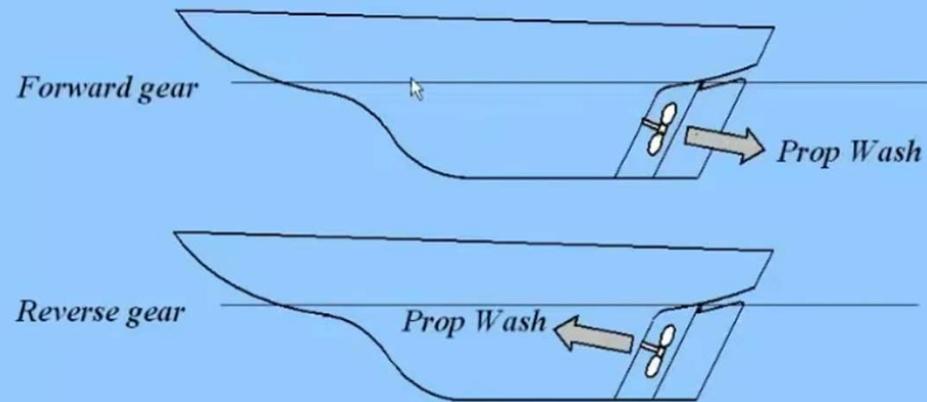
*Ahead Gear-  
Clockwise rotation*



*Reverse Gear-  
Counterclockwise rotation*

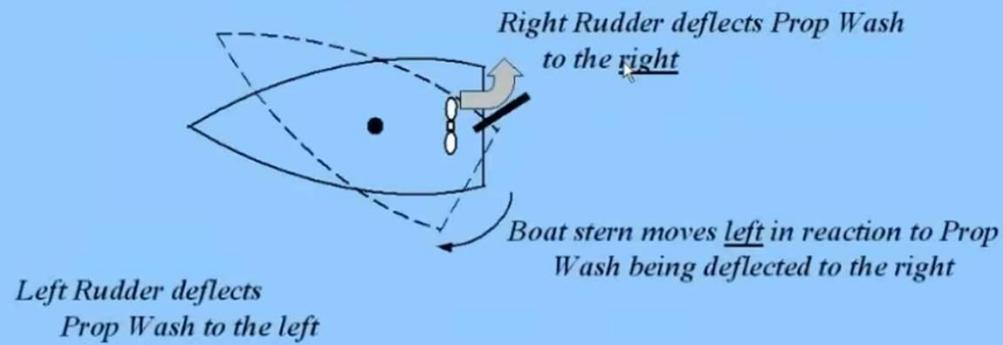
***Right-handed propeller direction  
Viewed from astern***

## Prop Wash



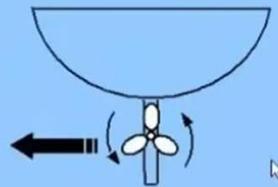
*Prop wash is the water flow  
coming off the propeller*

## Rudder Control of Prop Wash

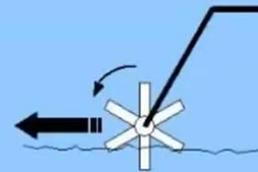


***Rudder control of prop wash in  
forward gear***

## Prop Walk



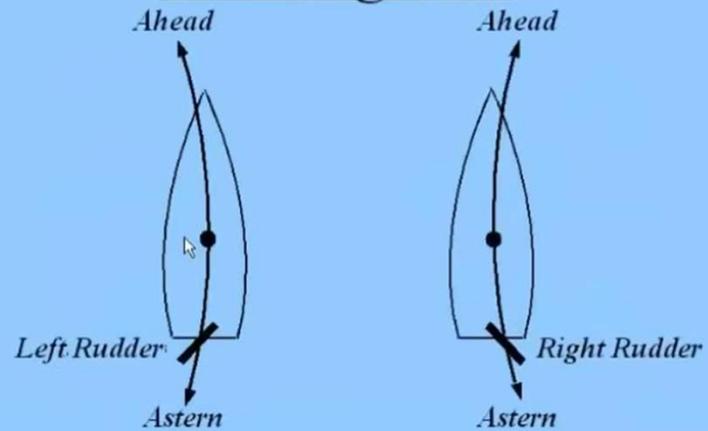
*Reverse gear moves  
stern left*



*Roto tiller digs  
through dirt*

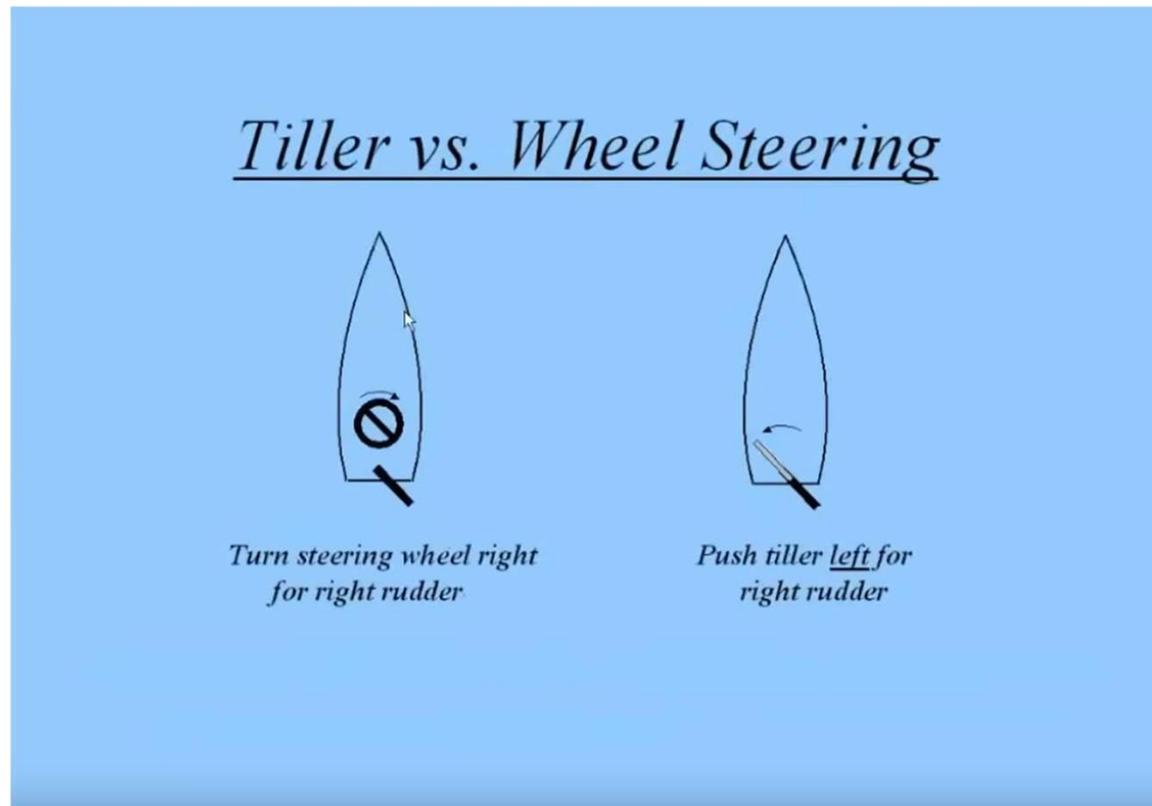
*Prop walk direction for a right-handed propeller  
Viewed from Astern*

## Turning Arc



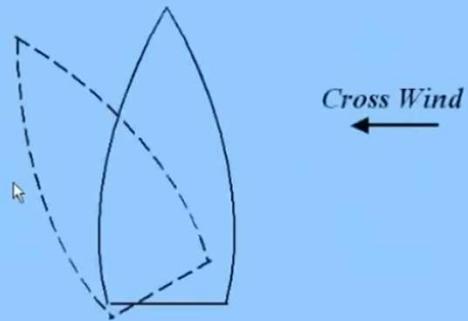
*A boat will follow an arc in direction that rudder is turned in both forward and reverse gears*

# Barre à roue comparé à barre franche



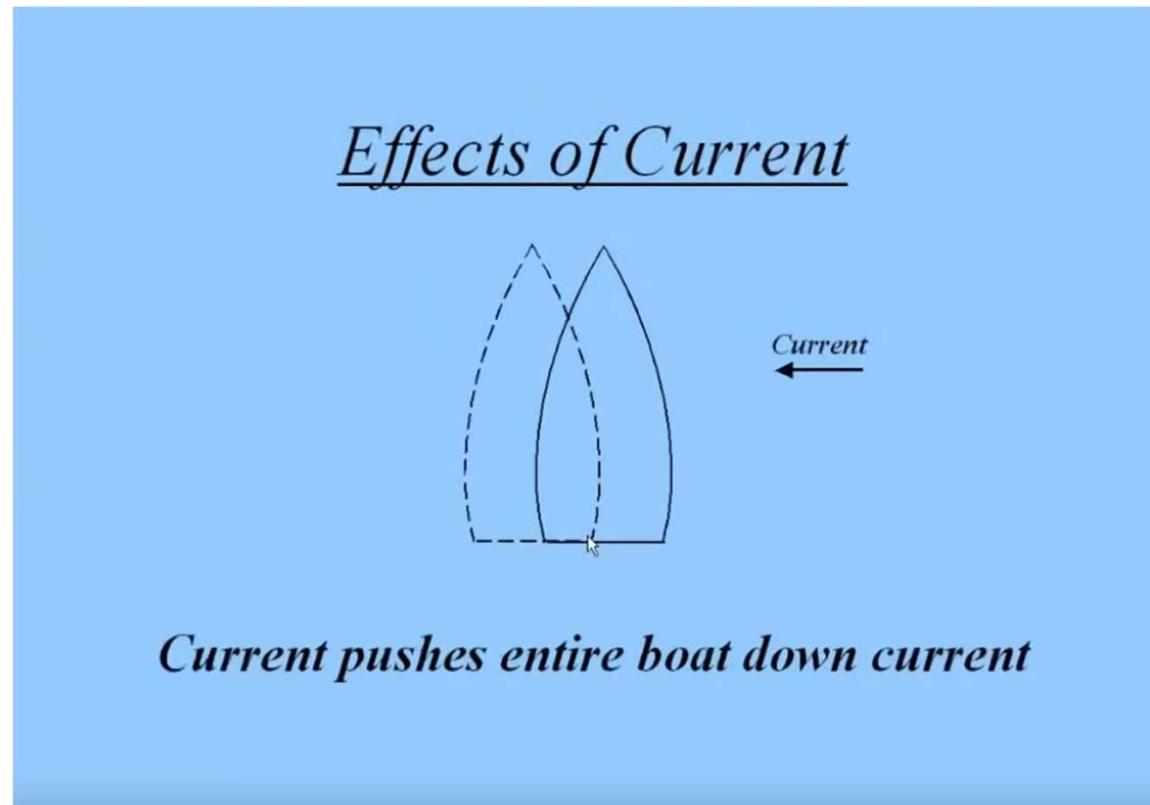
# Vent de travers proue sous le vent

## Effects of Wind



*Cross wind blows bow downwind*

Le courant pousse le bateau entier dans le sens du courant



# Inertie

## Momentum

- *Relates to the weight of a boat*
- *Resists speed changes*
  - *A heavy boat will coast longer and take more power to speed it up*
  - *Lighter boats do the opposite*
- *You may be going faster than you think*
  - *Look at bubbles in the water to judge speed*

# Commande de gaz

## Throttle Speeds

- *Slow Ahead... About 800 rpm*
- *Half Ahead... About 1500 rpm*
- *Full Ahead... About 3000 rpm*
  
- *Slow Astern ... About 800 rpm*
- *Half Astern ... About 1500 rpm*
- *Full Astern ... About 3000 rpm*

# Coups d'accélérateur

## Throttle Kicks

- *Kick Ahead*
  - *Full ahead for 3 seconds*
- *Short Kick Ahead*
  - *Half ahead for 1 second*
- *Kick Astern*
  - *Full astern for 3 seconds*
- *Short Kick Astern*
  - *Half astern for 1 second*

# Angle de barre

## Rudder Position

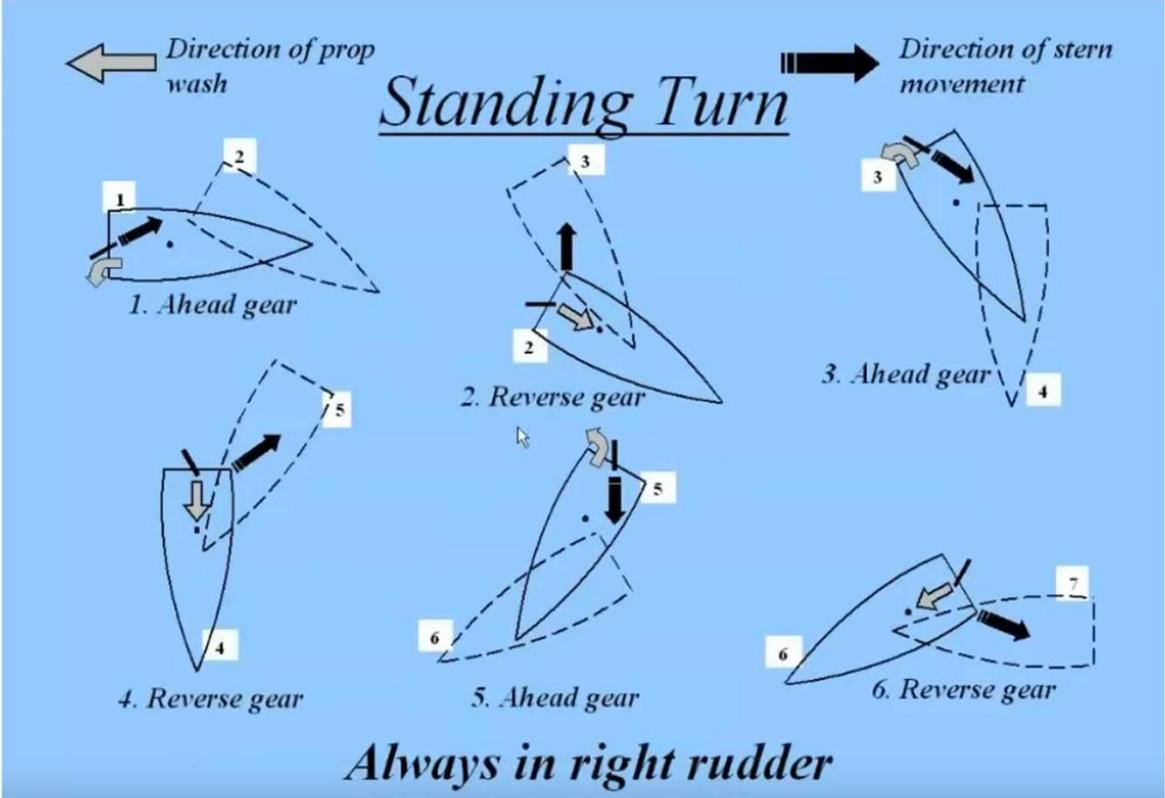
- *Right Rudder*
  - Turn wheel to the right
- *Half Right Rudder*
  - Turn wheel about one-third turn to right
- *Full Right Rudder*
  - Turn wheel to stop; about  $\frac{3}{4}$  turn to right
- *Left Rudder similar*

# Tour sur place

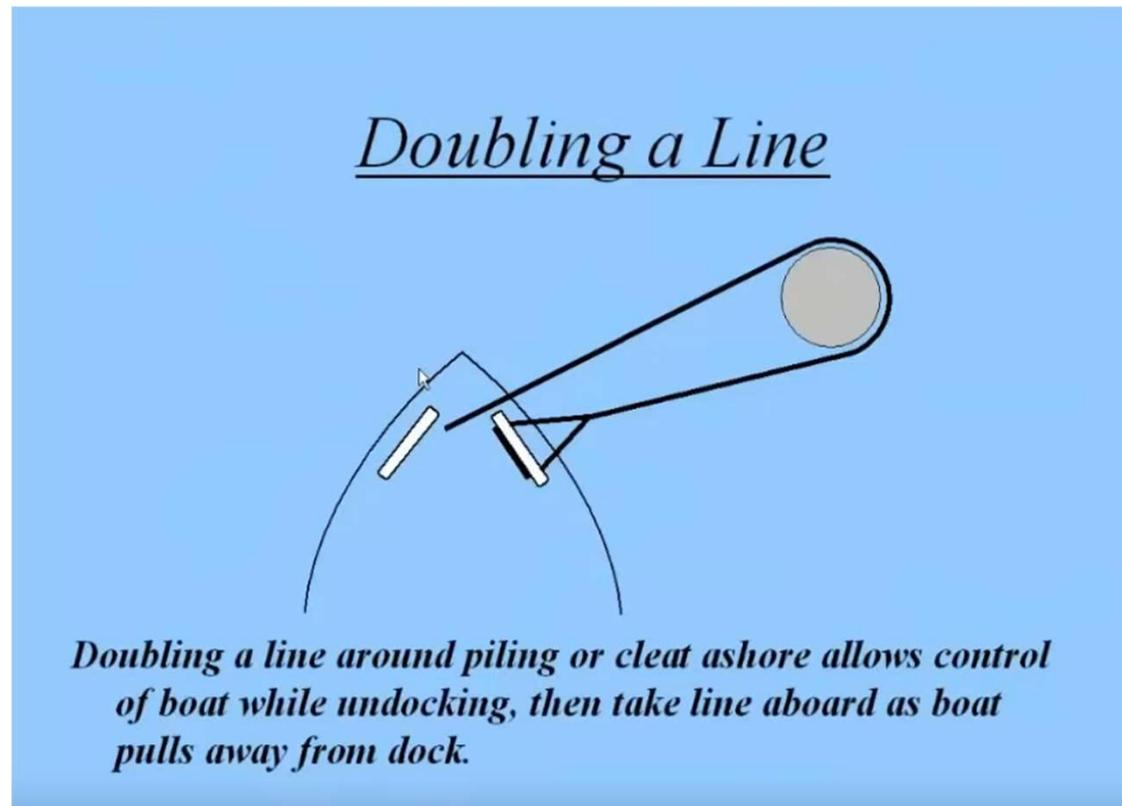
## Standing Turn

- *Turns boat in a confined area*
- *Can only be done to the right with a right hand turning propeller*
- *Can not do it to the left*
- *Rudder is held hard to starboard during entire procedure*
- *Engine is kicked ahead and reverse repeatedly until boat is turned*
- *Boat turns within its length*
- *Some call it “back & fill”*

# Tour sur place



# Doubler une amarre



## *Shifting Gears*

- *Don't jam gears through neutral*
- *Coordinate gear shift & throttle*
- *Speak the words:*
  - *Forward, Neutral, Reverse*

# Amarres

## Mooring Lines

- *Three-strand nylon*
- *Plain ends with bowline knots as needed*
  - *Avoid use of braided loop ends*
- *Bow Lines*
- *Stern Lines*
- *Forward Spring Line*
- *After Spring Line*
- *Anchor Line*

## *Essential Knots for Docking*

- *Cleat Hitch*
- *Bowline*
- *Round Turn with Half Hitches*
- *Rolling Hitch*
- *Refer to [www.animatedknots.com](http://www.animatedknots.com) for step by step instruction*

## *Heaving a Line*

- *An essential technique to learn*
- *Can make the difference between a successful docking and a failure*
- *Details described in Docking Techniques text*

## Docking Safety

- *Don't attempt to manhandle larger boats*
  - *Over 28 feet*
- *Don't fend off with hands, legs or feet*
  - *Use fender or boat hook*
- *Alternatives in strong winds:*
  - *Use spring lines*
  - *Use more accessible dock*
  - *Temporarily anchor out*
- *Plan escape route for all dockings*

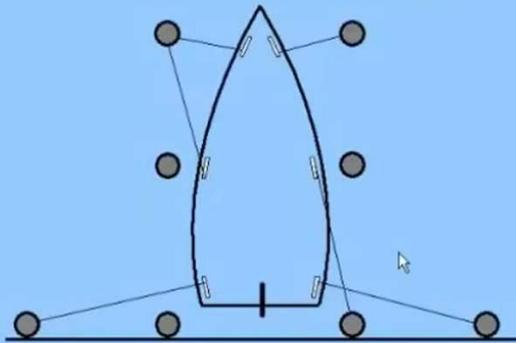
## Crew Assignments

- *Ideally, two deck crew*
- *Dock line prep*
  - *Bow lines, spring lines, stern lines*
  - *Bowline loops for shore end pilings or cleats*
  - *No braided loops*
- *Fenders... Overage plus roving fender*
- *Follow Skipper's instructions*
- *Don't let advice from ashore counter Skipper's plan*
- *Call out distances to helmsman*
- *Alert for obstructions, other boats, swimmers*

## Glossary of Some Terms

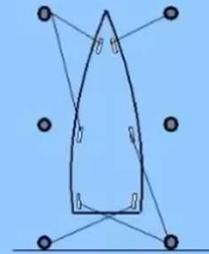
- Bitter End: Inboard end of a line; the end that you are holding
- Bow Line: Mooring line attached to the bow of a boat
- Bowline: Loop tied in the end of a rope with a bowline knot
- Making Way: A boat moving through the water under propulsion
- Port Side: Left side of a boat, or to the left side of a boat
- Spring Line: A mooring line leading forward or aft from a midship cleat on a boat.
- Starboard Side : Right side of a boat, or to the right side of a boat
- Surge a Line: To temporarily ease tension on a line and allow it to slide out from a stationary object like a cleat or piling
- Turn a Line: To wrap a line around a stationary object. A single turn wraps once, fully around the object. The line is not tied or cleated to the object.
- Underway: A boat making way under propulsion, or floating freely and not moored or anchored. A boat adrift is underway but not making way.

## Mooring in a Slip

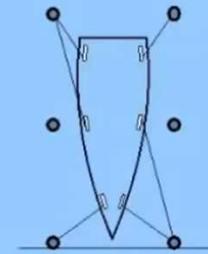


*Stern first in a slip.*

- Bow Lines keep bow centered
- Stern Lines keep stern centered
- After Spring shown on starboard side holds boat aft
- Forward Spring shown on port side holds boat forward.

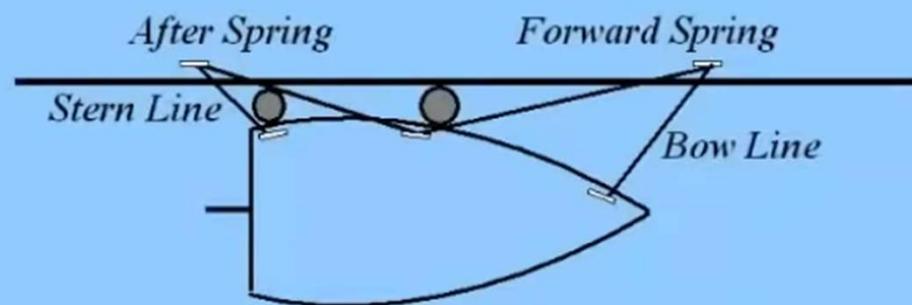


*Crossed stern lines*

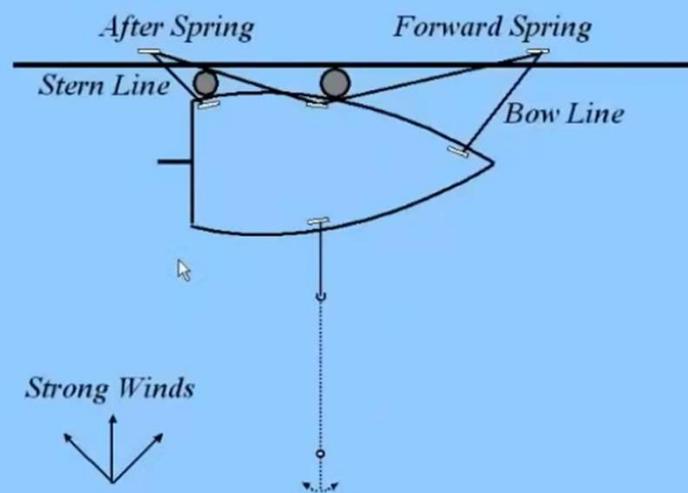


*Bow in first*

## Parallel Mooring Along a Pier



## Parallel Mooring with an Anchor



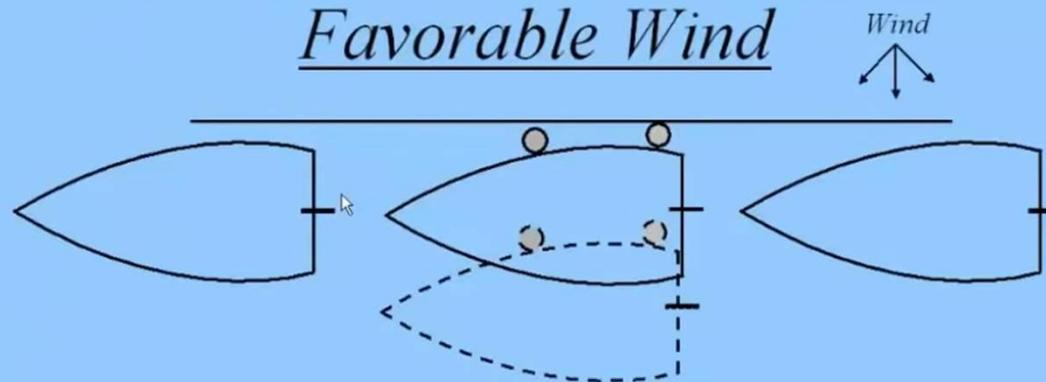
## *Mediterranean Mooring*



## *Pre-Departure Preparations*

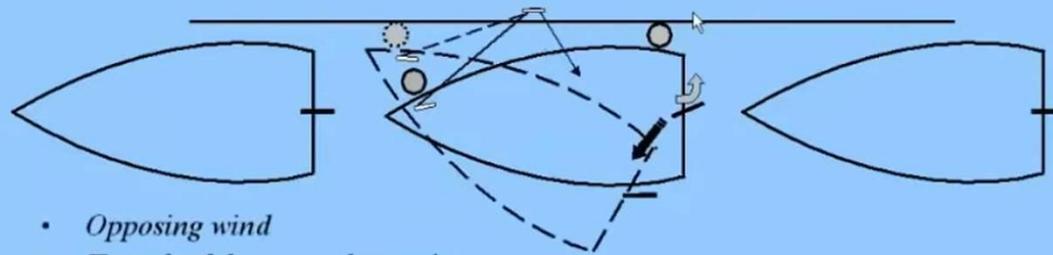
- *Sea worthiness inspection of boat*
- *Weather forecast*
- *Navigation plan for the day or cruise*
- *Electrical alignment*
- *Prepare sails*
- *Crew assignments and personal gear*
- *Departure plan*
- *Engine startup*
- *Final check of steering, wind direction, traffic*
- *Cast off lines; motor out slowly*

## Parallel Undocking Favorable Wind



- *Cast off dock lines*
- *Use engine & rudder to maintain position while wind pushes you out and clear of dock and other boats*

## Parallel Undocking- Wind Opposed Stern Out



- *Opposing wind*
- *Fore & aft boats or obstructions*
- *Fender on bow*
- *After spring line on bow cleat*
- *Rudder toward dock to push stern out*
- *Back away from dock*
- *Use non-collapsing pole to prevent bow blowing into dock*

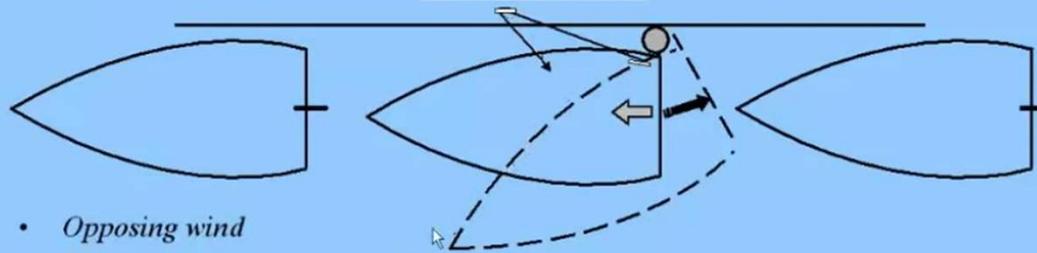


*Prop Wash*



*Direction that stern moves*

## Parallel Undocking- Wind Opposed Bow Out



- *Opposing wind*
- *Fore & aft boats or obstructions*
- *Fender on stern*
- *Forward spring line on stern cleat*
- *Motor astern then forward*
- *Rudder not effective in reverse*
- *Use non-collapsing pole to prevent bow blowing into boat ahead*



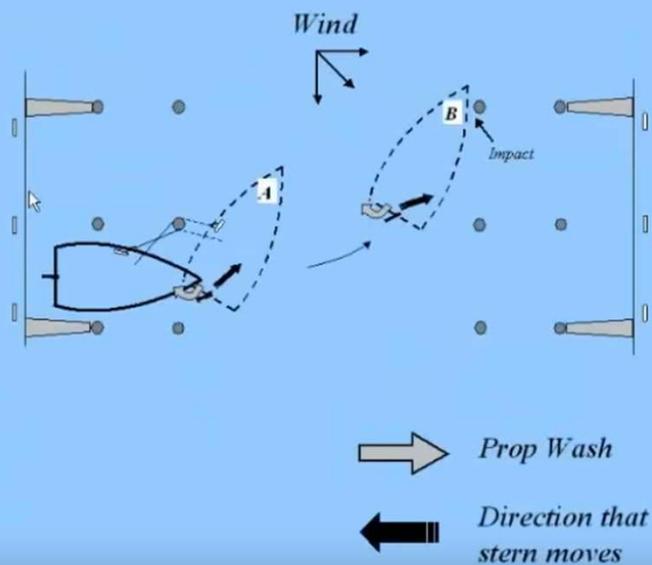
*Prop Wash*



*Direction that stern moves*

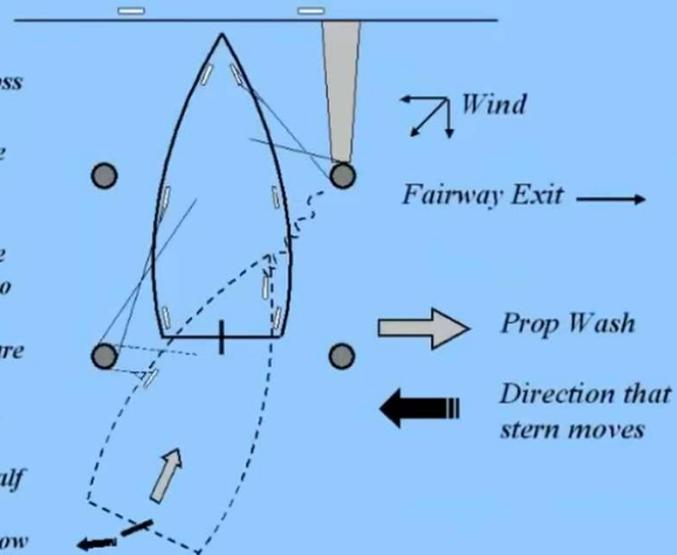
## Heading Bow Out of Slip

- Turning to windward
- Use doubled over spring on windward mid-ship cleat
- Note that bitter end of spring is toward inside of slip and is crossed over top of standing part
- Use spring to turn bow to windward



## Backing Out of Slip Bow to Wind

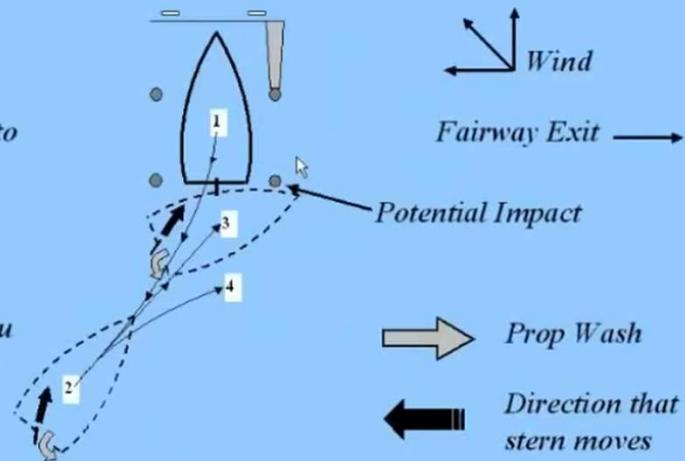
- Fairway exit to windward
- Wind blowing out of or across slip
- Use doubled over spring line at bow on windward side to hold bow to wind
- Use doubled over spring line on leeward side at midship to turn boat against wind.
- Bitter ends of both springs are toward inside of slip and crossed over top of standing parts
- Release bow spring about half way to outer piling
- Release midship spring as bow clears outer piling



## Backing Out of Slip Stern to Wind

- Fairway exit to windward
- Back out far enough to position 2 to prevent impacting piling at 3.

Question: What is abort plan if it looks like you may not clear piling?



## *Pre-Docking Preparations*

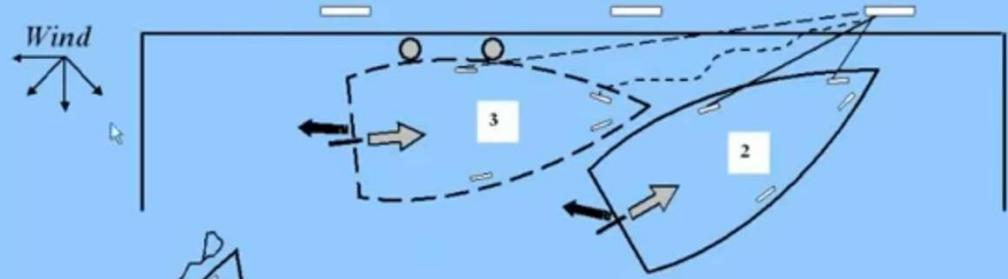
- ***Evaluate conditions***
  - *Inspect slip by land beforehand if possible*
  - *Call marina for dock conditions, wind angle & current*
  - *Fly by... Inspect pilings for nails, etc.*
- ***Docking plan***
  - *Skipper decides*
  - *Consider slip location, obstructions, depths, wind direction & strength, current*
- ***Abort plan***
  - *Don't get trapped without an escape route*
  - *Abort early rather than late*
- ***Crew Assignments***

## Parallel Docking Options

- *Wind blowing onto dock*
  - *Stop parallel to dock a few feet away*
  - *Hold position with rudder and short kicks*
  - *Allow wind to push you to dock*
- *Wind blowing off of dock, use*
  - *Forward Spring for hemmed in dock*
  - *After Spring for open dock*
- *Prefer portside approach if possible*
  - *Allows better abort route & maneuver room*

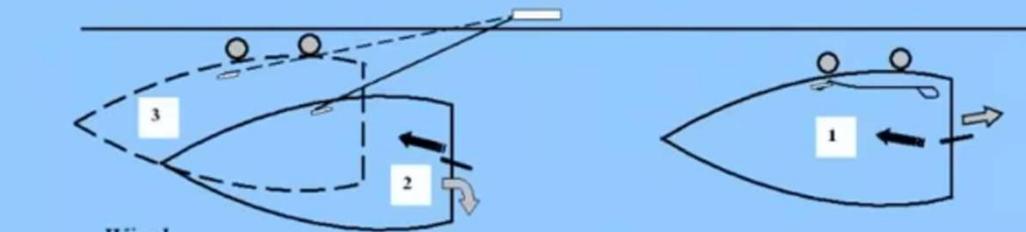
→ Prop Wash ← Direction that stern moves

## Parallel Docking- Hemmed In Dock With Forward Spring



1. Rig bow and spring lines with bowline loops. Bow line 6 feet long. Spring length to reach bow.
2. Place both loops on dock cleat
3. Reverse engine stretching spring until boat swings gently to dock. Lengthen bow line as necessary to allow spring to carry load. Purpose of bow line is to prevent bow blowing down wind.

## Parallel Docking- Open Dock With After Spring



*Prop Wash*



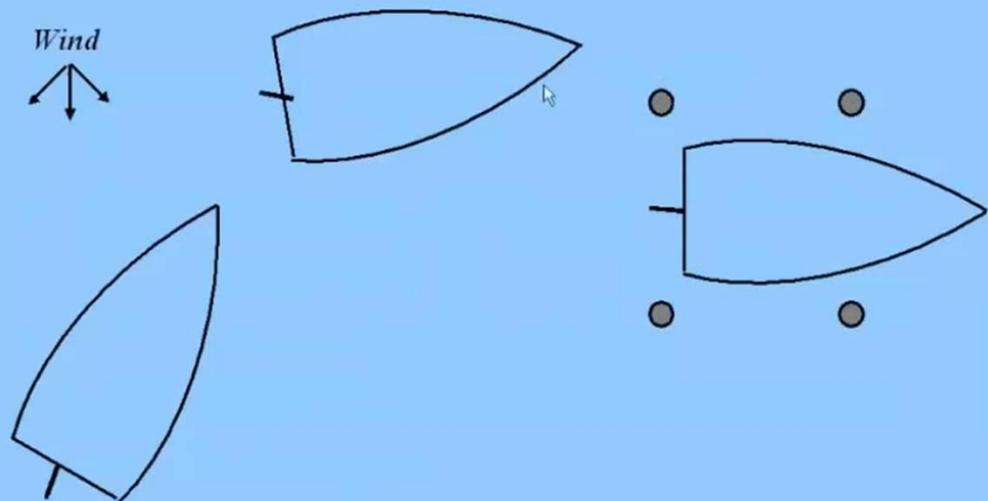
*Direction that  
stern moves*

1. *Rig spring line from midship cleat to reach stern with bowline loop*
2. *Place loop on dock cleat*
3. *Slow ahead throttle with rudder turned away from dock to maintain boat parallel to dock*

## Docking Bow Into Slip

- *Get windward bow line to dock*
- *Forward deckhand calls out bow distances*
- *Make wide turn to windward side of slip to compensate for bow blowing downwind*
- *Astern wind blowing into slip increases boat speed and makes stopping harder*
- *Ahead wind blowing out of slip makes control of bow difficult as boat slows*

## Wide Turn With Crosswind

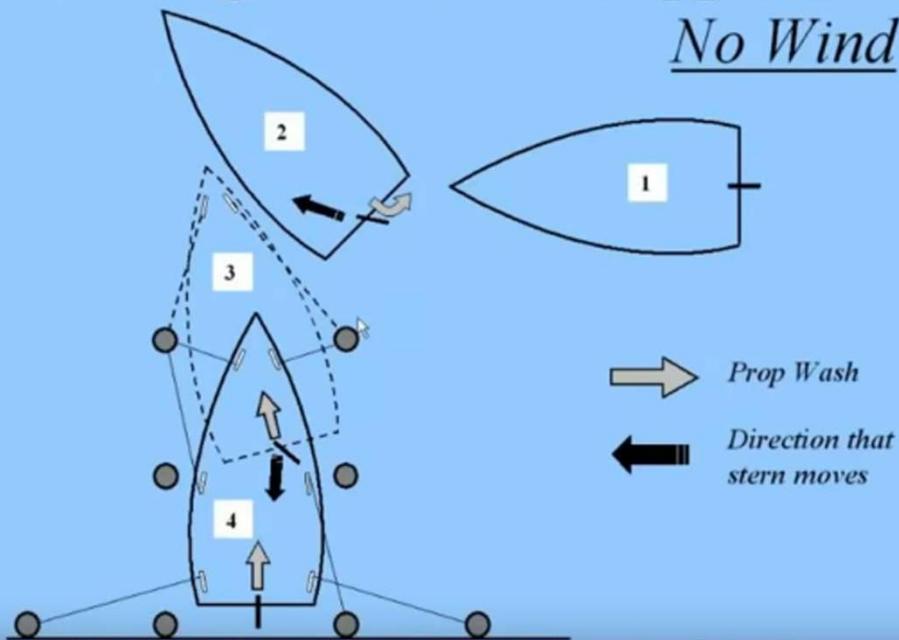


## *Backing Into Slip Principles*

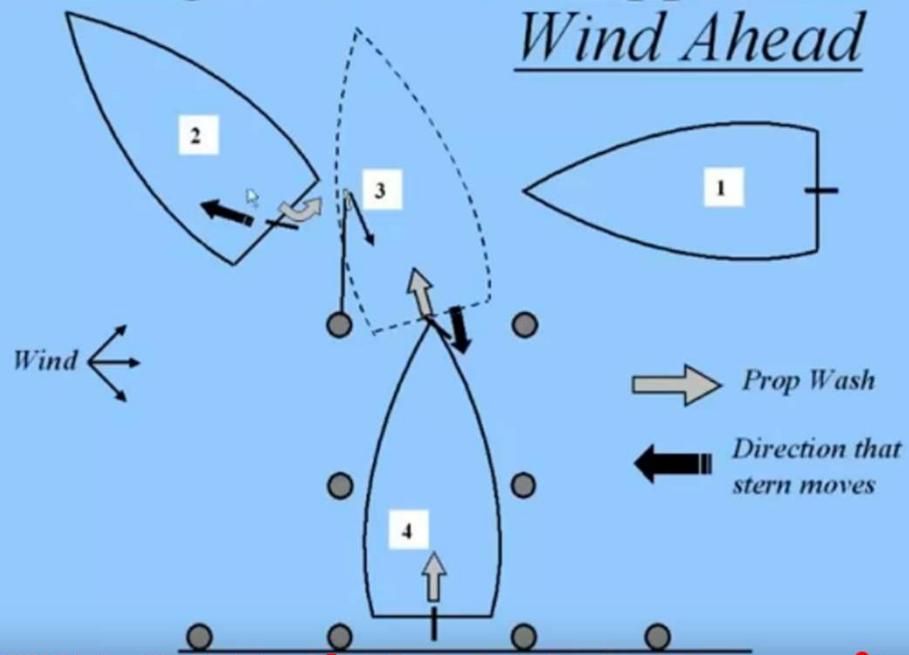
- *Position boat to windward of slip and stopped, with bow angled toward the wind, before starting to back in.*
- *Portside approach to slip is preferred over starboard approach as it gives more maneuverability and better abort route.*

# Backing In- Portside Approach

No Wind

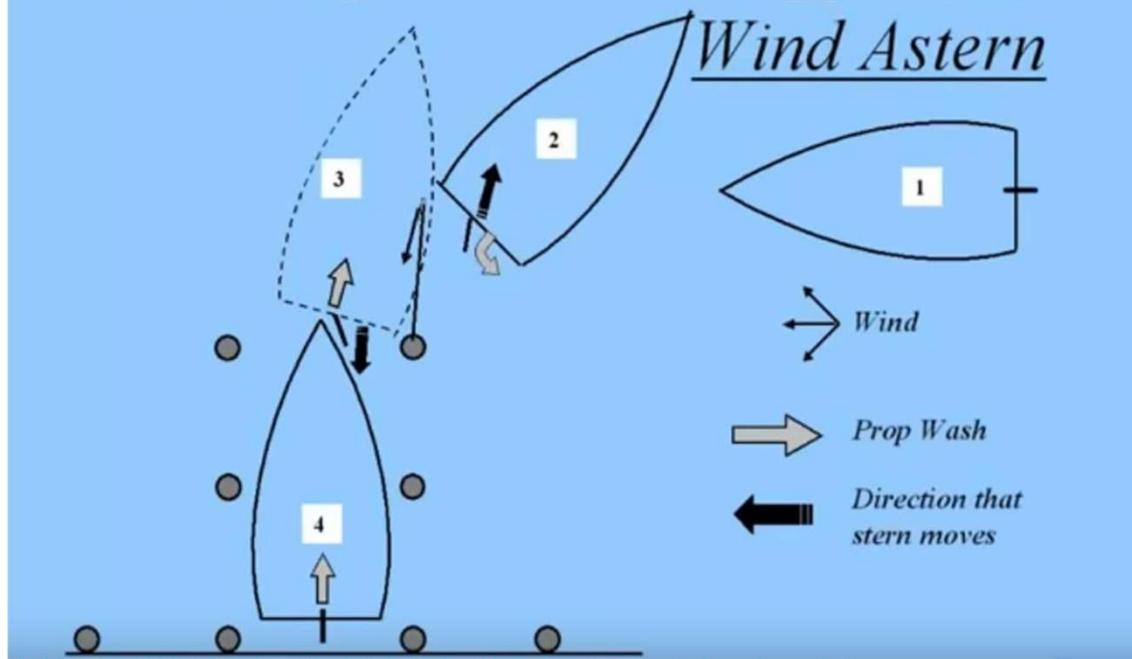


Backing In- Portside Approach  
Wind Ahead

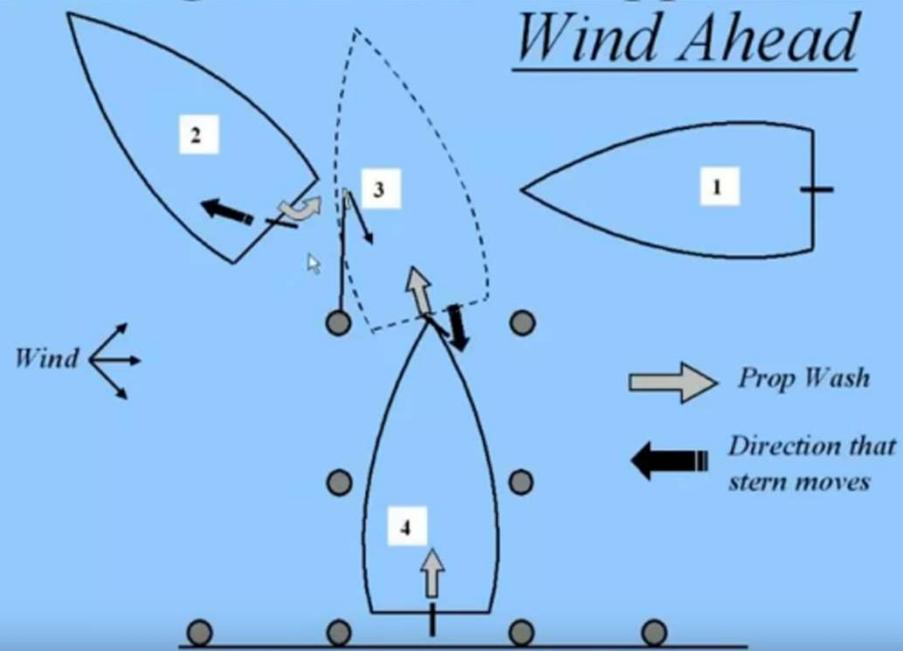


# Backing In- Portside Approach

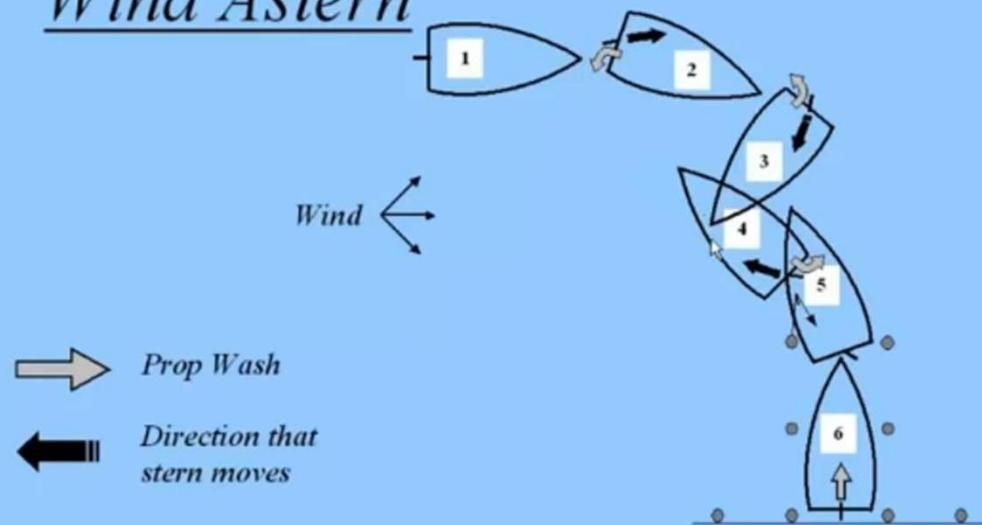
Wind Astern



# Backing In- Portside Approach Wind Ahead

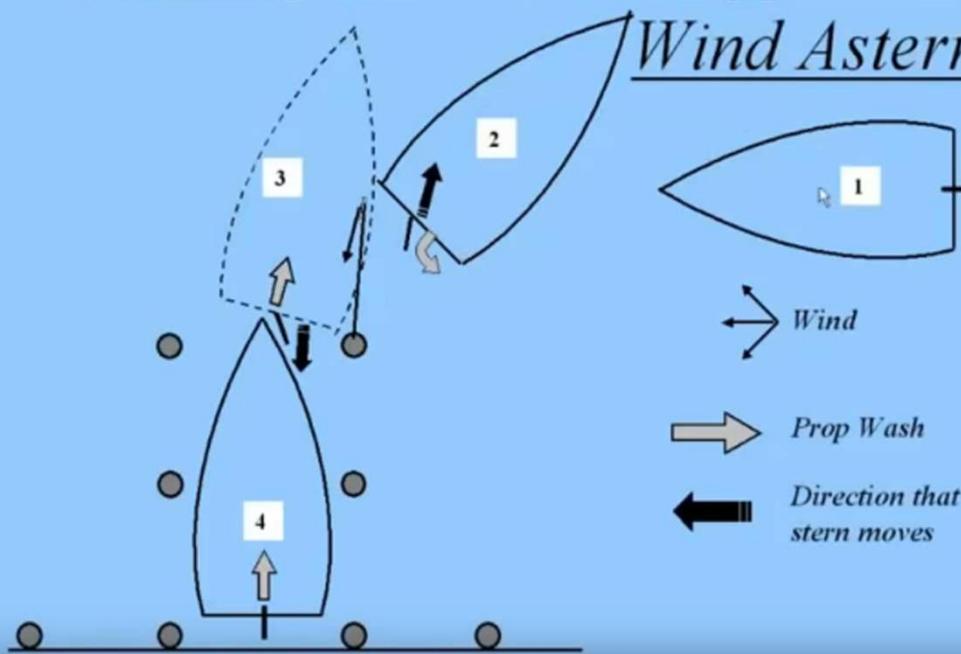


# Backing In- Starboard Approach Wind Astern



# Backing In- Portside Approach

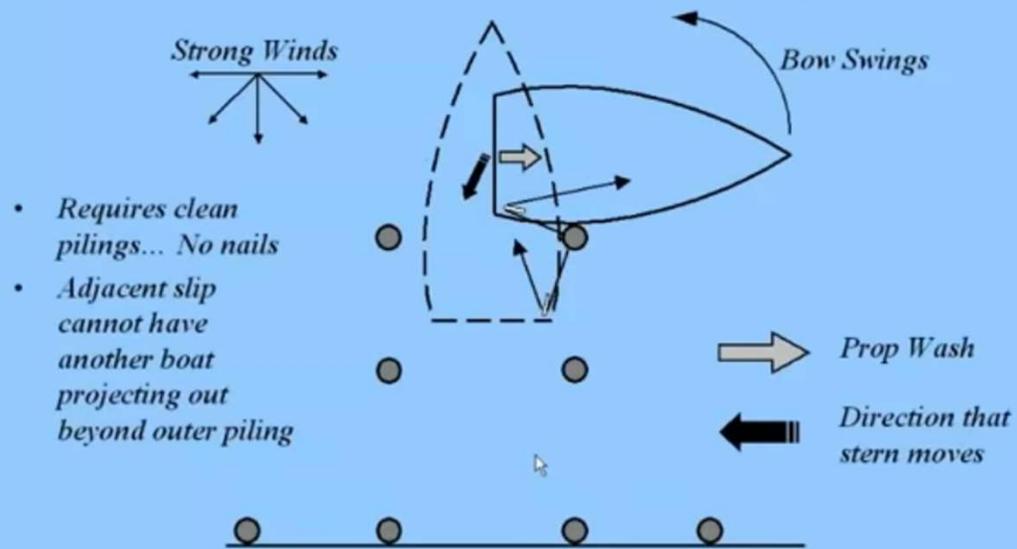
Wind Astern



## *Backing In- Other Wind Conditions*

- *Wind blowing into slip*
  - *Most challenging wind direction*
  - *Wind oscillations keep you guessing*
- *Wind blowing out of slip*
  - *Easiest wind direction*
  - *Weather cocks boat in line with slip centerline*
- *Strong winds*
  - *Use Waterman's spring line*

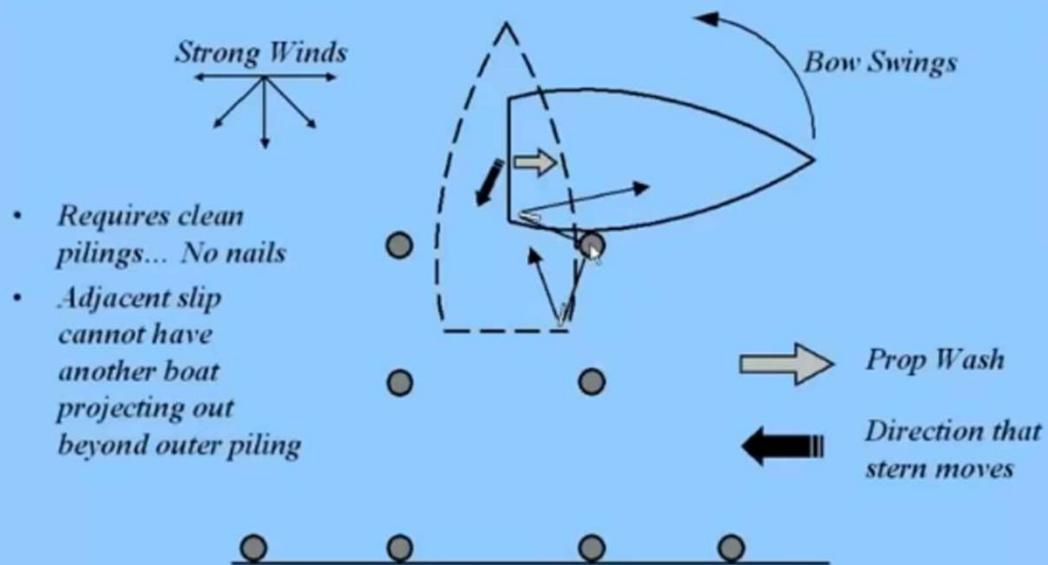
## Waterman's Spring Line



*Waterman's Spring Line*



## Waterman's Spring Line



## Docking Summary

- *Understand forces that act on a boat during docking*
- *Learn how to control or use these forces*
- *Remain alert to wind and current effects*
- *Use slow boat speed during docking*
- *When backing, pay attention to your bow*
- *Practice, practice, practice*