



Learn to love Windsurfing

by David Johnson
UCSB 2008

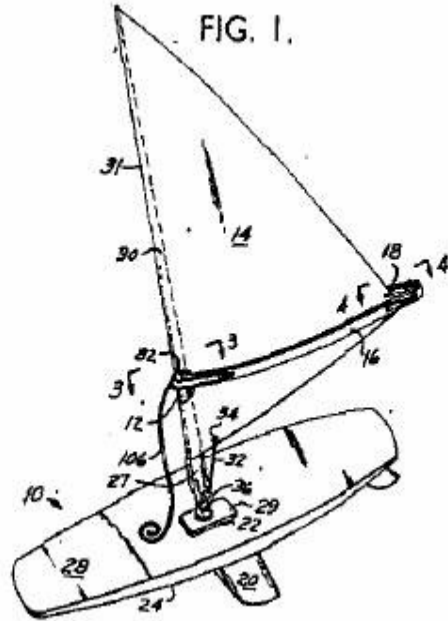


Outline

- History
- The basics
- The physics
- How fast can you go
- My windsurfing journeys
- Who will break 50 knots?



History



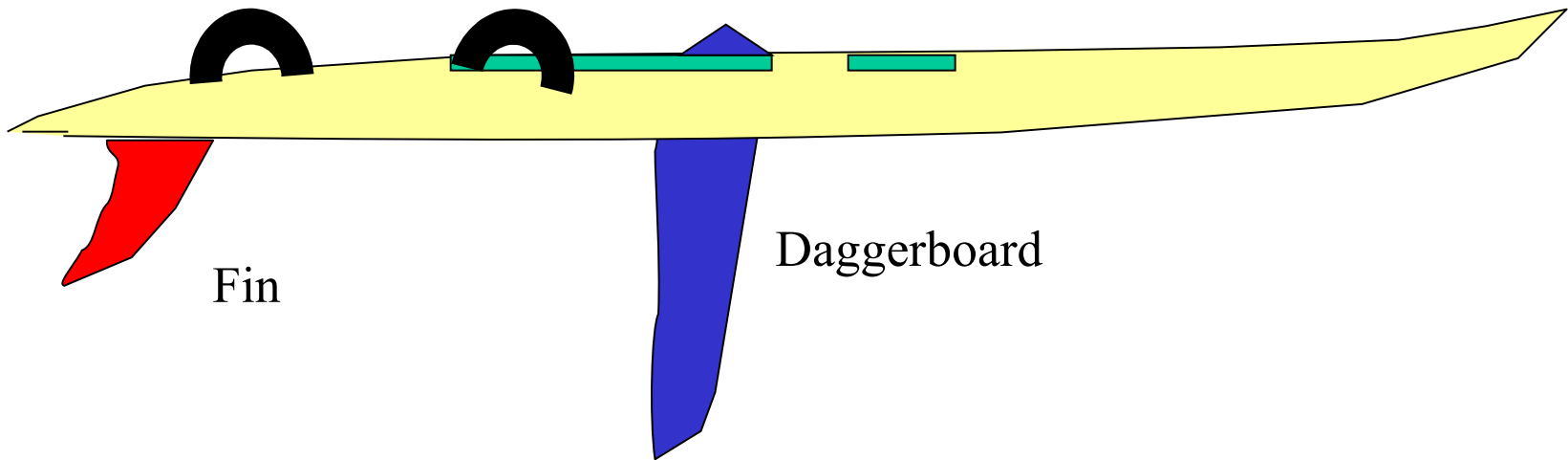
- Jim Dake and Hoyle Schweitzer patent 1968
- First windsurfer produced 1973
- Sport was the fastest growing water sport in 1981



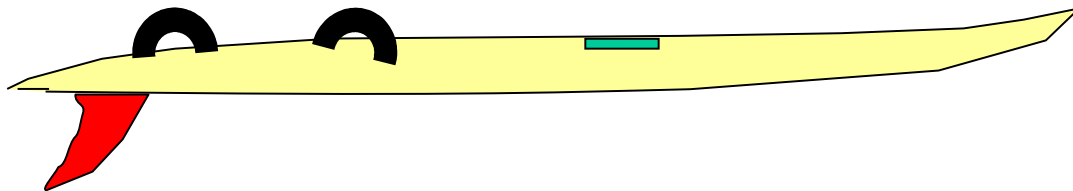


Different styles

Longboard for more traditional old-style sailing



Shortboard for high speed and wave sailing





Different styles



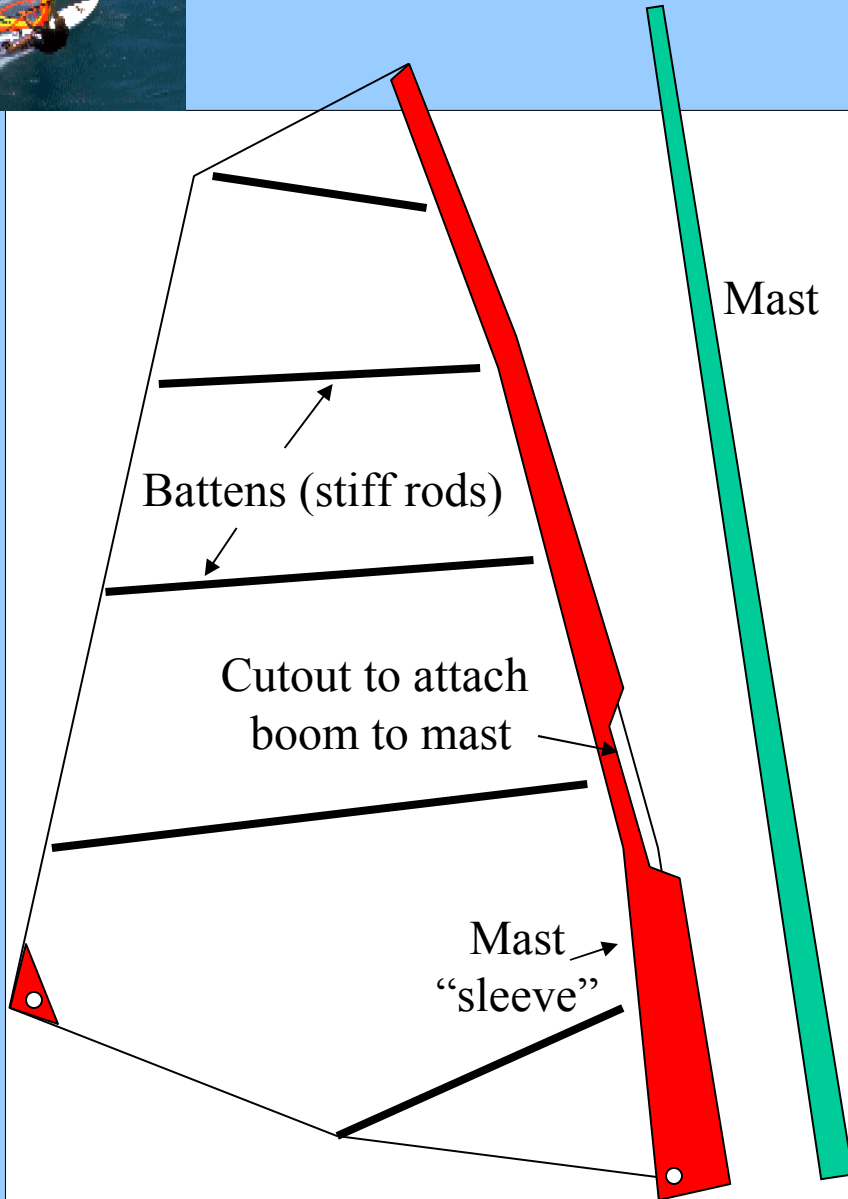
Longboard



Shortboard



Choosing the right sail



- Pick a sail based on the wind conditions

Sail size	Wind speed (MPH)
9.5	14
8.5	17
7.5	18
6.5	21
4.5	30





Windsurf Accessories



Wetsuit. A neoprene rubber suit that gets wet inside but still keeps you warm.



Harness. Lets you use your body weight to hold the sail, so your arms don't get tired. The hook in front attaches to a loop of rope on the boom.



Waterproof GPS. Global positioning system. Can plot your course and keep track of your distance travelled, maximum speed, etc.



Longboards – Olympic sport



- The mistral one design is the official Olympic board
- Has the best upwind capability – great for exploring waterways





Shortboards – fun and fast



- Very manoeuvrable
- Turn very quickly
- Short enough to ride waves
- Good for high jumps





Formula Boards – the new longboard



- Very wide board that can plane in low wind
- long tail fin for easy upwind sailing
- Becoming more popular than old longboards



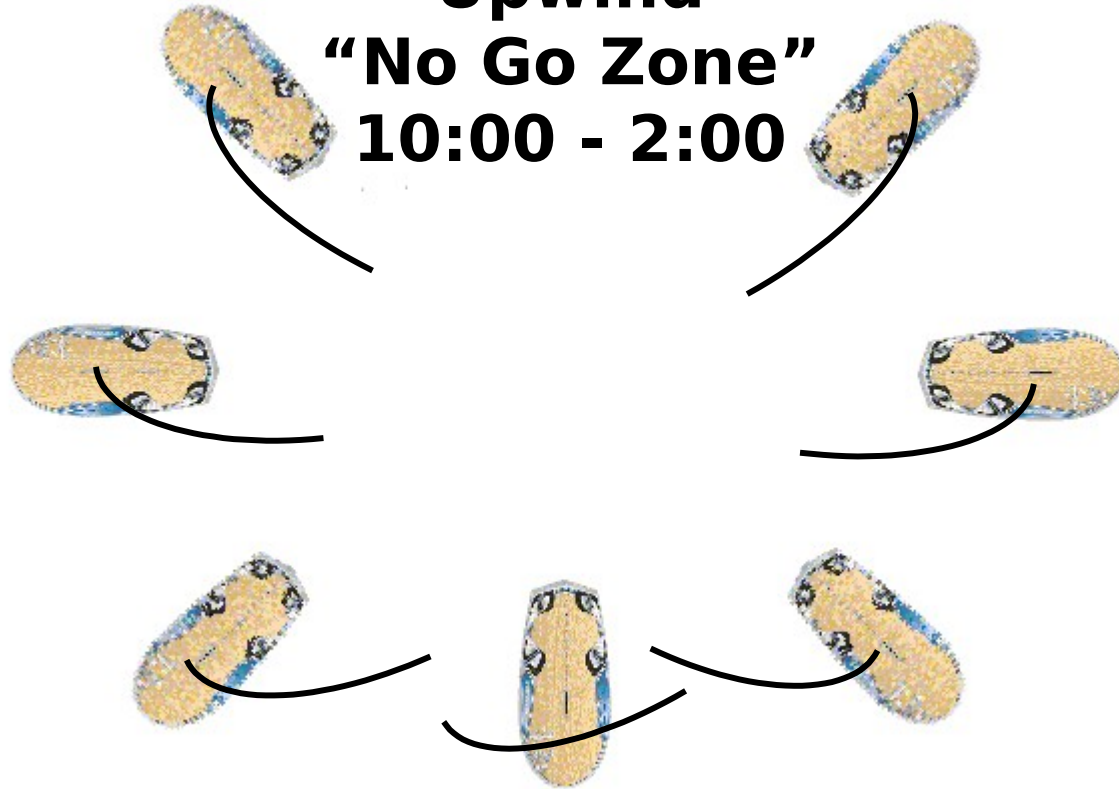


Angles you can sail

Wind

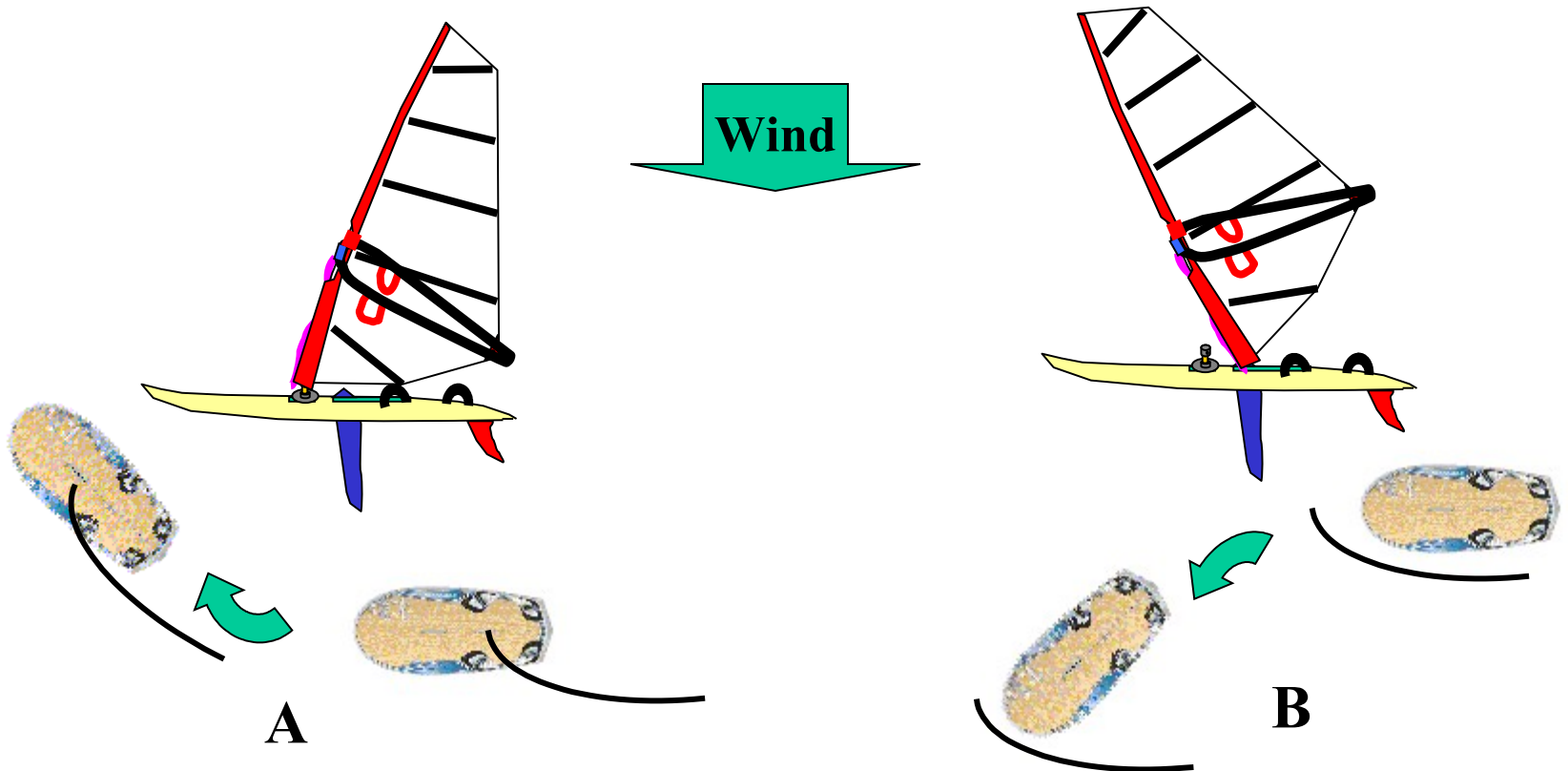
Upwind

**"No Go Zone"
10:00 - 2:00**



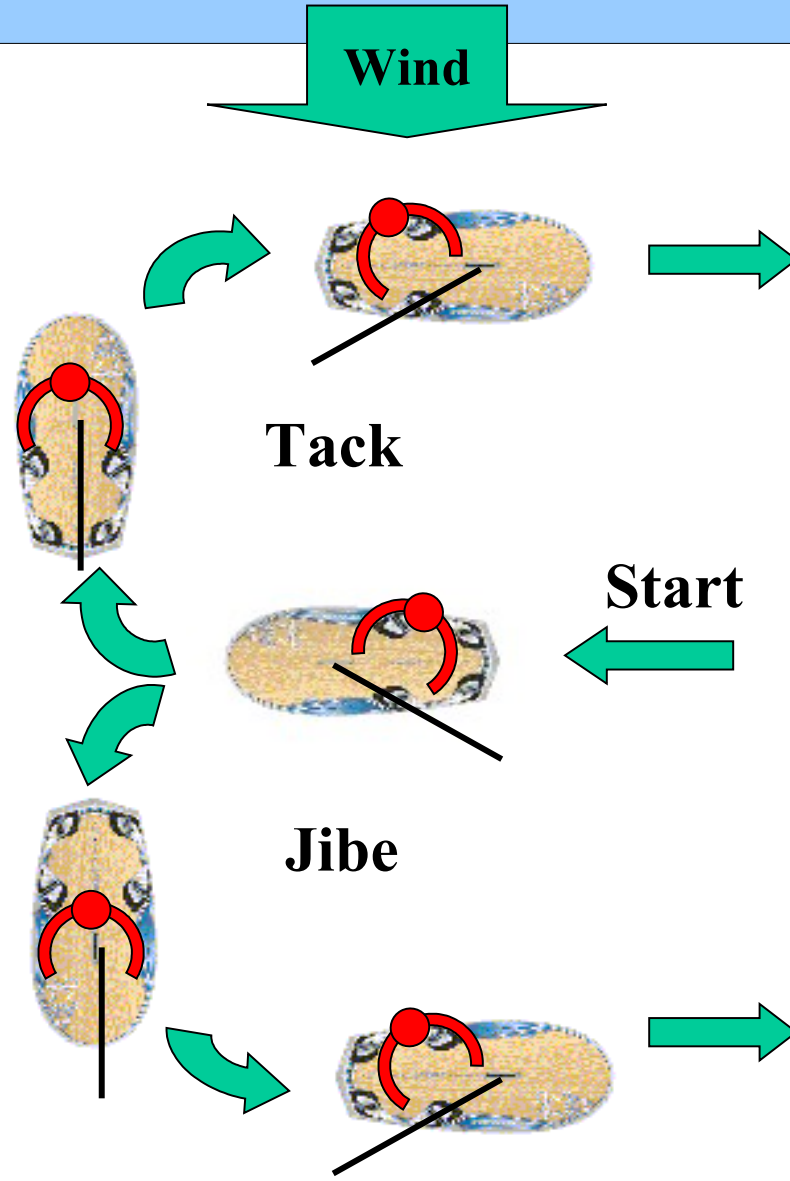


Steering

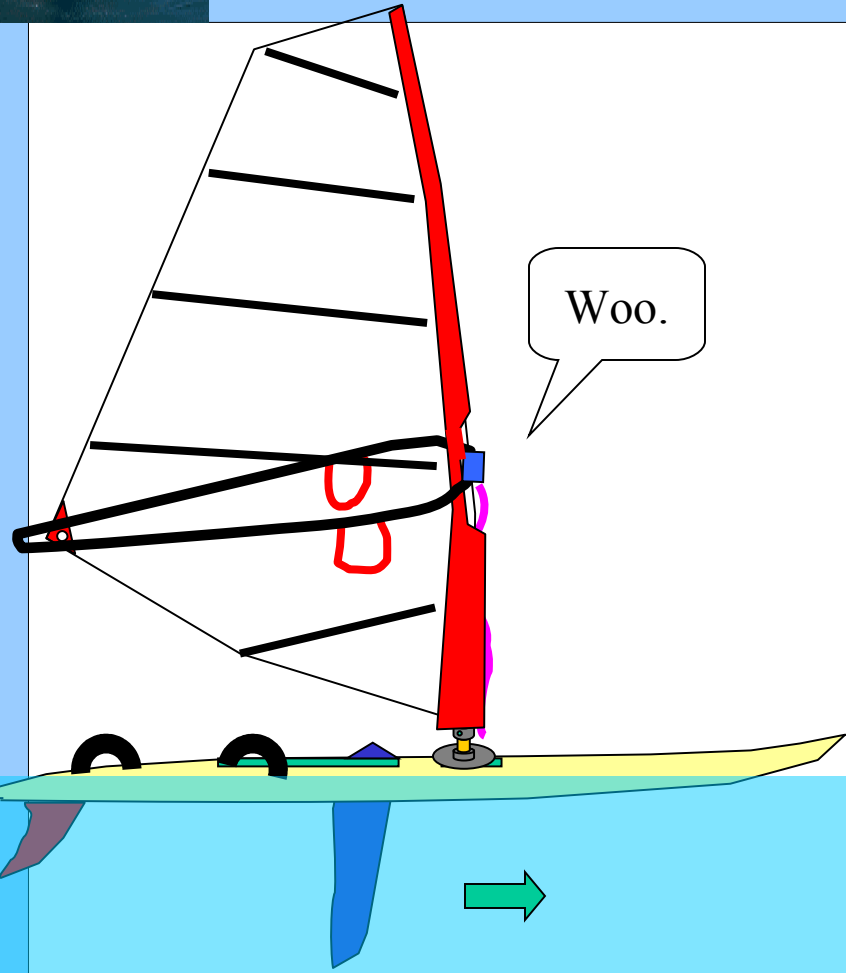




Turning Around



Floating vs. Planing



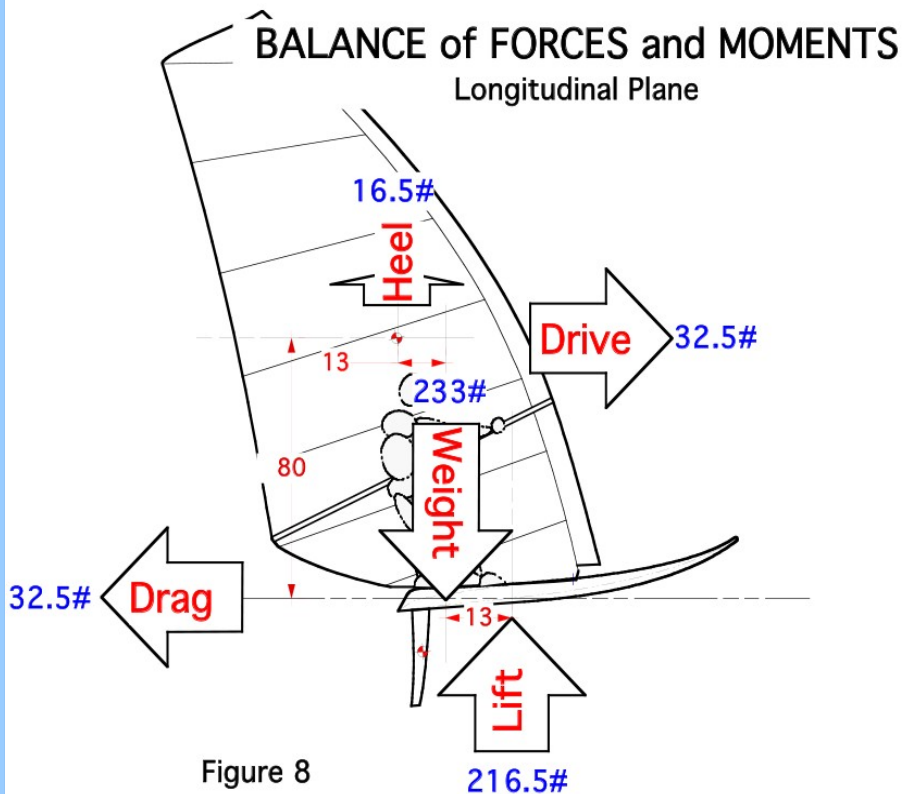
How it works





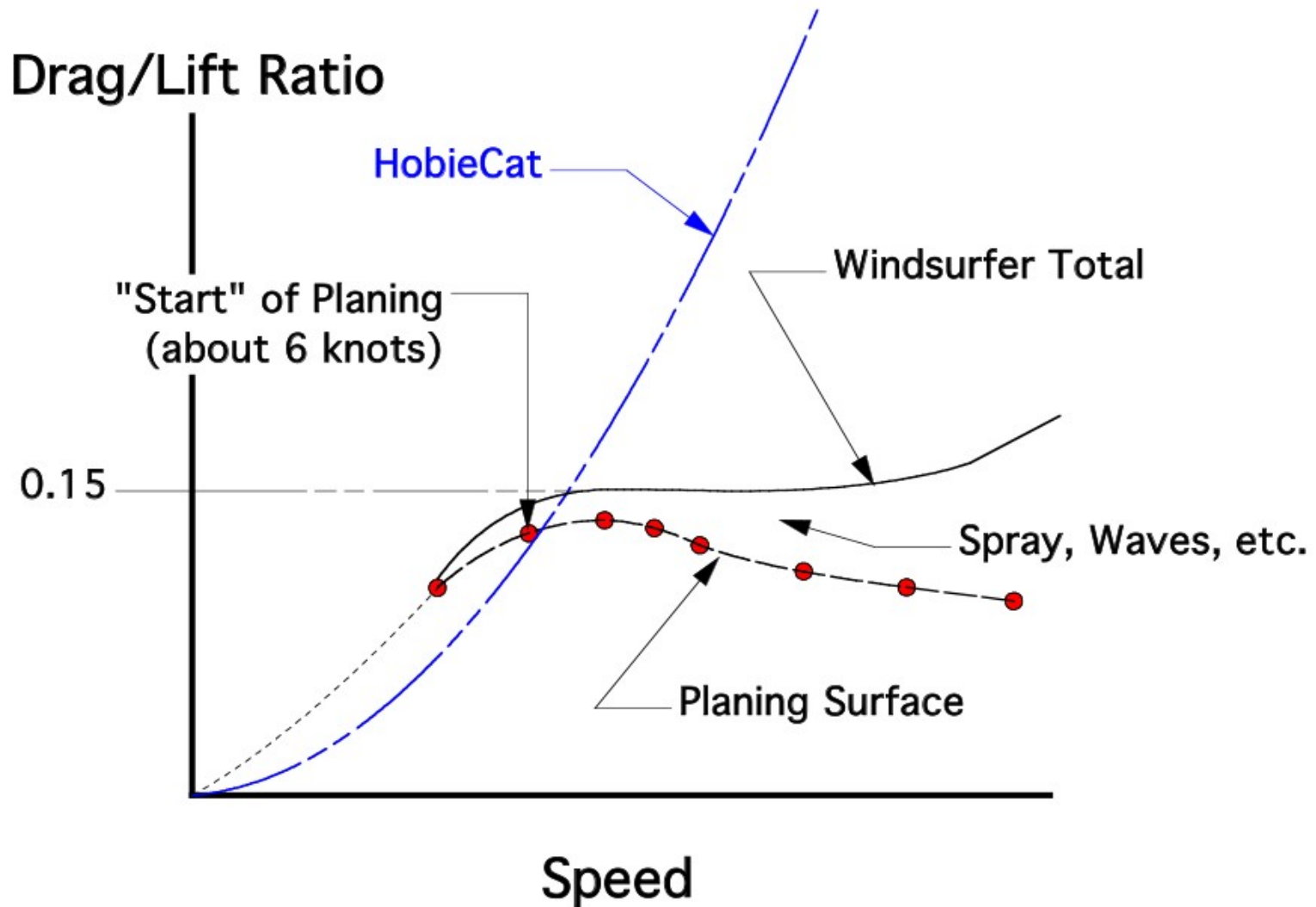
The physics

- In 2005 Drake wrote a paper studying the physics of windsurfing
- All forces converting momentum from wind to water pass through sailor
- Key opposing forces
 - Weight/Lift
 - Heel/Skid
 - Drive/Drag



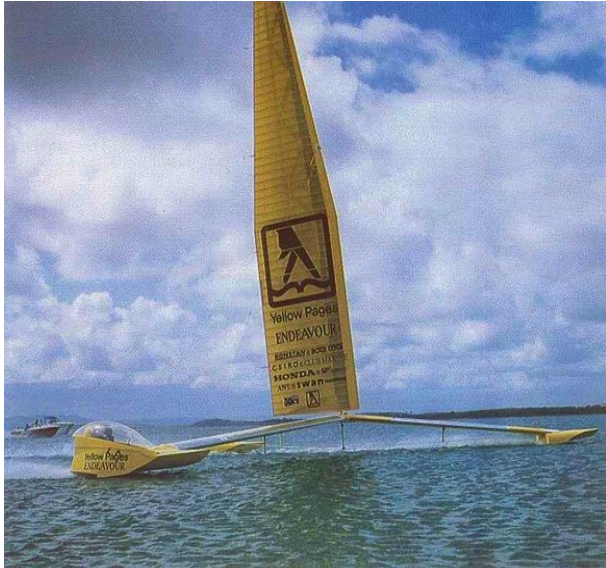


The physics





How fast can you go



- Can you go faster than the wind?
- Oh yes – why? - how much faster?
- Up to 2.5 times wind speed
- 1993 world record – trimaran: 46.52 knots
- 2005 world record – windsurfer: 48.7 knots



Places I've windsurfed



Image NASA
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22°46'36.65" S 39°12'04.17" E

Eye alt 4063.52 km



The 60's bus





The 60's bus



Standerton 1998





Richards bay 1999





Southampton 2001



Sterkfontein 2003





Langebåan – 2003





Mauritius 2008





New speed record



- 19 September 2008
Rob Douglas set a new record of 49.84 knots on a kite surfer
- Set at Luderitz –
Namibia (1500km from my home town)



Who will break 50 knots

