

# **Pre Trip Planning Document**

**Hopco 2**

**By**

**Ian Cheek**

## Yachtmaster Qualifying passage on Hopco2

The requirements require a passage of over 600miles, with 200 of these miles being 50miles off shore. A typical passage would be from Southampton to Portugal of 760Miles. Taking a trip from Cookhaven Southern Ireland to Ballycastle in northern Ireland, going via the weather bouys M3, K2, K4, and M4 would give a passage of 685Miles, with the stretch between K2 and K4 being 266Miles.

The full itinerary would be as follows

Depart 21<sup>st</sup> May

Pwllheli to Fishgaurds

Fishgaurds to Cookhaven

Cookhaven Ballycastle

    Via Fastnet Rock, M3, K2, K4 M4

Ballycastle to Peel IOM

Peel IOM to

    Option 1 Holyhead to Pwllheli

    Option 2 Porth Dinlleam to Pwllheli

The trip should take us up to the 7<sup>th</sup> June (based on an average of 4kts), this does include rest days were needed, but does not include any lost days waiting for weather, so would provision on not being back until the weekend of the 12/13 June. (5 days available in this time for delays)

If favourable winds and arrival in Ballycastle is earlier than planned, before departing to the IOM, time can be spent touring the southern Scottish islands, with the hope that Joe could get some wild life photography done.

The time planned for departure would be the weekend of 21<sup>st</sup> May 2010 with an expected total journey time of 17 days.

The table below gives the calculations for the time, and itinerary of the trip. The times and dates have been calculated on averaging 4knots boat speed (SOG), but it is hoped that the average speed will be greater, figures for 6knots have been included but not expected.

Hopco2 will sail well just off the wind, and is capable of holding 5.5 knots in a good wind, but an average speed of 4knots should also take into account having to beat when the wind is not favourable.

Time

		Boat speed knots						
		Knots	4	5	6	Passage	685	
	1	96	120	144				
	2	192	240	288	7 days @ 4knots			
	3	288	360	432	5 days @ 5 knots			
	4	384	480	576	4 days @ 6 knots			
	5	480	600	720				
	6	576	720	864				
	7	672	840	1008				
	8	768	960	1152				
	9	864	1080	1296	Start		21/05/2010 09:00	
							at 4 knots	
					Distance	4	5	6
						Start		end
21-May-10	Day 1	Pwllheli to Fishgauds	58	15	12	10	21/05/2010 09:00	22/05/2010 01:00
22-May-10	Day 2	Fishgauds to Cookhavan	130	33	26	22	22/05/2010 09:00	23/05/2010 18:00
23-May-10	Day 3	<b>Rest day</b>						
24-May-10	Day 4	Cookhaven to M3	100	25	20	17	25/05/2010 09:00	
25-May-10	Day 5	M3 to K2	105	26	21	18		
26-May-10	Day 6	<b>K2 to K4</b>	<b>266</b>	<b>66.5</b>	<b>53</b>	<b>44</b>		
27-May-10	Day 7	K4 to M4	80	20	16	13		
28-May-10	Day 8							
29-May-10	Day 9	Arrive BallyCastle @ 6knots						
30-May-10	Day 10	Arrive BallyCastle @ 5knots						
31-May-10	Day 11	Arrive BallyCastle @ 4knots						
		M4 to Ballycastle	134	34	27	22		
		Total from Cook to Bally	685	171	137	114		01/06/2010 12:00
		Days at sea		7	6	5		
01-Jun-10	Day 12	<b>Rest Day</b>						
02-Jun-10	Day 13	Bally to Peel	87	22	17	15	02/06/2010 09:00	03/06/2010 07:00
03-Jun-10	Day 14	<b>Rest day</b>						
04-Jun-10	Day 15	Peel to PD	86	22	17	14	04/06/2010 09:00	05/06/2010 07:00
05-Jun-10	Day 16	<b>Waiting for Bardsey sound</b>						
06-Jun-10	Day 17	PD to Pwllheli	35	9	7	6		
		Total days at sea	893	223	179	149		
		Days at sea		9	7	6		

## Fuel and battery management

Hopco2 is fitted with 200lt fuel tank, and plan to carry 50lt spare, and 20lt emergency fuel. The following table shows Hopco2 range on her fuel complement.

For battery management Hopco2 will be fitted with 2 x 110AH batteries for domestic use, and 1 x 110 engine starting battery. The primary charging of the Batteries will be by and engine run of 4 hours a day. During the charging period the propeller will be used for additional drive, and will help with the average achievable speed.

### Backup charging

A petrol generator will be taken as the backup charging method, should the engine or alternator fail.

#### Fuel

Fuel tank size	200	usable		
Spare	50		Distance on spare	50 Miles
Emergency	20		Distance on Emergency	20 Miles

Fuel use at Engine at 2000rpm/hour 4

Running engine for 4 hours a day 16

Capacity in days 12.5

Impact on speed if extra knot for 4 hours	Boat speed knots			
	4	5	4 +engine	5 +engine
1	96	120	100	124
2	192	240	200	248
3	288	360	300	372
4	384	480	400	496
5	480	600	500	620
6	576	720	600	744
7	672	840	700	868
8	768	960	800	992
9	864	1080	900	1116

## Water

Hopco2 has a 140lt water tank.

The following table shows the water requirements for the trip. I have made calculation for 2 crew and for 3 crew, as it is hoped to do this with 3 crew, and also included a worst case. I have used data from Circumnavigation of Britain guide, giving a water requirement of 9Lt per person per day, and my own calculation, and my own of 4.5lt per day per person.

### Water

Main Tank	140					
emergency	20					
	Per person	No of people	Total per day	No of days	Total required	Bottles needed
Curcum Guide	9	3	27	8	216	76
My idea	4.5	3	13.5	10	135	-5
Curcum Guide	9	2	18	8	144	4
worst case	9	3	27	10	270	130
worst case	9	2	18	10	180	40
Water usage per person						
Washing	1					
Drinking	2					
Tea	0.5					
washing up	1					
total	4.5					

My calculations are based on the following.

[http://www.wateraid.org/uk/get\\_involved/drink\\_more\\_water/1415.asp](http://www.wateraid.org/uk/get_involved/drink_more_water/1415.asp)

Which gives the following

recommends 18 glasses of 250ml	4.5	with 2 hours of exercise
recommends 14 glasses of 250ml	3.5	with 1 hour of exercise
recommends 11 glasses of 250ml	2.75	with 15 minutes of exercise

Washing up will be done using sea water, with an allowance for rinsing off with fresh water.

The option to use bottles water for drinking would give the following requirement for bottles

Using bottles for drinking water

Bottles per person/day .5Lt	4	4
Number of persons on board	3	3
Number of days	10	8
Total number of bottles	120	96

If we went down the bottles water route we would be carrying 140(tank) + 120(Bottles 0.5lt)  
= 200Lt

An emergency spare of 20Lt will be carried.

## **Appendix**

1. Star sight Performa
2. Sight Form for use with Reeds Astro tables
3. NAO concise sight reduction form
4. Watch's
5. Power Calculations for Hopco2
6. Food stores
7. 5 Sight Performa
8. Compass check Performa

**Starsight Proforma**

Position	Assumed Latitude
Greenwich Date	Civil Twilight (UT)

Stars							
Tabulation							
GMT							
GHA Aries (hrs)							
Increment (m/s)							
GHA Aries total							
Ass Long +E -W							
LHA Aries							
Ass Lat							
Hc							
Zn							
Sextant Hs							
Index Error							
Ht of Eye							
Apparent Alt							
Total Correction							
Ho							
Hc as above							
Intercept							
Towards Away							
Zn as above							
Ass Long as above							



### Sight Form for use with Reeds Astro tables

Date		Time UT	
EP Lat		EP Long	
Assumed Lat			
Assumed Long			

Dec	
Corrected by eye	

GHA	Hour	
	Minute	
	Second	
	Total	
New Assumed Long	+E -W	
	LHA	

1. Log Vers	LHA	
2. Log Cos	LAT	
3. Log Cos	DEC	
4. Add	TOTAL	
5. Remove 10's		
6. NAT Vers by inspection		
7.	LAT	
	DEC	
	TOTAL	
8. NAT Vers		
9. Step 6 + 8	TOTAL	
10. CZD by inspection		
11. Calculated Altitude Hc	90-CZD	

NAO CONCISE SIGHT REDUCTION FORM

319

Date & UT of observation	Body	Estimated Latitude & Longitude
h m s		° ' "
<b>Step</b>	<b>Calculate Altitude &amp; Azimuth</b>	<b>Summary of Rules &amp; Notes</b>
Assumed latitude	$Lat = \quad \circ$	Nearest estimated latitude, integral number of degrees.
Assumed longitude	$Long = \quad \circ \quad '$	Choose $Long$ so that $LHA$ has integral number of degrees.
1. From the almanac:	$Dec = \quad \circ \quad '$	Record the $Dec$ for use in Step 3.
$GHA$ Aries h	$= \quad \circ \quad '$	Needed if using $SHA$ . Tabular value for minutes and seconds of time.
Increment m s	$= \quad \circ \quad '$	
$SHA$	$SHA = \quad \circ \quad '$	
$GHA = GHA$ Aries + $SHA$	$GHA = \quad \circ \quad '$	Remove multiples of $360^\circ$ .
Assumed longitude	$Long = \quad \circ \quad '$	West longitudes are negative.
$LHA = GHA + Long$	$LHA = \quad \circ$	Remove multiples of $360^\circ$ .
2. Reduction table, 1 <sup>st</sup> entry ( $Lat, LHA$ ) = ( $\quad \circ, \quad \circ$ ) record $A, B$ and $Z_1$ .	$A = \quad \circ \quad ' \quad A^\circ = \quad \circ$ $A' = \quad '$	nearest whole degree of $A$ . minutes part of $A$ .
	$B = \quad \circ \quad ' \quad Z_1 = \quad \circ$	$B$ is minus if $90^\circ < LHA < 270^\circ$ . $Z_1$ has the same sign as $B$ .
3. From step 1 $F = B + Dec$	$Dec = \quad \circ \quad ' \quad F = \quad \circ \quad ' \quad F^\circ = \quad \circ$ $F' = \quad '$	$Dec$ is minus if contrary to $Lat$ . Regard $F$ as positive until step 7. nearest whole degree of $F$ . minutes part of $F$ .
4. Reduction table, 2 <sup>nd</sup> entry ( $A^\circ, F^\circ$ ) = ( $\quad \circ, \quad \circ$ ) record $H, P$ and $Z_2$ .	$H = \quad \circ \quad ' \quad P^\circ = \quad \circ$ $Z_2 = \quad \circ$	nearest whole degree of $P$ .
5. Auxiliary table, 1 <sup>st</sup> entry ( $F', P^\circ$ ) = ( $\quad ', \quad \circ$ ) record $corr_1$	$corr_1 = \quad '$	$corr_1$ is minus if $F < 90^\circ$ & $F' > 29'$ , or if $F > 90^\circ$ & $F' < 30'$ .
6. Auxiliary table, 2 <sup>nd</sup> entry ( $A', Z_2^\circ$ ) = ( $\quad ', \quad \circ$ ) record $corr_2$	$corr_2 = \quad '$	$Z_2^\circ$ nearest whole degree of $Z_2$ . $corr_2$ is minus if $A' < 30'$ .
7. Calculated altitude = $H_C = H + corr_1 + corr_2$	$H_C = \quad \circ \quad ' \quad \underline{\quad \quad \quad}$	$H_C$ is minus if $F$ is negative, and object is below the horizon.
8. Azimuth, 1 <sup>st</sup> component 2 <sup>nd</sup> component $Z = Z_1 + Z_2$	$Z_1 = \quad \circ$ $Z_2 = \quad \circ$ $Z = \quad \circ$	$Z_1$ has the same sign as $B$ . $Z_2$ is minus if $F > 90^\circ$ . If $F$ is negative, $Z_2 = 180^\circ - Z_2$ Ignore the sign of $Z$ .
True azimuth	$Z_N = \quad \circ$	N $Lat$ : If $LHA > 180^\circ$ , $Z_N = Z$ , or if $LHA < 180^\circ$ , $Z_N = 360^\circ - Z$ , S $Lat$ : If $LHA > 180^\circ$ , $Z_N = 180^\circ - Z$ , or if $LHA < 180^\circ$ , $Z_N = 180^\circ + Z$ .

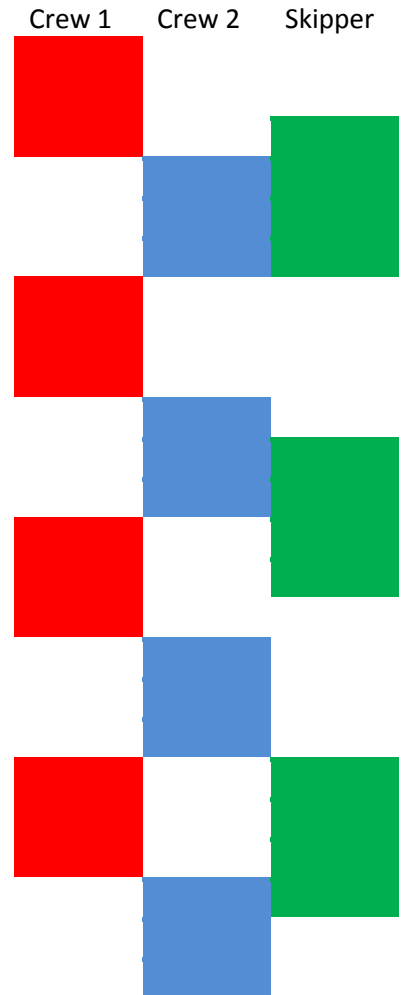
©HMNAO

For use with *The Nautical Almanac's Concise Sight Reduction Tables* pages 284-318.

# Watches

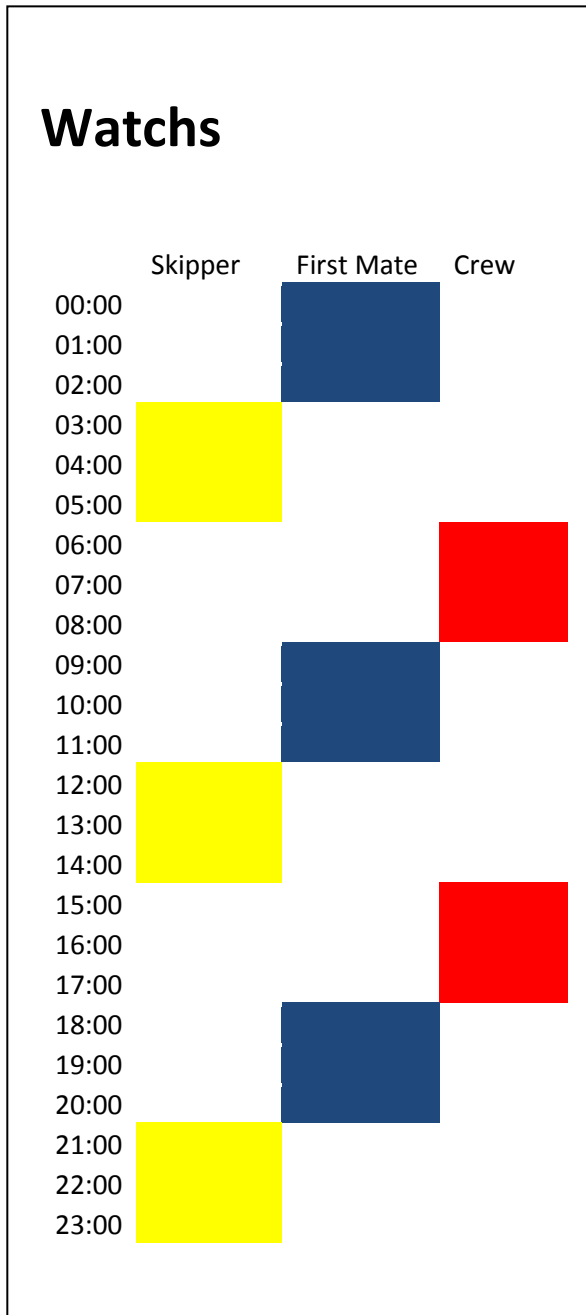


Skipper on watch for sunrise and sunset, and for the noon sight



Updated 5<sup>th</sup> may 2010

An idea from a recent trip from Southampton to Pwllheli, were a 3 on 6 off watch pattern was established



The watch cycles so each day each member of the crew has a different watch. The practical use for this works well if all 3 people are competent to be on watch alone. It is the night time watch's which are the most risky watch's. During the day there is likely to be other crew members awake so company and help is available for the crew member on watch.

It can also be rostered in that the person on the 2100 to 0000 watch does the evening meal and washing up from the meal, the reward is finishing at 0000 and having a normal night's sleep (well getting up at 0545)



## Food Stores

As of 12<sup>th</sup> March 2010

	Port Locker	Starboard Locker	Total
Orange segments	7	1	8
Fruit Cocktail	11	4	15
Pears	2		2
Chocolate Sponge Pudding	3		3
Jam Sponge Pudding	3		3
Spuds	13	7	20
Mixed Vegetables	5		5
Ham Small tin	2		2
Spaghetti Bol	2	7	9
Corn beef	2	3	5
Tuna	1		1
Tomatoes		4	4
Beef		13	13
Mince		11	11
Toilet Rolls x4 pack		3	3

## Meals

1 Beef hotpot

2xBeef, 1xMixed Veg, 1xSpuds Total meals available 5 (mixed veg limiting)

2 Mince hotpot

2xMince, 1xTomatoes, 1x Spuds. Total meals available 4 (Toms limiting factor)

3 Spag Bol

2xSpaghelli Bol Total meals available 4

Food stores prepared by John, with comments added by Ian

Provisions for Hopco 2 Round Ireland - 21 May 2010					
Non Perishable			Perishable		
Item	Quantity		Item	Quantity	
Long life milk	10 Lts	12 x 1ltr screw tops Already on board, about 1000 Bags	Sandwich baps	1x12	6x4pk pre cooked baguettes
Tea bags	4 x 80		Bread	3 loaves	
Coffee	2 jars	Tray of 0.5kg bags	Bread mix	2 x 500g	Have plenty of large tins of spuds
Hot chocolate	1 jar		Nan bread	2 x3	
Salt	1 pot	Already on board	Fresh milk	6 pts	Have Mars and snickers and box of twix
Black pepper	1 pot		Fridge		
Sugar	1kg	Already on board	butter/spread	2 x 500g	Have box
Cooking oil	1 Ltr		Eggs	2 x doz	
Olive oil	1 bottle	Have Mars and snickers and box of twix	Sandwich cheese	1500g	Have plenty of large tins of spuds
Vinegar	1 bottle		Other cheese	500g	
Jam	1 jar	Have Mars and snickers and box of twix	Ham/cold meat	1 kg	Have plenty of large tins of spuds
Marmalade	1 jar		Minced beef	2 x 500g vac	
Honey	1 jar	Have Mars and snickers and box of twix	Cubed beef	1 x 500g vac	Have plenty of large tins of spuds
Wheatabix	1 box		Cubed lamb	1 x 500g vac	
Fruit & fibre	1 box	Have Mars and snickers and box of twix	Cubed pork	1 x 500g vac	Have plenty of large tins of spuds
Meusli	1 box		Sausages	1 x 500g vac	
Other cereal	1 box	Have Mars and snickers and box of twix	Breakfast sausage	2 x 400g vac	Have plenty of large tins of spuds
Porridge	2 x 1kg		Chicken thighs	1 x 500g vac	
Cheese biscuits	1 pkt	Have Mars and snickers and box of twix	Bacon	6 x 8/10 rash.	Have plenty of large tins of spuds
Ginger biscuits	6 pkts		Bags of salad	3	
Chocolate biscuits	4 pkts	Have Mars and snickers and box of twix	Tomatoes	1 Kg	Have plenty of large tins of spuds
Chocolate bars	25		Cucumber	1	
Cereal bars	25	Have Mars and snickers and box of twix	Old potatoes	1 Kg	Have plenty of large tins of spuds
Crisps	2 variety bags		New potatoes	1 Kg	
Fruit pies	2	Have Mars and snickers and box of twix	Onions	1 Kg	Have plenty of large tins of spuds
Cakes	6		Garlic	2 heads	
Baked beans	6 tins	Have Mars and snickers and box of twix	Carrots	1 Kg	Have plenty of large tins of spuds
Tinned tomatoes	4		Celery	1 bunch	
Red beans	2 tins	Have Mars and snickers and box of twix	Green beans	500g	Have plenty of large tins of spuds
Cannellini beans	2 tins		Courgettes	500g	
Tinned tuna	4 tins	Have Mars and snickers and box of twix	Other veg	1 Kg	Have plenty of large tins of spuds
Spaghetti	500 g		Apples	1 Kg	
Penne pasta	500g	Have Mars and snickers and box of twix	Bananas	1 Kg	Have plenty of large tins of spuds
Rice	1kg		Already on Board, Boils in the bag		

Stock cubes	1 pack		Oranges	500g	Plenty of tins of orange segments
Bovril	1 jar		Lemons	3	
Mayonaise	1 jar		Fruit yoghurts	12	
Tomato relish/chutney	1 jar		Plain yoghurt	4	
Lime pickle	1 jar		<b>Top up in Cookhaven:</b>		
HP sauce	1 bottle		Bread		
Ketchup	1 bottle		Milk		
Worcester sauce	1 bottle		<b>In Ballycastle:</b>		
Mustard	1 jar		Bread		
Tomato puree	1 tube	Already on board			
Mixed herbs	1 pot				
Cordial	2 bottles	Have 3 lt blackcurrent and apple	Milk		
Apple juice	2 Lts	tray of cartons	Main meals		
Orange juice	4 Lts	tray of cartons	Sandwich stuff		
Snack pots	12 off		Butter, eggs?		
Custard	6 Cartons				
Cup a soups	5 x 4				
Beer/lager	2 or 3 boxes	Already on board, Bodingtons and stout ?	<b>In IOM:</b>		
Tots	1 or 2 bottles		Main meals		
Water	60 Lts	24x6 0.5lt bottles			



# 5 Sight Performa

	Date					
	Time	Local	GMT	Sight		
	Hour	Minute	Seconds	Degrees	Minutes	Decimal
1						
2						
3						
4						
5						
Sum						
/5						

	Date					
	Time	Local	GMT	Sight		
	Hour	Minute	Seconds	Degrees	Minutes	Decimal
1						
2						
3						
4						
5						
Sum						
/5						

## Compass Check Performa

Date		Time	
Lat		Long	
Suns azimuth		(True)	
Variation		East	West
		(Magnetic)	
Compass		(Compass)	
Deviation			

Notes:

Date		Time	
Lat		Long	
Suns azimuth		(True)	
Variation		East	West
		(Magnetic)	
Compass		(Compass)	
Deviation			

Notes: