

Maritime BMG.

Review of Recommended Staffing Levels (RSL) & function activity in National Network and proposed update to MRCC Staffing levels

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Situation

In 2020 the newly formed BMG undertook a risk review of Maritime and Aviation sectors, one of the risks identified was perceived inconsistency with the adoption of Recommended Staffing Levels and actions taken when a station operated below RSL.

Mission

The scope of the review initially was to provide a formal approach for Duty Commanders to follow when a single station fell below RSL, to minimise risk to the station and persons involved while ensuring all functions were still delivered to required standard.

It subsequently became clear that the concept of RSL itself was in question. Therefore, the scope of the review evolved to look at how the current RSL was identified and whether criteria remains fit for purpose.

Once the nature of the situation is established and evidenced, the review was to make recommendations to the BMG in regard station numbers and staffing levels across the network and individuals MRCCs accounting for seasonal variation & for further recommendation to COG/SOG to sanction for implementation across the network.

Execution

The review has been led by Commander Name with contributions from other members of the BMG and referenced with conversations with staff around the network.

Commanders were asked to identify functions across the network and to approximate a staffing load to these functions.

There has been a revisit of IHAC documentation which was used to establish staffing requirements for the Future Coastguard (FCG) project and the MAROPS – Seasonal Zonal Grouping document of July 2019.

The RSL documentation and staffing provision in force at present for Low, Medium, High and Peak season has been reviewed and an attempt made to establish the criteria and science behind these figures.

PowerBI Data with detailed incident statistics for the last 3 years was also analysed to lend statistical evidence to challenge standing preconceptions and to support recommendations.

For reference it is important to look at the IHAC modelling process from 2014 that identified the concept of recommended Staffing Levels;

1.1 The Coastguard Simulation Model

The **Coastguard Simulation Model** has been developed to look at a wide range of simulated scenarios, enabling detailed testing of the nationally networked service. An increased understanding of how SAR workload varies throughout the day will enable the MCA to better match workforce to demand.

This report looks at a range of simulated scenarios and will recommend staffing levels for the new national network with the aim of achieving 60%-80% utilisation.

For more detail on the background of the model, please see Annex A.

1.2 Summary of results

IHAC ran the Coastguard Simulation Model many times, varying the number of Officers on SAR duty from 20 to 100. We then compared the results to see which staffing levels resulted in no more than 80% of staff being wholly engaged on SAR tasks.

This produces a conservative estimate, as it:

ensures that 20% of the Officers on duty are always available for new SAR tasks; and

uses the maximum numbers of Officers that were busy across all hours of the model runs, even though the numbers will often be much lower than that (for more information, see Chapter 2).

Additional Officers would be required to undertake other roles, e.g. Vessel Traffic Monitoring, routine telephone call handling, etc.. Senior Coastguard Officers at the MCA have estimated the numbers required for these as;

	Day	Night
Vessel Traffic Monitoring (VTM)	8	8
Maritime Safety Information	5	2
Maritime Security	2	2
Routine call handling	5	3
Total	20	15

Combining the figures for SAR and other roles together, we recommend the following staffing levels.

	Weekday		Weekend	
	Day	Night	Day	Night
Peak (August)	70-80	45-55***	90-100	45-55* ***
High (May, June, July, September)	60**	35-45*	70-80	45-55*
Medium (April, October, November)	50-60	35-45*	60-70	35-45*
Low (January, February, March, December)	50-60	35-45*	50-60	35-45***

* During these shifts, the lower number of Officers for SAR tasks was more than adequate for the early hours of the morning, but not the late evening portion of the night shift, which required the upper end of the range.

** For these periods, one staffing level, rather than a range, best matched the 80% utilisation for SAR tasks.

*** The SAR portion of this staffing level was adequate for all hours except for the first single hour of the night shift, where it may result in slightly above 80% utilisation.

Variability by hour of day

As incident numbers vary considerably by hour of the day, so does the amount of time required of Coastguard Officers. The early hours of the morning are often exceptionally quiet, with 20 staff across the UK being more than adequate to manage probable SAR tasks in all months other than the Peak period of August. Staggered shift patterns or surge patterns can be used to better match this pattern of demand. We can consider this as the next stage of this project after further data analysis to fully understand the benefit of matching staffing to demand.

The number of Coastguard Officers required for SAR tasks **by hour of the day**, rather than shift, can be estimated by looking at the number that were busy when the model had, effectively, an “unlimited” number of Officers. The maximum number of Officers that were fully engaged on SAR tasks in this model run was **62** (during 14:00-15:00 on a peak August weekend).

HMCG RSL levels, taken from network governance document, followed until July 2021.

IHAC	Day		Night	
	Weekday	Weekend	Weekday	Weekend
Low	31	33	25	27
Medium	33	35	27	29
High	39	46	27	30
Peak	45	48	27	32

RSL Levels for Coastguard network as followed from July 2021.

IHAC	Day		Night	
	Weekday	Weekend	Weekday	Weekend
Low	31	34	21	25
Medium	34	37	22	29
High	36	48	27	30
Peak	47	49	27	32

There is no documentation that explains the differential between the numbers identified in the IHAC TDT and those recommended in the 2015/2019 review.

The Seasonal Zone Grouping document that currently defines staffing levels takes account of SAR only and no other functions, staff breaks or a requirement to maintain a listening watch on VhF Channel 16 & undertake VTM on C Scope. This previously had been partially mitigated with requirement that stations meet their own RSL of 3 in Low, medium and high with 4 on days in peak but a reinvigorated policy of prioritising Network RSL has raised individual station risk.

If on a January night RSL was met at 21, at 0200 it would realistically be expected that 10 people would be on break, 10 people would be maintaining a headset watch. This would leave 1 person to undertake all other functions in the network including SAR & London. This is not realistic.

HM Coastguard has a requirement to deliver functions continuously to a standard, with no regular denigration of service due to pressure on network from SAR activity and capacity to manage demand surge and major incident at short notice. This cannot be ensured in present situation.

On discussion with Commanders, irrespective of incident workload nobody believed that with the current infrastructure 21 to 27 people would be able to manage the network and certainly not provide any quality of resilience in situation where the business continuity plan needed implementing.

However, with each MRCC needing to provide 3 on watch day and night in Low and Medium season, with 10 MRCCs and JRCC set at 7, these low figures are rarely tested and RSL is never breached. So HMCG has set its own mitigation demonstrating a scepticism of the figures.

RSL at each MRCC at Peak season, even at weekends is set at 4, some MRCCs feel this figure is too low, again considering breaks and requirement for other functions to be maintained.

High and Peak season presents dual point of risk in both occasional failure to meet RSL at individual stations and within network and that the actual numbers in network not being adequately utilised to maintain operational integrity. This is particularly prevalent at weekends.

A calculation of functions and RSL from an adherence only to incident levels as criteria is problematic as creation of incidents and response to them are not uniform across network but do act as a useful pointer to predicted activity.

At present the **maximum possible staffing** in network would be;

Maximum possible staff 71 - 18 JRCC – 5 x 10 @MRCCs – London 1 – Duty Commanders 2.

This is below the IHAC peak recommendation of FCG but from experience of network in practice would comfortably manage predicted activity within network

The typical numbers are

JRCC 10, MRCCs 3 or 4 - London 1 – Duty Commander 1, so between 40 & 45.

Summary of findings.

RSL as currently implemented has been set with no variance to allow for individual station workload as experienced through historic incident data, predicted workload or function.

The July 2019 documentation authored by Name & Julie Anne Wood and now adopted as the central platform of RSL is flawed, it references work levels from data that is now at least 8 years old, with specificity it is open to interpretation as to its intent between MRCC staffing and Network RSL Numbers. The percentage of work detailed in the document at each location is not reflected by PowerBI data. There is no definition of 'work', with an assumption that this is referencing incidents. Therefore, other functions and the staffing required for adherence to a Channel 16 watch has not been calculated.

The declaration of 'Steady State' of the Future Coastguard programme was undertaken prior to the implementation of all the elements of the scheme and a lack of thorough analysis of the practical faults of the 6 watch demand led watch pattern.

The RSL standard adopted does not meet that originally intended following the IHAC Coastguard Simulation Model. RSL is a blunt model that purely generates a number of people that need to be in the network but no methodology, meeting that number is assumed to be a measure of the ability of the network to operate successfully.

The concept of Network support is widespread, understood and adopted by Commanders but this is done differently by individuals with no defined procedure to provide support or manage shortfall. With no consolidated methodology there is inconsistency & uncertainty among teams.

At present each MRCC undertakes broadly similar tasks with additional functions allocated, irrespective of whether staffed with 3 or 6 persons. Where there is 'surplus' typically being asked only to provide SMC, or 'fall back' cover to other stations. Crudely, every station does everything irrespective of differing levels of capacity, rather than matching function to capability.

Night time RSL figures do not match workload requirement, Friday night incident figures are higher than those on Sundays and Monday to Friday nights in Peak Season are busier than weekend nights in High Season, yet the Network RSL level is 4 persons less on those weekdays.

Meeting RSL necessarily does not mitigate risk, although it does provide management with an assurance that a set standard has been achieved. In High season where night time RSL is met at 31 there may be only 2 on watch at 3 stations, all requiring Network support in current structure. This is extremely difficult to manage and presents a drain on the network. However, 45 may be on watch on the day and although this does not meet RSL the numbers at each location are sufficient to manage activity. On senior management review the day watch would get more focus and support although the night is where the network has more points of failure.

The expectation of technical solutions to free up staff across network has not materialised, while additional tasks and focus on new areas of business such as VTM and the impact of migrants has not been reflected in an alteration of staff numbers or RSL

The JRCC rationale for significantly more staff was initially to provide a reservoir of staff to support other functions and to provide singular support in the event of significant incident. It is now regarded as a Solent RSL and if not above that level on occasion Team Leaders and Commanders are reticent about allowing people to support network. With this, it is recommended that a Solent station target is distinguished from the JRCC RSL.

Where there is a surplus of staff showing at one location, the Network Commander does not or cannot always allocate functional work to those teams to ease the pressure on stations with less staff. This may be due the Network Commander not being aware of things planned on station using the above station target and therefore 'surplus' staff, such as for planned training / CPD etc. There would be benefit in developing a priority protocol so that any staffing above station target is used according to operational demand.

Additional functions are supported across network however there are no additional staff at any location other than Humber & Milford Haven, who have been allocated 8 staff for resilience purposes & tasked to provide support the counter pollution function & London support. There has been an abandonment of technical solution to ease workload in Ops rooms, there is no Zone 37, automated MSI does not exist and many other reporting structures are still inefficient. Although the time taken to record MSI is limited, it is a 'totem' in that the failure to provide the service is seen as indicative of the failure to reduce workload, as has the delay in introducing VISION 5.

Adherence to RSL has an impact on Team Leaders fulfilling management functions and being able to remove themselves from the operations environment in order to undertake mandatory training, PMR reviews, Continual Professional Development, project work or visits and maritime domain awareness.

There is anecdotally some evidence of stations altering levels to be at RSL and not above as they will be expected to take other tasks in network.

Fundamental change is required to current operational format as the proliferation of tasks and functions means that we have multiple sites with limited staffing availability attempting to meet all requirements. With additional functions programmed in to cover irrespective of capability. While other stations with less activity and greater staffing not 'leaning in' to support, Commanders are unwilling to 'rock the boat' to identify spare capacity and enforce support unless absolutely required. This is inefficient and does not assist in the elimination of risk.

Delays in recruitment has produced the unintended consequence of jeopardising stations capability of maintaining RSL with potential network impact, as there are several stations with significant staffing shortfalls or unqualified people.

Following peer review updated RSL Proposal for full adoption in 2023.

MRCC	Low Weekday D/N	Low Weekend D/N	Medium Weekday D/N	Medium Weekend D/N	High Weekday D/N	High Weekend D/N	Peak Weekday D/N	Peak Weekend D/N
Shetland	3/3	3/3	3/3	3/3	4/3	4/3	4/3	4/3
Aberdeen	3/3	3/3	3/3	3/3	4/3	4/3	4/3	4/3
Humber	4/4	4/4	4/4	4/4	5/4	5/4	6/4	7/4
Dover (SAR excl. Small Boat Activity)	3/3	3/3	3/3	3/3	4/3	4/3	4/3	4/3
Solent	5/4	5/5	5/4	5/5	5/4	6/5	7/5	8/6
Falmouth	4/3	4/3	4/3	4/3	4/4	5/4	5/4	6/4
Milford Haven	4/3	4/3	4/3	4/3	4/4	5/4	5/4	6/4
Holyhead	4/3	4/3	4/3	4/3	4/4	5/4	5/4	6/4
Belfast	4/3	4/3	4/3	4/3	4/3	5/3	5/3	5/3
Stornoway	3/3	3/3	3/3	3/3	4/3	4/3	4/3	4/3
London	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Migrants* requirement to be confirmed	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3
MCC/LORSAR	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
BCP								
MRCC Total	44/39	44/40	44/39	44/40	49/42	54/43	56/43	61/46
Network RSL	44/39	44/40	44/39	44/40	49/42	54/43	56/43	61/46
RSL Minima (see below description)	35/30	35/32	35/32	35/32	39/34	43/35	44/35	47/36
Network RSL 2021	31/21	34/25	34/22	37/29	36/25	48/31	47/27	49/32

The proposal is a combination of MRCC and Network requirements, the onus is on each station to meet RSL, if they cannot then support would be sought from surplus staff either at JRCC or elsewhere in Network. The Network RSL is a figure that is the optimum number to allow all stations to operate effectively, all functions would be delivered with a surplus to support BCP or operational demand. Any numbers below this would require management by the Duty Commander. RSL minima is the figure below which any Network management will struggle to deliver all functions and a critical incident should be considered with the implementation of Strategic Direction to agree actions and capability.

**Announcement in August 2021 that MRCC Dover will be allocated an additional 24 operational staff has a significant impact on the overall network headcount. On Migrant RED days these people will almost certainly be absorbed in migrant activity. So for the majority of time there should be availability for network roles and less requirement for the JRCC to provide support. However if a Red day coincides with a busy Summer day then the capacity for Dover to allocate any cover to other network are limited, although the remaining Dover staff may have capacity if not supporting Migrant activity.*

***Oct 21 Dover Staff asked to research how many times there were significant numbers of migrant crossings to allow realistic estimates of how much migrant specific activity can be expected and how often the additional resource could be deployed to support Network. Early estimates are of 50 activity days in 2021 but global events are likely to bring an increase.*

These are suggested numbers required on station to cover SAR and normal functions as **practiced today**, figures include breaks and Channel 16, VTM, DSC coverage and Migrant activity.

The proposal requires reallocation of existing headcount additional staff at Holyhead, London and Falmouth, with a potential for reduction at the JRCC and MRCC Milford Haven.

The proposed lay down is an interim suggestion to provide greater stability at stations and confidence for staff to manage the functions we have in the manner we operate at present. It also significantly increases RSL during peak season, where statistics and colloquial evidence indicates the network is at greatest pressure.

The July 2019 JAW/TN Document assumed that workload would equalize across the network, this has not occurred. We also have additional functionality and responsibilities to that predicted in 2015. Therefore standardized staffing across the MRCC framework is not practical.

There remains a requirement for technical improvements to ICCS to allow greater flexibility of Zonal access and aerial coverage, this would allow a downward estimate of staffing numbers or greater flexibility of use.

SAR Must become a function and better Network flexibility needs to be practiced and managed for example it would improve efficiency for JRCC- AR to utilize VISION 5 and undertake additional roles such as tasking CRS teams to establish HLS.

Recruitment cannot be frozen as shortfalls introduce stress into the network & greater efforts must be undertaken to retain staff. Any vacancy freeze typically takes 3 years to resolve.

London & LORSAR are single functions units and therefore smaller numbers are able to manage a greater % of SAR as they do not factor in other functions which require additional resource.

However, any single operator operation runs risk and in the case of London, with 5% of incidents there is a constant workload & a regular requirement for network support usually from Milford / JRCC so an increase in headcount should be adopted to allow the station to standalone. There should be 2 persons scheduled on watch for each shift, either at London or via Network capability. (*This was written before Paper was produced)

The rationale for MRCCs' Falmouth and Holyhead having more staff is predicated on incident levels and latest statistics showing sharp increases in incident levels at those locations, with Summer traffic increasing at Falmouth between 2019 and 2021 by **38%** and Holyhead seeing a **28%** uplift in that period. See Annex 3.

MRCC Holyhead to extend Zone 32 to include all the coastline up to the Scottish border, this was a suggested alteration to network laydown in review undertaken by and will be implemented with discussion with Matt Leat.

Maximum possible numbers in network with no leave and no vacancies would be 76, this refers to 5 at Shetland, Aberdeen, Dover, Belfast & Stornoway, 3 for Migrants, 6 at Falmouth & Holyhead, 7 at Humber & Milford Haven, 2 at London & 16 at JRCC and 4 Tactical Commanders (Refer to new Annual Leave Policy)

Weekend Nights to be expanded to include Fridays as well as Saturday and Sunday.

Dates of Low, Medium, High and Peak need to be reviewed every year to reflect incident levels, school holidays and may have variance due to School Holidays starting at different times around the country.

If numbers fall below Network Minima consideration should be made of declaring critical incident to allow decisions about implementing special measures to meet core requirements. Network Minima criteria is a shortfall of 25% of MRCC Total numbers + 2 for MCC/LORSAR.

MCC & LORSAR – 2 dedicated operators on watch at any time– LORSAR accounts for 5% of all National incidents and the operators act as SMEs for any Emergency Beacon or LORSAR incident. Two operators also minimizes the potentiality of error with cross reference between team members. *Review is being undertaken with a proposal from on staffing levels.

The requirement that MRCC Milford Haven had additional staffing for BCP is no longer required as capacity provided from Dover and a bespoke Ops room at Spring Place. The method of support was never fully realised and those staff would be better utilized at other MRCCs. Therefore proposal is that MRCC Milford Haven headcount is reduced to 24 watchkeepers.

Why are more numbers required on watch? When the JAW/TN document was written, HMCG statistics indicate the following incident numbers. While these numbers are raw and unfiltered, since 2010 with additional functionality the actual numbers of incidents appear to have uplifted significantly, with perhaps a 50% increase. An uplift in figures is also suggested by the data included in Annex B.

There could be a case for more operators in MAROPS to meet the increased demand. As part of the ongoing review of RSL recommended below, incident activity in regard numbers as well as percentages should be factored, it may be that a greater willingness to record incidents may be a factor but there is a perceived uplift and the act of recording incidents is also 'work' activity.

Review needs to be constant with a recognition that numbers required in network, at day and night and locations remain in review.

Year	Incident Numbers	Year	Incident Numbers
2010	22165	2015	17000
2011	23013		
2012	21209	2019	31234
2013	20126	2020	33580
2014	21000	2021 (To 11/10/21)	28442

Proposed staffing numbers at each MRCC.

MRCC	Current staff	Proposed Staff	Zones	Predicted SAR % in 2015/19 Document	SAR% 2019	SAR% 2020	Additional Function
Shetland	20	20	1,2	10	4.54	3.52	Oil & Gas / NAVTEX
Aberdeen	20	20	3,4	10	6.28	5.76	Oil & Gas / CERS
Humber	28	28	5-10	7	14.05	13.92	NAVTEX / KSAT/ STS / Renewables
Dover	20 (SAR)	20+24 (Small Boats) = 44	11,13,14	8	7.21	9.87	Increased headcount for Small Boats Activity
JRCC	65	65*	15-21	20	18.14	19.63	London / Migrants / SSAS / LORSAR
Falmouth	20	24	22,23,24,26	8	8.78	9.57	LORSAR – MFDSC (A2)
Milford Haven	28	24	27,28,29	7	7.14	6.78	London – Counter Pollution - KSAT
Holyhead	20	24	30,31,32	8	7.99	8.38	CERS
Belfast	20	20	33,34	8	6.89	6.17	
Stornoway	20	20	35,36	3	2.76	2.73	SSAS
London	6	12	12	9	5.07	4.71	
LORSAR	0	0	37,38,41	N/A	5.44	4.99	<i>Drawn from JRCC personnel</i>
	Total 267	Total 305					

*JRCC remains at 65 in order to future-proof the LORSAR / MCC concept of 12 dedicated staff coming from the JRCC meaning the actual SAR / Network support coverage will be 53.

This is an overall headcount lift of 34 persons from current level, however, 24 of these are recruited into the migrant cell at Dover and an additional 6 staff for London. No additional staff have been specifically allocated for LORSAR/MCC as these are expected to be drawn from the JRCC Team or additional review by could influence this.

The MRCCs would on the whole be self-sufficient if staffing levels are met and therefore able to undertake their additional functions which would bring about a business continuity benefit.

Proposal is first stage making use of the available existing MAROPs Team numbers, with very small uplift, in a 4 watch, flat pattern. This would give the individual stations in the network greater capability of delivering functionality without so much need for support.

Serious consideration needs to be given to revisiting the watch patterns following analysis of data and matching staffing levels to demand. (For example, the 6 watch variable staffing shift pattern envisaged at the beginning of the FCG project. This pattern failed due to inability to implement the core elements of flexibility. The variable staffing pattern also introduced a surge capacity to match increased numbers in Ops rooms when peak demand required. This is a prudent and sensible measure and should be revisited.)

Additionally, while as an interim measure these numbers will provide greater stability to network, there needs to be a technical change to promote network capability. The ICCS systems limitations to access enough zones limits the capacity of operators to broaden operational ability. This means that certain key functions such as the VhF Channel 16 watch are conducted in an inefficient manner. The management of SAR as a function is also limited by the ICCS system. If for example we wanted MRCC Humber to manage SAR for Zones 1-10 this would be impossible as the ICCS system would not allow that many aerals to be monitored simultaneously. Technology needs to support and not restrict the Network.

MRCC Stornoway needs to have a greater network functionality as incident activity is substantially lower than all other MRCCs and to sustain 20 persons while the London and LORSAR requirements involve more SAR but less staff, is difficult without the delivery of additional functionality. MRCC Belfast will also have to assume some measure of functionality to assist with resilience.

Annex A.

Following consultation in July 2021 these were the MRCC Commander suggested staffing levels.

MRCC	Low Weekday D/N	Low Weekend D/N	Medium Weekday D/N	Medium Weekend D/N	High Weekday D/N	High Weekend D/N	Peak Weekday D/N	Peak Weekend D/N
Shetland	4/3	4/3	4/3	4/3	5/4	5/4	5/4	5/4
Aberdeen	4/3	4/3	4/3	4/3	5/4	5/4	5/4	5/4
Humber	4/4	4/4	4/4	4/4	5/4	5/4	6/4	7/4
Dover	4/3	4/3	4/3	4/3	5/4	5/4	6/4	6/4
Solent	5/4	5/5	5/4	5/5	5/4	6/5	7/5	7/6
Falmouth	4/3	4/3	4/3	4/3	4/4	5/4	5/4	6/4
Milford Haven	4/4	4/4	4/4	4/4	5/4	5/4	5/4	6/4
Holyhead	4/3	4/3	4/3	4/3	5/4	5/4	6/4	6/4
Belfast	4/4	4/4	4/4	4/4	5/4	5/4	5/4	5/4
Stornoway	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
London	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Total	42/36	42/37	42/36	42/37	49/41	51/42	55/42	58/43
Network RSL 2021	34/24	37/28	37/25	40/32	39/28	51/34	50/30	52/35

These numbers do not take account of MCC or LORSAR function or Business continuity demand. Dover numbers included Migrant incident demand as calculated by Commander at Dover prior to October 2021 uplift announcement.

Annex B

Link to PowerBI statistical data.

[HYPERLINK "https://app.powerbi.com/groups/3e54e7fb-0d75-49d9-9fcd-e1ced4b9c8a1/reports/57fde7cd-19de-4809-8024-c23fa455adb1/ReportSection"]

Annex C

HM Coastguard Incident data, Summer 2019-2021.

[HYPERLINK
"https://mcga.sharepoint.com/:w:/r/sites/DrowningPrevention/_layouts/15/Doc.aspx?sourcedoc=%7B7C8690C1-E76C-47C2-B91A-05951674F12C%7D&file=Draft%20Report%20V1.docx&action=default&mobileredirect=true"]