

# Celtic Challenge 2017

What do we want to achieve ?

- Complete the challenge .
- All be safe .
- Prepare thoroughly.
- Learn from 2014 .
- Beat our previous time .
- All three crews complete 7 one hour rows .
- Phil buys me a drink at the finish ?

# Rowing – reality or myths

- The best rowers row exactly the same every time they get in the boat .
- WRONG . The best rowers are adaptable and can modify their style to fit in with ANY crew they are with ?
- Do 10 hard ones but keep the same stroke rate / speed
- WRONG . Although not physically impossible this never happens in practice . If all rowers are putting in more effort in , unless it is all wasted effort the boat will go faster . If the boat goes faster the oars will go through the same angle in less time ,hence the rate will automatically increase . This combined with the fact that nearly everyone's stroke length shortens when they row hard means the rate increases even further
- The only way to increase speed is to increase the stroke rate
- WRONG . If you increase the stroke length and maintain the rate you will go faster . If you decrease the recovery time i.e from end of stroke back to the catch you will go faster. Getting all 4 crew to row as a unit will increase speed .



# Reality or myth (continued )

- When the oars are out of the water the boat slows down
- WRONG – a rowing boat actually reaches maximum speed just after the oars leaves the water and then decelerates
- Long strokes are more efficient than short strokes
- WRONG – the longer the stroke the higher the proportion of force NOT in the same direction as the motion of the boat .
- The latest theories are the best
- WRONG – Experimentation and proof is the ONLY way to improve in practice . New ideas are great , but we need evidence they actually work
- Coaches know best
- WRONG – in so many ways !!!! Anyone can have an idea that is worth exploring . Experimentation and proof will determine if it is of benefit .
- There are NO one size fits all solutions in rowing

# Rowing strategy

- Row at constant speed / rate  
( apart from short warm up avoid varying effort )
- Maintain stroke rate ( 28-30 )
- Concentrate on technique for whole 1 hour session
- Vital that cox constantly checks stroke rate and highlights any poor technique
- The cox must encourage the crew
- Avoid wasted energy at all costs
- Maintain momentum . Avoid slowing the boat down
- THINK about what we are doing ?
- ENJOY the experience !



# How do we row ?

- We 'lock' our oars in the water and we lever the boat past our macons .
- The oar multiplies the force we apply to the force we exert on the water
- JUST AFTER our oar leaves the water at the end of the stroke – the boat starts to slow down and momentum is lost
- 2,3 oar ratio outboard to inboard = 3.01
- 1,4 oar ratio outboard to inboard = 3.08
- This means if we pull with a force of 10 newtons (10 kg) we exert 30N (kg) on the water
- As long as 80 - 85% of the Macon is in the water it is locked in position , i.e it won't move and the energy we transfer will not be lost .
- ( This is not quite true as there is some slippage of the oar due to fluid dynamics , and the force vectors changing during the arc of the stroke . However this still happens even if 100% of the macon is engaged )

# What slows the boat down

- Drag caused by the water , a layer of water sticks to the boat
- Wind – blows against exposed hull , oars and rowers
- Tide / current alters the effect of drag
- Rudder – using the rudder increase drag
- Roll – caused by waves increases drag
- Rocking of the boat caused by rowers increases drag
- Additional weight in the boat increases drag



# Why do coaches always bang on about depth?

- We want 85% of the macon in the water
- We want the oar as horizontal as possible to give the maximum effective leverage
- If we go deep we reduce effective leverage , waste time getting oar deeper before pulling , and add buoyancy to boat
- Raising oar too high on recovery wastes time and energy

# What's the crack with angles ?

- 90 degrees is the ideal angle for sweep oar rowing
- Ideally 55 degree catch , 35 degree back stops ( at end of stroke )
- At 45 degrees only 50% of the effort is in the direction of travel
- At 55 degrees just over 33% of the effort is in the direction of travel
- Should we consider rowing 50 degree catch , 40 degree out ?
- Avoid pulling before the catch and avoid washing out  
( this reduces the angle of the oar in the water )



# Timing is everything

- If all four rowers oars enter and exit the water at different times this reduces power significantly and the acceleration of the boat during the stroke reduces dramatically . This means drag slows the boat down even more during recovery . Effect of rowers all leaning forward is reduced .
- If everyone's timing is out we have 4 individual power curves all starting and finishing at different times
- This means combined power is lost at the beginning and end of the stroke
- Lateral forces become unbalanced so boat will veer off course
- Correction using the rudder slows the boat down and hence wastes energy

# Easiest way to get the best from a crew

- Get the stroke to row at correct rate , depth , arc and catch and backstops angles
- Get the rest of the crew to copy exactly
- Get timing spot on
- This will reduce wasted energy to a minimum and should make the boat travel straight with minimal yaw



# Final thoughts

- Don't waste effort !!!!
- Think about how you row
- Perhaps leaning right back is more important than going right forward ?
- A constant speed is far more energy efficient than speeding up and slowing down .
- Conserve momentum at all costs , don't 'brake' - glide to a halt
- Using the rudder slows you down , if you have to use it small slow adjustments are better than quick hard adjustments
- ALWAYS THINK – am I doing anything to make things harder for the other 3!!!!
- Concentrate for the whole hour session of the row
- Should we focus on pulling harder at the middle of the stroke
- Is shortening the recovery period the most efficient way of increasing stroke rate IF tide / wind make going tougher ?
- Remember racing and the Celtic are 2 completely different ball games . Fast and efficient are not the same .

# Next Bala Row

- Look closely at the three strokes
- Once they are rowing optimally get crews to mimic stroke and focus on perfect timing
- Experiment on calm water – not going so far forward – leaning slightly further back , see if the boat goes better – trying to reduce recovery time to increase stroke rate , this may slightly increase stroke rate with less effort than pulling harder ? – try pulling harder in the middle of the stroke to match effort with the efficient part of the stroke
- Experimentation - say rowing in one direction between two buoys and noting any improvement is the best way to see if ideas work ( less wind,tide,current variation on the lake )
- We may find some crews find small changes have an effect while another has none .
- It may mean we have 3 crews rowing slightly differently , but as long as they row efficiently as a unit it will not matter .
- Our brains consume more energy than our muscles , so think wisely



# Crews

S	Tina	Chrissie	Jane NH
3	Ann	Digs	Dom
2	Leo	Tess	Kelly
B	Andrew	Hazel	Abi

- 10 crew in 1<sup>st</sup> choice position
- 2 crew in 2<sup>nd</sup> choice position
- 3 evenly balanced crews
- No strong or weak teams
- Can use Bala to hone crews
- Aim to row as efficiently as possible
- This could be the best prepared team Aberaeron has sent to the Celtic .