

Irish Coast Guard

Supplementary Review

Final Report

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Prepared by Fisher Associates

on behalf of

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1 Introduction

In late 2011, the Department of Transport, Tourism and Sport [DTTAS] appointed Fisher Associates to undertake a Value for Money (VFM) Review of the Irish Coast Guard [IRCG] to:

- Examine work practices that are a barrier to efficient service delivery.
- Assess the scope for alternative service models, which can deliver public services more efficiently.
- Make appropriate recommendations.

Further to that VFM Review, Fisher Associates were subsequently tasked to undertake a Supplementary Review that reconsidered issues related to the number of Coast Guard Centres. In particular, this Supplementary Review was tasked with considering additional alternative models for increasing efficiency and effectiveness.

The methodology for this Supplementary Review included:

- Further considering IRCG activities, particularly with respect to SAR operations and the provision of services to shipping, taking into account current working practices.
- Reviewing the recommendations from the VFM Review and IRCG's own proposals on their implementation.
- Crystallising the additional alternative models in consultation with IRCG and considering the manpower demands for each of these.
- Assessment of any technical issues and/or constraints associated with these options.

Consideration of the various options was progressed during a "brain storming" / risk analysis workshop at IRCG HQ and in other discussions, and the outcomes of those discussions have contributed significantly to this Supplementary Review.

Once again, we would like to record our thanks to the management of IRCG for their willingness to share information and opinions with Fisher Associates throughout the process, including colleagues from Malin and Valentia who travelled to meet us in Dublin.

2 Overview

As Ireland's fourth ("blue-light") emergency response service, IRCG provides the country's 24/7/365 maritime and coastal Search and Rescue [SAR] service.

SAR is not the sole function of IRCG, and its additional statutory responsibilities in connection with pollution prevention and response, including salvage, and the provision of maritime safety services to shipping within Ireland's EEZ, are delivered in conjunction with the SAR service. IRCG also assists the other blue light services, *inter alia*, through the provision of aeromedical helicopter transport services.

Over time, the means of delivery of services has developed via three control Centres.

MRCC¹ Dublin is an integral part of the IRCG NMOC² which, as well as providing maritime search and rescue response services, is also the Centre that co-ordinates the response to maritime casualty incidents within the Irish EEZ, and provides a variety of other services.

In line with the EU model, NMOC Dublin is co-located with IRCG HQ and management staff in order to provide rapid additional resources in the event of a major emergency. At these times, other first responders such as Police, Fire and Ambulance, as well as external agencies such as Customs and Immigration, may be expected to attend the NMOC.

NMOC would retain operational co-ordination of a major emergency but, if the event has national significance, IRCG would provide support to the Government's National Emergency Co-ordination Centre [NECC] (located nearby at the Dept. of Agriculture), which provides inter-departmental co-ordination.

MRSCs³ Malin and Valentia have been established on the sites of the former Coast Radio Stations, taking advantage of their geographic locations and the physical locations of the telecommunications infrastructure that has been developed and upgraded in recent times.

¹ Marine Rescue Co-ordination Centre (a SAR Co-ordination Centre for an IMO SAR Plan Region)

² National Maritime Operations Centre (incorporates the MRCC, Ship casualty, Pollution response, VTMIS and various SPOC functions)

³ Maritime Rescue Sub Centres (a divisional sub Centre of an MRCC)

3 Current SAR Operations

The **Operations** Division of the IRCG is made up of three Branches reporting to the Deputy Director, Operations, each headed by a Manager. These are Search & Rescue Operations [SAROPS], Volunteer Services & Training [VS&T], and Pollution and Salvage [POL/SALV].

The Assistant Director, **Engineering and Logistics** manages 6 Electronics and Engineering Officer posts and two stores posts. Electronics and Engineering Officer posts are primarily based in Dublin but are deployed to Malin Head and Valentia according to operational requirements.

3.1 Marine Rescue Co-ordination Centre and Sub Centres

MRCC Dublin is the national Rescue Co-ordination Centre for the Irish Search & Rescue Region. It is equipped to provide up to 8 operational desks for handling all of the IRCG operational commitments from a single Centre.

MRSC Valentia and MRSC Malin Head are Divisional 24/7 Centres, co-ordinating SAR response in their areas of responsibility [AOR].

All three Centres maintain a '24/7/365' listening watch on VHF Channel 16 and MF 2182 kHz. Each broadcasts Maritime Safety Information [MSI] on VHF and, in some cases, MF radio in accordance with published schedules. MSI includes UK Hydrographic Office navigational warnings, Irish Marine Notices, Gale Warnings, Shipping Forecasts, Local Inshore Forecasts, Strong Wind Warnings and Small Craft Warnings as issued by the Irish Meteorological Office. IRCG is also responsible for NAVTEX broadcasts.

In the period January 2012 to July 2012, statistics provided by IRCG show the following emergency radio traffic across the three Centres:

Tier 1 Distress incidents, flare reports, Medevac, broken down v/l/s	199
Tier 2 Distress, body recovery, searches lasting >1 day, multiple SRUs	33
Tier 3 Major incidents, multiple loss of life, vessel sunk - pollution	2

Similarly, routine radio activity is given in the table below.

VHF - Calling Ch. 16 / Working channels	Traffic Reports	23239	Ave. Handling time 30 – 120 secs
	'Oversight' of helo ops	10080	
	CRBI / RNLI / CGU	980	
	MSI broadcasts	5751	
	Pollution broadcasts	400	
NAVTEX broadcasts		1704	10 mins prep per broadcast
Email / Fax	"WETReps"	3200	

Other work carried out at the 3 Centres includes responses to 999 calls through the Emergency Call Answering Service, amounting to 1726 calls in the same period - an average of 8 calls per day. Additionally, watchkeepers have to handle other phone calls, some of which may be nuisance or hoax calls, and there is a need for the watchkeeper to make a judgement regarding such messages.

3.2 Current Watchkeeping arrangements at MRCC / MRSCs

IRCG has identified a current requirement for 8 working desks on a day-to-day basis, although it is recognised that there may be a need to provide additional desks to address increased commitments from time-to-time, or in the future to address additional commitments that may arise through EU or international agreements and legislation.

Depending on the deployment of watchkeepers, there may be a need for a 9th desk to fully cover VTMISS and maritime security.

There is *capacity* of 8 working desks at MRCC Dublin. In addition there is planned to be *capacity* of up to 4 working desks at both Malin and Valentia MRSCs (a “split 8-desk” alternative to MRCC). As a result of ongoing investment in communications and other systems, in the event of the loss of NMOC Dublin, MRSCs Malin and Valentia would each be capable of providing 50% of the nationwide coverage each on a temporary basis.

Actual manning required to provide and maintain a total of 8 operational desks across the organisation is detailed below.

Working practices: The primary roles at the MRCC / MRSCs are:

- To monitor radio channels for vessels in distress.
- To allocate appropriate SAR resources in the event of a distress or major marine incident.
- To co-ordinate SAR missions.

In order to maintain full service cover at each of the Centres, the following watchkeeping arrangements are currently in place:

- MRCC Dublin:
 - 0800 - 1600: 3 Watch officers
 - 1600 - 2200: 3 Watch officers
 - 2200 - 0800: 3 Watch officers
- MRSC Valentia and Malin:
 - 0900 - 2100: 3 Watch officers
 - 2100 - 0900: 2 Watch officers

Broadly speaking there are 9 desks during the day, and 7 during the night. At any one time, one of the Watch officers at each Centre is nominated as the Duty SMC (SAR Mission Co-ordinator).

IRCG management have indicated that there would be opportunities for more flexible working from time-to-time, and that there is a need to be more ‘hands on’ in proposing and managing differing practices according to anticipated workloads - e.g. summer bank holiday working may require more watchkeepers in post than may be the case on a winter week-end.

Numbers of watchkeepers required - current arrangements: The number of watchkeepers required to deliver 24/7/365 safety radio watchkeeping and SAR service provision is detailed below.

- i. Assuming that each watchkeeper is entitled to the following -
 - Annual leave - 31 days; public holidays – 9 days; “privilege days” – 3 days;
 - Sick leave – 7 days; in service training – 15 days: TOTAL ‘deductions’ – 65 days
 - Thus he / she will work for 300 days pa (42.86 weeks pa).
- ii. Assuming a 37-hour working week, productive working hours are calculated at 1585 hrs per annum.
- iii. Given that there are 8760 hrs to be covered per annum:

People required = 8760 / 1585 = 5.5 persons required per post pa.

Thus, to ensure that IRCG can man 8 desks at any time, there is a need for a FTE of 44 watchkeepers. The current established FTE is 46, however, there are a number of vacancies within the watchkeeping staff as summarised below.

		MRCC DUBLIN	MRSC VALENTIA	MRSC MALIN	FTE
CURRENT	3 x operational Centres	18	14	14	46
ACTUAL		17	11	11	39
VARIANCE		-1	-3	-3	-7

These gaps in the complement are filled via significant payments for overtime estimated at €1,500 per day. In order to maintain the full watchkeeping commitments already outlined, these vacancies also require that IRCG management suspend the deployment of watchkeeping staff to compulsory training programmes, and defer or suspend annual leave from time to time. These compulsory training programmes are required under international agreements to ensure that watchkeeping staff retain their “currency” in their respective roles.

This continued practice is unacceptable and has the potential to bring IR and HR issues to the fore. It is only through goodwill on the part of watchkeepers that the service is maintained to its statutory levels.

3.3 Rosters

12 hour watchkeeping is in place at MRSCs Valentia and Malin, in part, to satisfy the long distances travelled by many of the watchkeepers at these locations to or from their homes.

As previously noted in the VFM Review, the 8 hour watchkeeping arrangements at MRCC Dublin allow a greater interface between HQ management and watchkeepers than 12 hour shifts would allow. The 8 hour shift also allows for greater flexibility of manpower in the event of a major incident placing demands for additional staff to be present at MRCC, either by means of early recall to duty, or through remaining on duty at the end of the nominated shift.

With 12 hour watchkeeping, there is concern that there may be increased tendencies towards fatigue amongst the watchkeepers, particularly at busy times, which may not be the case with 8 hour watchkeeping.

There is a complicated formula for the times and rates of payment at which watchkeepers may become eligible for overtime. With 12 hour watchkeeping, the higher rates for overtime payments are reached at an early stage should retention or early recall to duty be necessary. 8 hour watchkeeping reduces the costs of overtime payments to some extent.

Given that the same human resource is needed to provide 24/7 cover, whether 12 hour or 8 hour shifts are worked, the advantages of the 8 hour shift (flexibility coming on / off watch, reduced fatigue, more interaction with management, lower cost of overtime), suggests that these should be considered for Malin and Valentia. Thus 8 hour watchkeeping at all Centres is the preferred option, although it has been suggested that there would be significant IR issues with any proposal to implement this.

3.4 Aeromedical services and links with HSE

It is noted that, with effect from spring 2013, there will be a further commitment by IRCG to extend the co-ordination of the use of IRCG dedicated helicopter resources by the HSE⁴ for a national “HEMS⁵” service - in effect the provision of air ambulance services across the State.

It is not known what the exact impact of this additional commitment will be on the current watchkeeping and communications co-ordination models, but there have been some assessments of the work currently involved.

This service is currently managed by IRCG on a regional basis, although it is our understanding that the HSE controllers operate from a national centre, but engage directly with the regional IRCG Centre with responsibility for the helicopter in question. For example, if there is a requirement for this service in the south-west, it is current practice for the HSE controller to liaise with MRSC Valentia, as that station has the co-ordinating responsibility for the helicopter unit based at Shannon airport.

It appears that current practice is that the regional Centre advises the HSE at the start of the working day as to the operational status of a helicopter. In the event that the helicopter is subsequently tasked for ‘primary’ SAR / IRCG duties, the HSE controller is not necessarily advised of that tasking, perhaps until such time as he requests access to that unit - possibly on a “need to know” basis. It also appears that the other IRCG Centres are not necessarily aware of the tasking of the helicopters by one Centre.

The co-ordination of this process offers scope for improvement now, and completion of the communications and information technology systems upgrades offers potential for additional improvements.

3.5 Capital investment and technology upgrading

There has been a continuing process of capital investment in the telecommunications infrastructure on a national basis, in part to provide a greater degree of resilience and reliability of service across the organisation, with particular emphasis on greater interoperability between the operational Centres.

The completion of this process, which will allow, *inter alia*, for the provision of additional desks at both Malin and Valentia, should be completed in early 2013. The work at Malin was completed late in 2012 and, at the time of writing, work is in hand at Valentia. For both upgrade programmes to be effectively achieved, it was necessary to close each of the stations as a watchkeeping unit, but the resilience of the organisation was maintained by deployment of the watchkeeping staff from the affected station to be co-located with their colleagues in NMOC Dublin.

⁴ Health Services Executive

⁵ Helicopter Emergency Medical Service

This investment programme has concentrated on improvements to current telecommunications needs, and there may be a future need for further upgrading of these systems to recognise the greater use of satellite communications systems.

As highlighted in the VFM Review, there is a continuing requirement for further investment in ICT. There is a need to ensure that IRCG is able to function with integrated, comprehensive Management Information Systems that will allow the organisation to function as a single unit, regardless of the location of the operational personnel on duty at any one time. It is understood that agreement has been reached with the relevant Government departments to 'fast track' this programme in the coming months.

3.6 Staffing issues

At the time of writing, we note that approximately 10 retirements among the watchkeeping staff are anticipated within the next 2 to 3 years. It is possible that as many as 6 of these retirements could take place before the end of April 2013.

Training time to be ready for operational service is approximately 9 - 12 months. There is, therefore, a pressing and urgent need to recruit watchkeeping staff almost immediately.

This also applies to some other sections of IRCG. For example, Engineering requires its full complement of staff to ensure that the national SAR infrastructure can be maintained in a fully operational state at all times, especially in light of the recent programme of telecoms systems upgrade.

4 Alternative SAR Operations models

4.1 Overview

The following alternatives were considered:

1. Maintenance of the “status quo”.
2. 2 Centre “mirror” model, based on NMOC Dublin and a “mirror” NMOC at either Malin or Valentia (as proposed in the VFM Review).
3. An integrated, nationwide command and control structure, utilising all existing Centres but with modified watchkeeping arrangements - the so-called “4/2/2” model.
4. An integrated, nationwide command and control structure, utilising all existing Centres but with modified watchkeeping arrangements - the “helicopter” model.

Alternative 2 uses all three of the existing 3 Centres for their hardware and communications capabilities. NMOC Dublin would retain the full-time MRCC station. Then either MRSC Malin or Valentia would continue to provide 24/7 radio watchkeeping and SAR co-ordination on the basis of their existing infrastructure, with the ability to transform to the “mirror MOC” in the event of the loss of NMOC Dublin. Watchkeeping would be provided on the basis of 3 x 8 hour watches at both stations.

The physical communication infrastructure located at both MRSCs would still be required, regardless of the final choice for the location of the mirror MOC. We understand that the existing communications networks could withstand the workload, although there may need to be some minor modifications to the infrastructure to ensure continued resilience for the equipment at the “non-operational” site.

However, there is a need for capital investment at one of these stations in order to provide the additional desks required to fulfil the total functionality of the mirror MOC. Costs in the region of €500,000 have been suggested for refurbishment costs at Valentia. Approximate OPW costs of a new build at either Valentia or Malin are considered to be in the region of €4 million with an 18 month build.

In **Alternative models 3 and 4**, both MRSC Malin and Valentia are retained as watchkeeping stations, but the management of the two Centres is changed such that only 1x District Controller (MRSC Malin) and 1x Deputy District Controller (MRSC Valentia) are assigned, with shared managerial responsibilities between the two stations. Key implications of these two models include:

- The regional responsibilities and boundaries of each of the MRSCs with respect to SAR / VTMISS incidents may need to be redrawn in order to achieve a more even balance of incident ‘contact’ between Malin and Valentia.
- This may also have an impact on the assignment of CGUs to their respective MRSC, but it is considered that this would lead to greater efficiencies and effectiveness across the organisation.
- Liaison with other ‘blue light’ responders and the community would need to be co-ordinated from IRCG HQ by the SAR Ops Manager on a nationwide basis.
- There may need to be some reassignment of radio sites to the MRSCs to account for boundary changes, but it is our understanding that the costs associated with such changes is minimal.

In all cases, there would need to be the capability to man up to 8 desks at all times. The current partial adherence to VTMISS obligations indicates a need for 9 desks, although it may be possible to fulfil these obligations through greater efficiencies with 8 desks, with all VTMISS work carried out at NMOC.

IRCG management have assessed the following watchkeeping manning for these options:

		MRCC DUBLIN	MRSC VALENTIA	MRSC MALIN	FTE
CURRENT	3 x operational Centres	18	14	14	46
2 Centre "A"	NMOC + 'mirror MOC'	27	14		41
"4/2/2" model	3 x operational Centres	22	11	11	44
"Helicopter model"	NMOC + half-time MRSCs	33	12	12	57

The numbers of watchkeepers above allows for full time coverage and minimises the need for overtime.

It is noted that there was some debate amongst IRCG management regarding the exact numbers for the "helicopter model" - those given above represent a "worst case" scenario.

We have undertaken an analysis of these four alternatives using the principles of risk assessment. This approach considers the key risks to the effective maintenance of IRCG's SAR obligations associated with each of the alternatives, and looks at the potential consequences associated with those risks. Thereafter, we have considered a number of risk mitigation strategies that may need to be adopted, and made appropriate observations on these.

4.2 Alternative model 1 - maintenance of the "status quo"

Option 1: Status quo: Current watchkeeping arrangements at three Centres leads to duplication of effort with 9 desks during the day, and only 7 desks overnight. It requires a total of 46 watchkeepers, and this is not the most cost-effective way to deliver this element of IRCG's services.

The geographical distribution of incidents is not evenly spread throughout the IRCG AOR. For example, Malin Head's staff gain incident experience relatively slowly, and have less regular opportunity to exercise competencies because they have fewer incidents to manage.

Drawing on the principles of risk assessment, the following sets out the key risks items, and their likelihood, with relevant comments. This assessment of status quo is in the context of the current shortage of staff noted previously.

Risk item	Risk factor	Consequences / Observations
Insufficient manpower to maintain 8 watchkeeping desks at all times		
Excessive overtime payments.	High	Current expenditure on overtime ~€1500 per day – this is unacceptable and cannot be sustained in the long term.
Inability to satisfy training requirements.		Lack of CPD – potential knowledge fade due to lack of refresher and advanced training. Lack of staff to deliver training.
Deferment / suspension of leave entitlement.		All statutory leave is taken - covered by overtime if necessary. Accumulated leave creates station and roster management issues and has a potential impact on morale.
Transfer of management staff to watchkeeping duties.		Consequential impact on other areas of IRCG operations.
Potential “mission failure” due to lack of adequate numbers.		Loss of staff in the next year through retirement. 9 – 12 month lead-in time for new w/k staff to become fully trained.
Temporary secondment of watchkeepers from outside IRCG - e.g., ‘on loan’ from UK MCA.	Medium	Reputational risk to organisation.

It is considered that these risks can be mitigated as follows:

1. Fill vacant watchkeeping posts to “pre-Croke Park” ‘establishment’ level - i.e., recruit / appoint to FTE 46.
 - a. This is perceived as being unlikely to receive approval.
 - b. However, failure to recruit creates and perpetuates unacceptable risks to the organisation within this model.

2. Adoption of alternative operating models for watchkeeping practices
 - a. This will allow for reduction in the watchkeeping establishment figures, better operational effectiveness, and for potential redeployment of staff elsewhere within IRCG.
 - b. However these alternatives also require recruitment to staff to adequate levels, AND this must be seen in the context of forthcoming retirements etc.

4.3 Alternative model 2 - 2 Centre “mirror” model (as proposed in the VFM Review)

Additional requirements at mirror MOC: If the mirror MOC were activated in full as a result of the loss of NMOC Dublin, there would need to be additional provision of administrative and technical support office space for the duration of the rebuilding works at Dublin, regardless of the chosen location. This could be through the use of temporary facilities (Portakabin type). Costs have not been suggested for these additional requirements as they should be available at short notice if and when required.

There would also be the inevitable additional travel and accommodation costs for displaced HQ staff, who would be required to relocate for this period.

The following key risks have been identified for Alternative 2.

Risk item	Risk factor	Consequences / Observations
Catastrophic loss of one Centre		
System resilience may be unwittingly compromised by reliance on a single, second Centre.	High	Catastrophic loss of one Centre may lead to a potential further single point of failure in the ability of IRCG to deliver its SAR obligations, which is seen as unacceptable to the organisation.
Time to reactivate the ‘other’ Centre - assuming that the third hardware location is maintained but not operationally manned.	High	It is considered that the time taken to deploy personnel to the ‘other’ Centre would be unacceptably prolonged.
Possible loss of telecoms network.	High	Although the current investment programme is designed to provide resilient communications in this event, there may be some consequential loss of hardware.

Risk item	Risk factor	Consequences / Observations
Adoption of 2 Centre mirror model		
Staff transfer [HR / IR] issues.	Medium	Relocation costs; delays in acceptance; temp accommodation; HR / IR issues; potential loss of staff, experience and expertise, poor public and maritime industry reaction to compulsory re-location of families and Officers.
Operational capacity - may lead to increased workload / additional knowledge requirements.	High	Delays in incident response; inability to respond appropriately; reduced supervisory oversight (2 DCs / SMCs vs. 3 with current model).
Diminished regional presence and co-operation / interoperability with other agencies.	Low	

Risk item	Risk factor	Consequences / Observations
Need to invest in additional desks at second Centre. (Note: current programme does not allow for more than 3 desks at each Centre).	High	Could be achieved by re-assignment of hardware from one station to the other - €50k + €30k for remodelling. Building costs to accommodate additional staff and eqpt. However, this reassignment would remove 'back up' Centre capability.
Security / maintenance of "non-watchkeeping Centre".	Low	There would be a need to maintain a physical presence at the "non-watchkeeping Centre" to ensure adequate and comprehensive security for the telecoms infrastructure, as well as an ongoing need for maintenance attendance to ensure that all equipment is readily available at all times.

The infrastructure improvements have been designed for no loss of service and to provide effective redundancy in the loss of one Centre (assuming that there are three 'hardware centres').

It is considered that the additional risks can be mitigated as follows:

1. Investment in additional structural fire protection and improved 'hardening' of all buildings, including the provision of stand-by generators:
 - a. This has high cost implications.

2. Use of non-SAR Ops staff in inter-Agency and interoperability work:
 - a. Although this is desirable, there are currently insufficient non-SAR Ops staff available to do this.

Note that even though there is a reduction in the number of staff required, there would be a need to recruit to cover the full compliment of 41 staff.

4.4 Alternative model 3 - the "4/2/2" model

The so-called "4/2/2" model retains all three existing Centres for their hardware, infrastructure and watchkeeping capabilities, recognising the advantages provided by the recent and ongoing programme of investment in co-ordinated communications infrastructure and improved management information systems. It also recognises IRCG's expressed intention to maintain 8 working desks at all times.

This model would also allow for IRCG to develop and adopt a more integrated, nationwide command and control structure, through changes to the current management practices.

In order to maintain full service cover at each of the Centres, the following watchkeeping arrangements are proposed in principle:

- NMOC Dublin:
 - 0800 - 1600: 4 Watch officers
 - 1600 - 2200: 4 Watch officers
 - 2200 - 0800: 4 Watch officers*

* Fisher Associates note that the current overnight watchkeeping arrangements at NMOC Dublin utilise 3 watch officers - this is not discounted, nor is it proposed that this should change to 4 watch officers without further consideration. If the overnight watch at NMOC is reduced to 3 men at all times, there would be a further saving in the number of staff required to deliver the service from 22 (as given in the table on page 11) to 20.5. Fisher Associates caution against greater reduction in the availability of the number of trained watchkeepers.

- MRSC Valentia and Malin:
 - 0900 - 2100:⁶ 2 Watch officers
 - 2100 - 0900: 2 Watch officers

At any one time, one of the Watch officers at each Centre may be nominated as the Duty SMC.

In comparison with Alternative 2, the optimum of 8 desks can therefore be maintained at all times with:

- An additional desk at MRCC Dublin, creating a bigger critical mass of watchkeepers for major incidents, with the ability to also cover VTMISS obligations without an additional 9th desk.
- Reducing from 3 to 2 watchkeepers during the day for the MRSCs.

There are a number of risks associated with this model.

Risk item	Risk factor	Consequences / Observations
Unavailability of one staff member where only 2 w/k assigned at MRSCs		
Loss of that station.	High	This is a current risk with watchkeeping at Valentia and Malin where night watches are only 2 men. ^a
Reduction in capability to deal with multiple incidents.		This may become acute during Bank holiday weekends and other potential 'high work load' periods. ^b
Reduction in supervisory capacity at MRSCs to fulfil SMC duties.		SMC would be more challenged to maintain independent oversight of an incident / co-ordination of response. ^c
Restricted pool of staff.	Low	In the event of long-term sickness, there may be a need to redeploy staff from another station with consequential expenditure.

⁶ Assumes that 12 hour watches are maintained for the purposes of the assessment.

- a. Although extensive discussions have centred on this particular risk, Fisher Associates have not been made aware of any events in the recent past where this has had an adverse or significant impact on the delivery of service. In general terms, off duty staff have made themselves available within a reasonable period of time to allow 'BAU'. It is recognised, of course, that this relies on continuing goodwill.
- b. As already indicated, there are opportunities for IRCG management to review the manning requirements from day-to-day and adjust accordingly, either through limited overtime or through flexible rostering.
- c. If a national SMC role is adopted, this risk is reduced.

Risk item	Risk factor	Consequences / Observations
2 man watch does not facilitate additional VTMISS duties		
Function not discharged.	Low	VTMISS to be handled on a national basis from Dublin.
Compliance with employment and H&S legislation		
Lone working regulations ? Working time directive ? HSAW ?	Medium	Increased dependency on auditable quality systems and risk mitigation protocols This is a current risk with watchkeeping at Valentia and Malin where night watches are only 2 men. ^d
Restricted pool of staff.	Low	Staff morale / potential for loss of flexibility amongst current staff to work rest days / overtime.

- d. It is understood that the proposals for improved MIS includes installation of station-to-station real-time CCTV and desk-to-desk video conferencing capabilities.

In addition, it is considered that these risks can be further mitigated as follows:

1. Establish and exercise appropriate protocols for handover of communications, routine work etc. to other stations for BAU, including elements of coordination role:
 - a. This will require careful management and training - it is, in effect, a need to introduce a culture change in that the staff at both MRSCs will have to accept and adopt the idea that they can "call for help".
 - b. Currently, the practice is to "hold on" to an incident and to manage all other routine duties at the same station.
2. Regular exercising of handover and control of other Centres' operational areas to improve all watch officers' national knowledge and develop experience over a greater variety of activities and incidents:
 - a. While local knowledge is seen to be a significant factor in arguing for the retention of the 'status quo', some of that knowledge can be transferred through co-operation and exercise between the various Centres.

- b. It should also be possible to develop a database of local knowledge and terminology that can be shared across the organisation. [It has been suggested that other EU CG organisations have adopted similar protocols but it is not known if this is the case, nor how effective they may or may not have been.]
 - c. This model will support watch officer exchange between Centres, and SAR Unit visits to improve experience and knowledge.
3. Centralisation and automation of some services (such as weather forecasts, NAVTEX, etc) to decrease routine activity workload:
 - a. There is currently a need for broadcasts to be done at the respective geographic centres for the existing aerial arrays, however, it is our understanding that the completion of the telecoms infrastructure upgrades will reduce this requirement.
 - b. If this proposal is adopted, there would be greater integration of watchkeeping staff across the Centres in the event of an SAR incident. The MRSC would retain 'Mission Control' and the responsibility for TRs and MSIs broadcasts can be passed over to one of the Centres. Similarly, the 'physical' call outs necessary for the deployment of additional SRUs can be delegated.
 - c. As noted at 1.a. above, there will be a need to introduce a culture change in that the staff at both MRSCs will have to accept and adopt the idea that they can "call for help".
4. Centralise VTMISS with 4 man watch in NMOC to allow this duty to be carried out.
 - a. This would allow for better management of the function as it is then co-located with pollution and ship casualty duties and HQ, allowing easier access to additional resources should they be needed in the event of an incident that requires assistance or intervention.
5. Adoption of integrated IT systems for continuous logging systems available to all watchkeepers, always-on video conferencing between SMC's, integrated maritime picture, improved decision support tools, etc.:
 - a. This is seen as an essential 'add on' to ensure that the 4/2/2 model can be achieved.
 - b. The process has been started through central IT and was discussed in the VFM Review with regard to the adoption of better, more integrated MIS.
 - c. It is understood that this could be completed by the end of 2013 / early 2014.
6. It may be possible to establish appropriate protocols for lone working that satisfy the legislative requirements:
 - a. These should be established in any case.
 - b. However, it would not be possible or practicable to maintain full SAR capability with only one watchkeeper at any station under current technical and technological arrangements.
 - c. The completion of the infrastructure developments will allow for the lone worker to be a full part of any incident management team and to be effectively supported by his colleagues from one or other of the Centres until such time as additional watchkeepers arrive at that station.

7. Use of limited overtime and leave adjustments to deliver 3 man watches at MRSCs during the day on bank holiday weekends and other times of expected high activity:
 - a. This is currently perceived as being difficult to implement as it may increase costs.
 - b. Increased NMOC manning allows a limited risk based manning to surge availability during high-risk periods such as weekends, but this does not necessarily assist at the MRSCs, although the delegation of duties, as suggested above, may be more readily achieved.

8. Increase w/k allowances and/or salaries:
 - a. This is currently perceived as being difficult to implement as it will increase costs.

9. There has been some consideration of training / regarding CG Volunteers to the role of "Watch Assistant":
 - a. This has IR implications: watchkeepers are justifiably proud of their training and qualifications and may view the appointment of "watch assistants" as 'dumbing down' their significance.
 - b. There are currently no defined qualifications or operational criteria established for this role: this will take some time to define, refine and implement.
 - c. This is not considered to be central to the current considerations.

Note that even though there is a reduction in the number of staff required, if this model is adopted, there would still be a need to recruit to cover the vacancies indicated above to the full complement of 44 staff.

4.5 Alternative model 4 - the "helicopter" model

The so-called "helicopter" model retains all three existing Centres for their hardware, infrastructure and watchkeeping capabilities. However, there is a change to the watchkeeping routines and to the management responsibilities at the MRSCs.

In order to maintain full service cover at each of the Centres, the following watchkeeping arrangements are proposed:

- NMOC Dublin:

0900 - 2100:	4 Watch officers
2100 - 0900:	6 Watch officers

- MRSC Valentia and Malin:

0900 - 1300:	2 Watch officers
1300 - 2100:	2 Watch officers
2100 - 0900:	0 Watch officers but on 45 minute 'stand by' / call in time

These are the same hours that are worked by IRCG SAR helicopter crews: they have a "day work" routine which is supplemented by on-call arrangements that require the unit to be airborne within 45 minutes.

Although 8 desks are maintained between 0900 and 2100, there is reduced full-time cover overnight.

The majority of non-helicopter related incidents occur between 0830 and 2030. If this alternative is adopted, the watchkeeping hours could be adjusted accordingly to reflect this.

As noted above, there was some debate amongst IRCG management regarding the exact numbers for the “helicopter model”.

There are a number of risks associated with this model.

Risk item	Risk factor	Consequences / Observations
Unacceptable delay in response times between call out and manning of MRSC		
Difficulty of assuring the 45 minutes stand up.	Very High	Given that many of the watchkeepers at both Valentia and Malin live a considerable distance from the MRSC, this is considered to be a very high risk.
Call-out of ‘rest period’ staff		
Results in an inability to maintain watchkeeping roster on following day[s]	Very High	Resilience failure - insufficient staff at MRSCs.
Need to increase night time security		
Security for the telecoms infrastructure requires a full time presence.	Low	There would be a need to maintain a physical presence from 2100 - 0900 to ensure adequate and comprehensive security.
Handover / system failures at MRSCs / NMOC		
Misunderstandings from lack of ‘local knowledge’ during the handover period.	Medium	Unacceptable delays in the transfer of overnight watchkeeping responsibilities, associated with potentially increased overtime, as well as staff dissatisfaction.
Potential loss of Dublin at start of call out or during the overnight period.	High	Resilience failure - insufficient staff at MRSCs.

It is considered that these risks can be mitigated as follows:

1. Provision of additional, improved telecoms and IT equipment for on-call staff:
 - a. It is anticipated that significant costs would be associated with this - it would represent an extension of an already agreed budget (for the improvements to the infrastructure).
2. Alternative watchkeeping practices at NMOC - increased handover periods:
 - a. This is currently perceived as being difficult to implement as it may increase costs.
 - b. This has IR implications: any extension of watchkeeping hours is likely to be resisted by current staff.

5 Key Findings

A judgement must be made that balances resource constraints (which demand economy and efficiency), with the need for effectiveness to cover BAU, but also provide strong resilience when it is needed. The nature of the marine environment means that this resilience is likely to be tested at some point in the future. If shortcomings emerge under such conditions, it will not then be satisfactory to cite lack of resources, since providing the capacity to deal with events in extremis lies at the core of providing a national SAR service.

IRCG has identified a current requirement for 8 working desks on a day-to-day basis, although it is recognised that there may be a need to provide additional desks to address increased commitments from time-to-time, or in the future due to EU or international agreements and legislation. Throughout the consultation periods, it appears to Fisher Associates that IRCG management accept that this is an appropriate number - current operations vary, at times, between 7 and 9 desks.

Therefore, with respect to finding optimum solutions for provision of IRCG's SAR responsibilities and commitments, satisfying the 8 desk requirement lies at the core of this Supplementary Review. In consideration of the alternative models discussed at Section 4, we summarise as follows:

5.1 Alternative 1 – Status Quo

Consistent with the previous VFM Review, we do not recommend that the status quo is retained. Maintaining the status quo would forego the opportunity to improve efficiency and effectiveness, although we recognise that this recommendation presents a number of operational, technical, and industrial relations challenges.

5.2 Alternative 2 – 2 Centre Mirror Model

The VFM Review, which did not consider Alternatives 3 and 4, recommended this, based on NMOC Dublin, and a "mirror" MOC at either Malin or Valentia. The VFM concluded that this option provided a balance between the most effective use of resources overall, whilst also freeing up people for redeployment to deficient areas within IRCG. Two issues were subsequently identified with this proposal:

- The industrial relations, social impact, and political challenges raised by this option, and noted in the VFM Review, have proven difficult to address.
- In extremis, and in the event of a catastrophic loss of a Centre, this would leave Ireland with only one operational Centre – in effect an undesirable single point of failure.

5.3 Alternative 4 – Helicopter Model

Although it was worth considering whether this model could be applied to the Centres, this is discounted. It results in several practical operational difficulties, which appear to outweigh any benefits that may be attained, and it does not increase economy or efficiency.

5.4 Alternative 3 – the "4/2/2" Model

Fisher Associates consider that this represents an acceptable alternative. This model would lead to greater efficiency (reduced staff) and improved effectiveness (constant 8 desks and critical mass of watchkeepers in NMOC Dublin), and the costs associated with implementation are relatively small. In comparison to Alternative 2, both MRSCs are retained, and the social impact and political challenges of the VFM Review proposal for Alternative 2 are minimised.

It must be stressed that this model is not intended to “set in stone” the watchkeeping arrangements at any one Centre, but it is intended to demonstrate that, by retention of 3 technically integrated operating Centres, there is the capability for the organisation as a whole to maintain 8 desks at all times.

If this model is adopted, there are opportunities for improved and more effective watchkeeping arrangements. Fisher Associates accept that it is not possible for IRCG to provide definitive details for such arrangements, but it is incumbent on management at all levels to become more pro-active in optimising day-to-day operations. This can be more readily achieved with improved communications and MIS.

5.5 Is IRCG a ‘national’ organisation or a ‘regional’ organisation?

It is clear from all of the discussions that have taken place throughout both the VFM and the Supplementary Reviews, that there is a perception within IRCG that it is a regional organisation and not an integrated national one. This perception acts as a barrier to improved effectiveness and efficiency. This is not restricted to improvements in SAR / watchkeeping arrangements, but across the board in the delivery of all of the organisation’s commitments.

Improvements in efficiency, effectiveness and economy can be achieved if the organisation operates as a single unit. This is a realistic and desirable outcome, and on completion of the infrastructure / ICT improvements, it can be achieved, partly through more hands-on involvement by IRCG management in the day-to-day watchkeeping arrangements, and partly through proactive adoption of cultural change across the organisation.

6 Conclusions

6.1 Improvements in Communications Technology and Management Information Systems

Whilst recognising that the provision and delivery of SAR commitments account for the greater part of IRCG's day-to-day operations, they cannot be considered in isolation from the other issues identified in our earlier VFM Review. Fisher Associates wish to stress that the Key Findings given above must be considered in conjunction with the Key Findings and Recommendations in this.

As highlighted in the VFM Review, there is a continuing need for further investment in ICT to ensure that IRCG is able to function with integrated, comprehensive Management Information Systems. These will allow the organisation to function as a single unit, regardless of the location of the personnel on duty at any one time. It is understood that agreement has been reached to 'fast track' this programme in the coming months.

6.2 Recruitment and retention of staff

Approximately 10 retirements among the watchkeeping staff are anticipated within the next 2 to 3 years. It is possible that as many as 6 of these retirements could take place before the end of April 2013.

Training time to be ready for operational service is approximately 9 - 12 months. There is therefore a pressing and urgent need to recruit watchkeeping staff almost immediately.

This also applies to some other sections of IRCG. For example, Engineering requires its full complement of staff to ensure that the national SAR infrastructure can be maintained in a fully operational state at all times, especially in light of the recent programme of telecoms systems upgrade.

6.3 Integration of technology and operations

Assuming that the infrastructure / ICT improvements programme is completed and that recruitment to the full FTE is achieved, IRCG management have indicated that this would provide them with greater opportunities for more flexible working, including flexible rostering arrangements. With access to accurate historical empirical data, management will be better able to predict the likely staffing needs and that would, in turn, allow them to deliver greater efficiencies across the organisation.

In particular, this would allow for temporary non-availability of one watchkeeping station, or reductions in staffing, for example in order to address training needs at the station or to address community liaison duties.

It will also allow for the release of watchkeeping staff to attend their compulsory training courses.

6.4 Standardisation of procedures etc.

Standardised procedures, documentation etc. must be adopted and managed on an integrated, nationwide basis. In this way, the cultural elements associated with change can be minimised, as all parties will be doing the same thing in the same way at the same time.

6.5 Continuing review

The VFM Review and this Supplementary Review should be seen as part of a process of continuous review. Although that process to date has been undertaken on an independent, external basis, IRCG management must adopt the same principles and ensure that this process of continuous review is sustained internally.

6.6 Alternative 3 – the “4/2/2” Model

Through the integration of technology and operations, IRCG management will be given the tools to deliver a safe and robust integrated national service that is fit for the 21st century, with the ability to improve effectiveness, efficiency and economy via Alternative 3. There will, of course, be the need for careful planning on how best to implement this. However, Fisher Associates are of the opinion that this can be implemented provided that it is:

- a. Tested BEFORE full implementation
- b. Practised regularly