

**Marine Stewardship Council (MSC)
Public Certification Report**

The Basse-Normandie Granville Bay Whelk Fishery

**On behalf of the Comité Régional des Pêches Maritimes
et des Elevages Marins de Basse-Normandie**

Prepared by ME Certification Ltd

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Glossary

Term / acronym	Definition
AAMP	Agence des Aires Marines Protégées
BN	Basse-Normandie
BTS	Beam Trawl Surveys
CPUE	Catch per unit effort
CRPMEM	Comité Régional des Pêches Maritimes et des Elevages Marins
CRPM-BN	Comité Régional des Pêches Maritimes et des Elevages Marins de Basse-Normandie
DDTM	Direction départementale des territoires et de la mer
DIRM	Direction Interrégionale de la Mer
DML	Délégation à la mer et au littoral
EC	European Community
ETP	Endangered Threatened or Protected species
EUNIS	European Nature Information System
IBTS	International bottom trawl surveys
ICES	International Council for the Exploration of the Sea
JAC	Granville Bay Joint Advisory Council
JMC	Granville Bay Joint Management Council
MLS	Minimum landing size
MMO	Marine Management Organisation (England)
MSDF	Marine Strategy Framework Directive
NFM	Normandie Fraicheur Mer
PACOMM	Programme d'Acquisition de Connaissances sur les Oiseaux et les Mammifères Marins
PI	Performance Indicator
PSA	Productivity Susceptibility Analysis
RBF	Risk-Based Framework
SAC	Special Area of Conservation (under EC Habitats Directive)
SICA	Scale Intensity Consequence Analysis
SMEL	Synergie Mer et Littoral
SPA	Special Protection Area (under EC Birds Directive)
SSB	Spawning Stock Biomass
ULAM	Unité Littorale des Affaires Maritimes
WGEF	ICES Working Group on Elasmobranch Fishes

1. Executive Summary

1.1. English version

This report is the Public Certification Report for the Basse-Normandie Granville Bay Whelk Fishery. The assessment team consisted of Dr Jo Gascoigne (Team Leader, Principle 1), Chrissie Sieben (Principle 2), and Dr Sophie des Clers (Principle 3). The site visit for the assessment took place in Granville, France on the 8th and 9th July, 2014. The PCDR was initially published in May 2015, but following critical input from stakeholders and MSC, it was decided to review the approach and reconsider the outcome of the assessment in relation to Principle 1. New information on Principle 1 was received from the client in July 2016 and incorporated into the Principle 1 analysis. New scoring for Principle 1 took place on October 27, 2016 (team meeting by skype) and a new PCDR was prepared on this basis, which is now available for further stakeholder comment. **In relation to Principle 1, the definition of the 'stock' has varied over the course of this assessment; for the new analysis, the 'stock' is defined as the Granville Bay area** – this question is discussed in detail below.

The client for this assessment is the Comité Régional des Pêches Maritimes et des Elevages Marins de Basse-Normandie (CRPM-BN), with project management by Normandie Fraicheur Mer (NFM). The UoC for this fishery is defined as whelk fishermen from West Cotentin, Basse-Normandie, i.e. those with a current whelk permit issued by the CRPM-BN, targeting whelks with whelk pots ('casiers bulot') in Granville Bay. The Granville Bay area is shared between Normandy, Brittany and Jersey, with a system of co-management in place for shared areas based on the Granville Bay Treaty. No other eligible fishers have been identified.

The fishery under assessment is only open to vessels <12m length; the fishery is therefore based around day trips only. The smallest vessels in the fishery are 7-8m; many of these are based in small ports along the Cotentin west coast, while larger vessels of 10m or more tend to be based in Pirou, Carteret or the main port of Granville. 71 licenses were issued in 2015, with the majority of licensed vessels fishing for whelks as their main activity. In Basse-Normandie, whelks are caught in coastal waters at depths shallower than 30-40m between Diélette and Granville as far as around Jersey, preferably on sandy grounds. All vessels involved in the fishery under assessment complete 'fiches de pêche' which ensures that catches can be traced back to the fishing area.

The whelk fishery takes place entirely inside 12 nautical miles. Its management system is defined by the French fisheries management arrangements although local management measures are also coordinated with the Jersey management system through the Bay of Granville Treaty arrangement. The Basse-Normandie whelk fishery is managed by the CRPM-BN on the basis of the regional Prefecture regulations and in cooperation with other government agencies. The CRPM-BN represents elected members from the various categories of professional fishers in the local area. The CRPM-BN delivers annual fishing permits that take account of historical involvement and are not transferable. The current conditions for the whelk fishery are defined in bylaws which includes closed areas, seasons, minimum legal size and other technical measures, in response to local proposals.

For Principle 1, the Risk-Based Framework (RBF) approach was initially applied, because the stock status could not be evaluated in relation to reference points. The new information

received in July 2016 means that the RBF is no longer applicable, however, and hence in this report Principle 1 is scored using the default tree. No work has been done on the population structure of whelks in or around Granville Bay (or indeed anywhere else); the 'stock' is therefore defined for management purposes in a pragmatic way based on appropriate political units, while ensuring some cooperation with neighbouring jurisdictions – as is often done in the case of shellfish fisheries. Monitoring of stock status is based on following trends in nominal CPUE and catch size structure, with data from the area of the fishery suggesting that the stock biomass has been increasing in recent years. The current overall harvest strategy in Basse-Normandie is to continue with gradual reduction of effort in the fishery, by reduction of the total number of whelk permits (as well as continuation of the other measures for regulation of effort), which has cut landings in half compared to the peak in 2001. The strategy is to continue to monitor the fishery both biologically and economically and to reach a point at which stakeholders agree that an appropriate balance between biological sustainability and economic return has been found. Reference points are defined as a 'seuil d'alerte' (trigger reference point) and a 'seuil d'alarme' (limit reference point).

For Principle 2, the information on retained species was obtained from the fiches de pêche and from stakeholders during the site visit. No species other than whelks tend to be retained. Bait use in this fishery can, however, be significant and the lesser-spotted dogfish ('roussette', *Scyliorhinus canicula*) was evaluated as a 'main' retained species on this basis. The information on discards was obtained from stakeholders during the SICA workshop, as part of the RBF approach which has continued to be used for this component of Principle 2. Stakeholders identified the netted dogwhelk ('nasse', *Nassarius reticulatus*) as being by far the most dominant bycatch species and this species was retained for further SICA analysis. Key ETP species and habitats of concern to the assessment were those designated under the EC Habitats Directive. Impacts on those species, however, were not thought to be significant.

In terms of scoring, the three Principles scored an average score of 83.1 (Principle 1), 88.3 (Principle 2) and 85.1 (Principle 3). No PI scored less than 60 and 5 PIs scored less than 80. For these PIs conditions were raised as summarised below.

Condition number	Condition	Performance Indicator
1	By the end of Year 4 there should be a review of the data being used to monitor the fishery and stock status, with an appropriate statistical analysis carried out to try as far as possible to reduce uncertainties associated with external variability or spatial variability in stock structure and dynamics and fishing pressure. The analysis may be used to inform future data gathering, such that data is gathered following a suitable statistical methodology where possible.	1.1.2
2	By the end of Year 3, there need to be explicit management objectives for both Principle 1 (stock) and Principle 2 (ecosystem). They do not have to be expressed in terms of stock biomass, but should be consistent with keeping the stock at a level of high productivity. The objectives could be at the level of the Basse-Normandie fishery or at the Granville Bay level.	1.2.3
3	By the end of Year 2, a formal research plan as a framework for guiding research should be prepared and adopted	1.2.4

4	By the end of Year 4 there should be a review of the data being used to monitor the fishery and stock status, with an appropriate statistical analysis carried out to try as far as possible to reduce uncertainties associated with external variability or spatial variability in stock structure and dynamics and fishing pressure. The analysis may be used to inform future data gathering, such that data is gathered following a suitable statistical methodology where possible.	3.2.1
5	By the end of Year 3, the stock assessment approach should be peer-reviewed.	3.2.4

One recommendation was also put forward by the team: the team recommends that any lost whelk pots are reported on so that this can be monitored by the CRPM-BN/SMEL and any increase in risk to habitat structure and function can be determined.

1.2. Version française

Ce rapport est le Rapport Public de Certification pour la pêcherie de bulot de Basse Normandie dans la Baie de Granville. L'équipe d'évaluation consistait de Jo Gascoigne (Principe 1), Chrissie Sieben (Principe 2) et Sophie des Clers (Principe 3). La visite sur le terrain a eu lieu le 8 et 9 juillet 2014, à Granville. Le PCDR était initialement publié en mai 2015. Cependant, suite à des critiques reçues de la part des parties prenantes et du MSC à propos de l'approche utilisée, l'approche ainsi que les résultats de l'évaluation du Principe 1 ont été révisés. Cette analyse incorpore également une nouvelle suite de données et d'informations soumises par le client. Une réunion de ré-notation du Principe 1 a eu lieu le 27 octobre 2016 (par Skype) ; un nouveau PCDR a ensuite été produit – celui-ci est maintenant disponible pour consultation publique. **Il est à noter que, pour le Principe 1, la définition du 'stock' de bulot a changé au cours de l'évaluation ; pour cette dernière analyse, le 'stock' a été défini au niveau de la Baie de Granville** – cette question est considérée de façon détaillée ci-dessous.

Le client pour cette évaluation est le Comité Régional des Pêches Maritimes et des Elevages Marins de Basse-Normandie (CRPM-BN), avec le soutien de Normandie Fraicheur Mer (NMF) pour la gestion du projet. Les pêcheurs de bulot de l'Ouest-Cotentin, Basse Normandie (c.à.d. titulaires de la licence bulot Manche Ouest du CRPM-BN, qui ciblent les bulots uniquement à l'aide de casiers bulot dans la Baie de Granville, font partie de 'l'UoC' (l'unité de certification). La zone Baie de Granville est partagée entre Basse-Normandie, Bretagne et Jersey, avec un système de gestion régional et pour les zones partagées encadré par le Traité de la Baie de Granville, un système coopératif. Notez que cette évaluation n'inclut pas d'autres pêcheurs éligibles.

La pêcherie est ouverte aux navires de moins de 12m de longueur; les marées sont donc généralement d'un seul jour voire moins. Les navires les plus petits sont de 7-8m; pour la plupart ceux-ci sont basés dans les petits ports au long de la côte ouest de Cotentin, avec les bateaux plus grand (10m ou plus) basés généralement à Pirou, Carteret ou Granville (le port le plus grand de la région). En 2015 il y avait 71 licences, dont pour la plupart la pêche aux bulots est l'activité primaire. Les bulots sont ciblés généralement dans les eaux côtières aux profondeurs de 30-40m ou moins, de préférence sur les fonds sableux – la zone de pêche la plus importante est entre Diélette et Granville, jusqu'à la côte est de Jersey (en dehors des eaux territoriales de Jersey).

La pêche a lieu dans la zone de 12 milles. Le système de gestion est encadré par le système français de gestion des pêcheries côtières, bien que les mesures de gestion dans la Baie de Granville puissent être en plus alignées avec Jersey, via les structures mises en place par le Traité de la Baie de Granville. La gestion de la pêche de bulots de Basse-Normandie est effectuée par le CRPM-BN sur la base d'une réglementation de la Préfecture de région et en collaboration avec les services de l'état. Le CRPM-BN fournit une plateforme de représentation par les élus de plusieurs catégories de pêcheurs professionnels de la région. Au-delà des licences, la gestion comprend les règles sur les zones et les périodes fermées, une taille de capture minimum et d'autres

Pour le Principe 1, l'évaluation était initialement basée sur le 'risk-based framework' (RBF; cadre analyse de risque), parce qu'il était impossible d'évaluer l'état du stock par rapport aux points de référence. Cependant, de nouvelles informations soumises par le client en juillet 2016, ont permis l'utilisation de la méthode d'évaluation normale (c.à.d. le default assessment tree), et le RBF ne s'applique donc plus à ce principe. Aucun travail scientifique n'ayant été fait, ni sur la structure de la population des bulots dans la Baie de Granville, ni ailleurs, la définition du stock du point de vue de la gestion était donc pragmatique, c.à.d. elle était basée sur les unités politiques tout en assurant la coopération avec les juridictions voisines. (Ceci est souvent le cas pour les pêcheries d'espèces invertébrées). Un suivi de l'état du stock se fait par les tendances de CPUE et la structure de taille dans les captures. Les données de la zone de pêche indiquent une amélioration récente dans la biomasse du stock. Cependant, la stratégie de gestion pour la Basse-Normandie est de continuer avec une réduction graduelle dans l'effort de pêche par la réduction du nombre de licences (bien qu'il existe d'autres mesures pour la réglementation du niveau d'effort); cette stratégie a abouti à une réduction significative des débarquements par rapport au maximum en 2001. Le CRPM-BN, suit la pêche en continu d'un point de vue biologique et économique, pour atteindre un équilibre entre la durabilité biologique et économique. Les points de référence sont définis: un seuil d'alerte ('trigger reference point') et un seuil d'alarme ('limit reference point').

Pour le Principe 2, l'information sur les espèces retenues vient des fiches de pêche, ainsi que des parties prenantes interviewées lors de la visite sur le terrain. Mis à part les bulots, aucune espèce n'est retenue, bien qu'une quantité considérable d'appâts soit utilisée par la pêche : la roussette (*Scyliorhinus canicula*) a ainsi été évaluée comme espèce retenue principale. L'information sur les rejets vient des parties prenantes présentes lors du 'SICA' (une partie de l'approche 'RBF' qui a été utilisé pour cette composante du Principe 2). La nasse (*Nassarius reticulatus*) a été identifiée comme espèce rejetée principale. Les espèces 'DMP' (en danger/menacées ou protégées) et les habitats concernés par l'évaluation sont ceux qui ont été désignés par les Directives Oiseaux et Habitats de l'Union Européenne. Les impacts de la pêche sont, néanmoins, très limités.

Les trois Principes ont des scores moyens agrégés comme suite: 83.1 (P1), 88.3 (P2) et 85.1 (P3). Aucun indicateur de performance (IP) n'a reçu un score de moins de 60; cinq IPs ont reçu un score de moins de 80. Pour ces IPs, des conditions de certification ont été posées comme suit:

No. condition	Condition	IP
1	Avant la fin de l'Année 3, le point de référence limite (seuil d'alarme) devrait être défini comme étant au-dessus du seuil d'impact sur la capacité reproductive du stock.	1.1.2
2	Avant la fin de l'Année 4, il devrait y avoir un examen des données utilisées pour surveiller l'état de la pêche et des stocks, par une analyse statistique appropriée réalisée pour essayer autant que possible de réduire les incertitudes liées à la variabilité externe dans la structure et les dynamiques du stock et la mortalité par pêche. L'analyse peut être utilisée pour informer la collecte des données, afin que les données soient recueillies d'une façon statistique appropriée.	1.2.3
3	Avant la fin de l'Année 3, il faut une revue par un expert externe de l'approche pour l'évaluation du stock	1.2.4
4	Avant la fin de l'Année 3, il doit y avoir des objectifs explicites de gestion à la fois pour le Principe 1 (stock) et Principe 2 (écosystème). Ils ne doivent pas être exprimés en termes de biomasse du stock, mais devraient être compatibles avec le maintien du stock à un niveau de productivité élevée. Les objectifs pourraient être établis au niveau de la pêche Basse-Normandie ou au niveau de la baie de Granville.	3.2.1
5	Avant la fin de l'Année 2, un plan formel de recherche comme un cadre pour guider la recherche doit être préparé et adopté	3.2.4

Une recommandation a aussi été faite: l'équipe d'évaluation recommande que les casiers perdus soient notés systématiquement afin que les tendances puissent être suivies par le CRPM-BN / SMEL et afin que toute augmentation du risque pour la structure et le fonctionnement des habitats puisse être déterminée.

2. Authorship and Peer Reviewers

The authors of this report (MEC assessment team) are:

Dr Jo Gascoigne (Team Leader): Dr Gascoigne is a shellfisheries expert and former research lecturer in marine biology at Bangor University, Wales. She is a fully qualified MSC Team Leader with particular expertise in the assessment of Principle 1 (target species stock status and management). She has been involved as expert and lead auditor in all of MEP/MEC's previous MSC assessments and numerous pre-assessments. For this assessment, Dr. Gascoigne was the team leader and responsible for Principle 1.

Chrissie Sieben: Chrissie Sieben has a Master's Degree in Marine Environmental Protection which she obtained at the University of Wales, Bangor. She is MSC fisheries manager at MEC and specialises in marine and fisheries ecology, marine environmental impact assessment and sustainable fisheries. As a fully qualified MSC assessment team member she is involved in MSC pre and full assessments and fishery surveillance audits and participates regularly in MSC CAB training sessions and workshops. During this full assessment she was in charge of Principle 2.

Dr Sophie des Clers: Dr des Clers is an independent consultant, specialising in economic and social aspects of fisheries management. She has collaborated to several MSC assessments since 2008, including UK Fisheries Ltd cod, haddock and saithe, Euronor/Compagnie des Pêches cod and haddock, Brittany sardine seine fishing and Normandy-Jersey lobster. Sophie is an expert in fisheries public policy, management systems and legislation at international, regional and national levels, with particular focus on the EU. During this full assessment she was in charge of Principle 3.

The peer reviewers for this report are:

Dr Andrew Brand: Andy Brand holds a PhD and has worked for the University of Liverpool for 40 years on the academic staff of the Port Erin Marine Laboratory, Isle of Man, retiring in 2006 as Director of the Laboratory. During this time he developed large, well-funded, research programmes on the biology, ecology, aquaculture and fisheries of bivalve molluscs, especially scallops, and on the environmental impact of scallop dredging. He has had extensive fishery management and environmental assessment consultancy experience, including contracts with government departments and industry, and has been a member of ICES Working Groups on herring, scallops and ecosystem effects of fishing. In addition to work in the Irish Sea, he has advised on scallops and fisheries management in Alaska, Argentina, Australia, Bermuda, Chile, Ireland, France and the Philippines. He is now an Honorary Senior Fellow of the University of Liverpool and works as an independent shellfisheries consultant. He has recent experience as an Assessor and Independent Reviewer for Marine Stewardship Council certifications for scallop, mussel and oyster fisheries in the Irish Sea, Faeroes, Denmark and Canada.

Dr Mike Bell: Mike Bell has 24 years' experience as a research scientist, with 17 years in fisheries. He has wide experience of research into assessment, monitoring and management of sustainable fisheries, particularly shellfish, as well as the ecological consequences of

marine fisheries and renewable energy developments. Mike has worked for the past 7 years as a research associate at the International Centre for Island Technology based at the Heriot-Watt University in the Orkneys, where he has provided consultancy on fisheries and environmental effects of wave and tidal energy developments. Prior to this, he worked as a Senior Shellfish Biologist at the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), based in the UK, and then as a private fisheries research consultant, mainly relating to the sustainable exploitation of shellfish stocks. At CEFAS, he undertook research on the population and fisheries biology of shellfish, providing fishery management advice to the UK government and at an international level. He has published a series of papers including recently on the management of sustainable fisheries alongside marine renewables and on trawl composition of Norway lobster. He was the chairman of the ICES Working Group on Nephrops Stocks from 2002 to 2004. Mike has also recently been involved as an assessor in a number of Marine Stewardship Council pre- and full assessments for shellfish fisheries.

3. Description of the Fishery

3.1. Unit(s) of Certification and scope of certification sought

MEC confirms that the fishery under assessment is in conformity with Principle 3, Criterion A1 and Principle 3, Criterion B14 of the MSC Certification Requirements v1.3:

- Criterion A1: A fishery shall not be conducted under a controversial unilateral exemption to an international agreement.
- Criterion B14: Fishing operations shall not use destructive fishing practices such as fishing with poisons or explosives.

Therefore, MEC concludes that the fishery is within the scope of the MSC certification process.

The 'unit of certification' (UoC) is the definition of the fishery under assessment (stock/fleet/gear type/management jurisdiction). The first act of the assessment was to define the UoC, as described in the following table:

Species	whelk, bulot, buccin, <i>Buccinum undatum</i>
Geographical range	Granville Bay (Basse-Normandie exclusive zone in West Cotentin, plus shared Normandy/Brittany/Jersey zone as defined under the Granville Bay Treaty, plus zones A, B and C as defined under the Granville Bay Treaty for those Normandie vessels with rights to fish in those areas (see Figure 1).
Method of capture	whelk pot / casier bulot
Stock	<p>The stock structure of whelks is unclear (see detailed analysis in Section 3.3.1). Although they have lower dispersal capacity than most marine invertebrates (because they have no planktonic larval phase) there is dispersal via the movement of egg capsules, particularly in areas such as this with strong tidal currents. There is no evidence of genetic structure over a wide area (the NW European shelf) (Weetman et al., 2006). Although the definition of 'stock' in an MSC UoC is often based on genetic information (either directly or via the basis for a stock assessment), the team felt that in this case, the NW European shelf was inappropriately wide. Conversely, defining the stock as just 'Granville Bay', although administratively convenient (because this is the management unit), does not allow for the fact that the whelk population is very likely continuous over a much wider area, most of which is unfished. On this basis, the team had concluded that as a compromise the Western Channel should be used as an appropriate definition of the 'stock'.</p> <p>However, the peer reviewers noted the possible risk of local depletion in whelk fisheries, and MSC Technical Oversight noted that the analysis of fisheries over the wider Western Channel area was not of a high standard. Therefore, it was decided that it would be more precautionary, as well as consistent with the available information, to define the 'stock' boundary as the Granville Bay area. This agrees with the approach taken for the Normandy and Jersey lobster fishery MSC assessment, and was also the approach agreed at the start of this assessment (prior to the variation request approved by MSC on 5 May 2015).</p>

Management System/s	<p>French management of the Basse-Normandie whelk fishery is via the Comité Regional de Pêche de Basse-Normandie (CRPM-BN), with regulations being implemented via the regional government of Normandie (Préfecture de Région Normandie). There is also a trans-regional/national Granville Bay management system in place covering all fisheries in the area shared between Basse-Normandie, Brittany and Jersey; management measures to apply in each other's waters must be agreed in this forum. All the fishers in the UoC are from Basse-Normandie and are covered by the Basse-Normandie management system.</p>
Client group	<p>Whelk fishermen from West Cotentin, Basse-Normandie, i.e. those with a current whelk permit issued by the CRPM-BN (see Table 1).</p>
Other eligible fishers	<p>A few boats from Brittany and Jersey target whelks in the same area, and may land their catch in Basse-Normandie (Granville or Carteret). These fishers are, however, not eligible until the management systems of Jersey and Brittany are evaluated in more detail. There are no other eligible fishers at the present time.</p>

CARTE des LIMITES de la BAIE de GRANVILLE

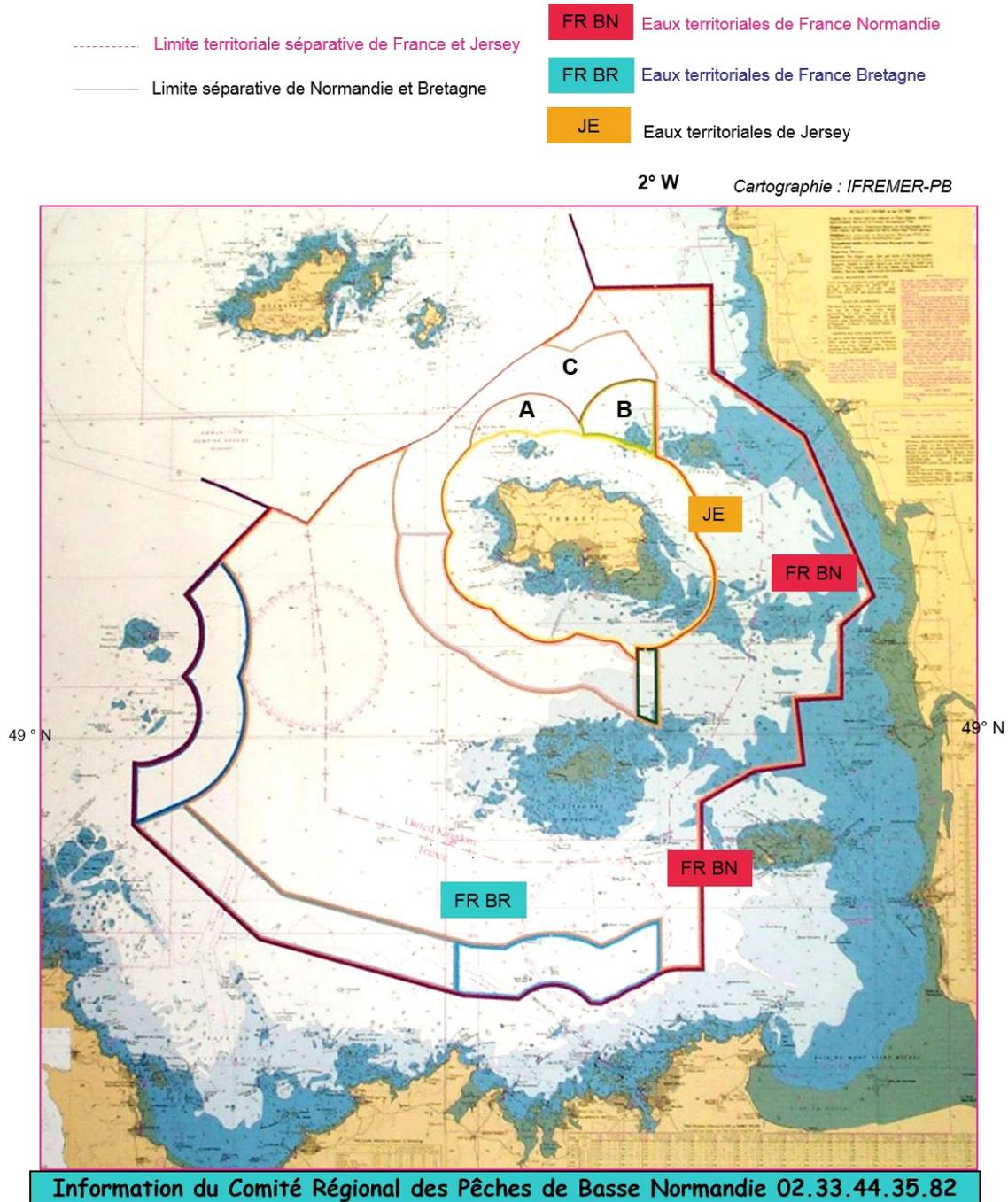


Figure 1. Map of the Granville Bay area, showing how the fishing area is delineated. The area is bounded i) to the north and northwest by a line of latitude from the Nez de Jobourg to the 40m depth contour; and ii) to the south by the administrative boundary between Normandy (FR BN) and Brittany (FR BR). The boundary between the French and Jersey zones is given in by the hatched line (on the original chart). The zone directly around Jersey is Jersey coastal waters, which are not accessible to French fishermen. Outside Jersey coastal waters, Basse-Normandie fishermen may fish in the Jersey zone (JE), under the Granville Bay Treaty (subject to agreed management requirements), as well as in Basse-Normandie coastal waters (along the Cotentin coast). Zones A, B and C are shared zones with special status under Granville Bay Treaty, accounting for vessels with historic rights.

3.1.1. Scope of Assessment in Relation to Enhanced Fisheries

The MSC defines enhanced fisheries as: Any activity aimed at supplementing or sustaining the recruitment, or improving the survival and growth of one or more aquatic organisms, or at raising the total production or the production of selected elements of the fishery beyond a level that is sustainable by natural processes. It may involve stocking, habitat modification, elimination of unwanted species, fertilisation or combinations of any of these practices (MSC Certification Requirements v1.3).

The fishery under assessment is a wild capture fishery and does not meet the above definition. This fishery is therefore not considered enhanced.

3.1.2. Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

The MSC defines Introduced Species Based Fisheries (ISBF) as: Any fishery which prosecutes a target fin or shellfish species that was intentionally or accidentally transported and released by human activity into an aquatic environment beyond its natural distribution range. This does not include species that are “introduced” into a location due to an expansion in their natural geographic range (MSC Certification Requirements v1.3).

The fishery under assessment does not meet the above definition. This fishery is therefore not considered ISBF.

3.2. Overview of the fishery

3.2.1. History of the fishery

Whelks have been fished in the Granville Bay area for centuries, traditionally on foot during large low tides (noting that this area has one of the largest tidal ranges in the world). These tides were known as ‘marées à chucherolles’ – whelk tides. (Chucherolle is a local name for a whelk, along with calicoco, ran, bavous, torion, teutr  and goglu – they are now more prosaically known as ‘buccins’ or ‘bulots’ as per standard French.)

The professional fishery for whelks started in the 1970s, when whelk pots were introduced and the vessels installed pot haulers and other equipment. A time series of landings to the auction in Granville from 1976 to 2013 is given in Figure 2, which shows that the fishery expanded from the mid-1980s: almost 7,000 tonnes of whelks were sold at the Granville Bay auction in 2001, and the total landings in that year were ~12,000 tonnes. Since then, landings have dropped back to ~6,000 tonnes, for reasons explained below. Unlike in the UK, this expansion was not strongly driven by the Far East market; the market for Normandy whelks has always been and continues to be mainly European (mainly French). In fact, no matter where you are around the French coast, if you order a ‘plateau de fruits de mer’ (seafood platter) it may well include a handful of Granville Bay whelks, which account for 75% of total French production. More recent landings data are provided in Figure 3, which suggests that the situation remains stable.

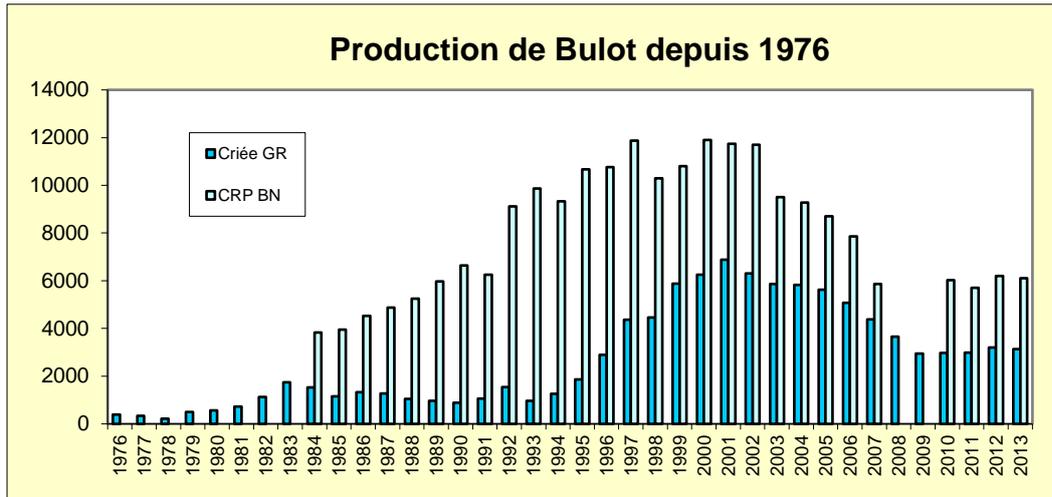


Figure 2. Time series of whelk landings, in tonnes: to the auction in Granville (dark blue ‘criée GR’) and total as estimated by the Comité Régional de Pêche using data from auction and from fiches de pêches (see below) (light blue ‘CRP BN’), 1976-2013. From CRPM-BN.

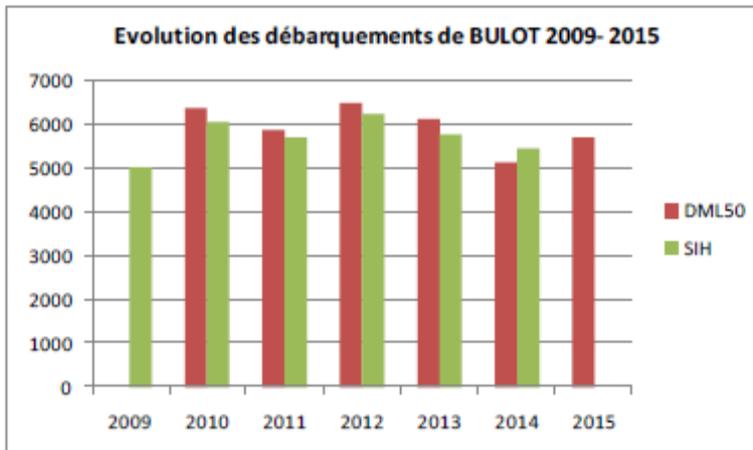


Figure 3. Most recent data available for whelk landings (tonnes): red (DML50) = déclarations de pêche from the département Manche; green (SIH) = data from Ifremer fisheries data system. From CRPM-BN.

The high rates of production in the 1990s led (it is assumed) to a decline in catch per unit effort (CPUE) and concerns about over-exploitation. Some management measures were put in place from the early 1980s, e.g. a minimum landing size (MLS) of 45mm, weekend closure of the fishery, but a liberalisation of the license regime in 1997 led to an increase in the number of licences (from 65 to 85) and increased daily quota of 400 kg/crew member, resulting in an increase in landings overall (see Figure 2). Since that point, the management of the fishery has focused on bringing effort back down to sustainable levels. A timeline of the introduction of management measures is given in Section 3.2.8.2.

3.2.2. Gear and operation of the fishery

The gear used by the fishery is whelk pots (‘casiers bulot’). The pots are basically a round, plastic mesh tub with a hole in the top and a weighted (concrete) bottom (Figure 4). Pots are fished in strings of 40 pots for the smaller boats, 60 for the larger ones. Each pot is equipped

with a bait mixture consisting of a combination of fish and crustaceans – reportedly the fish attracted the whelks while the crustacean detains them feeding in the pot until it is lifted. Bait use in this fishery is further discussed under Section 3.4.1.



Figure 4. Image of whelk pot ('casier bulot') used by the fishery under assessment. The pot is made of a plastic top, which detaches from a concrete base. Image provided by Ghislaine Hervieu, CRPM-BN

As noted previously, the fishery is only open to vessels <12m length; the fishery is therefore based around day trips only. The smallest vessels in the fishery are 7-8m; many of these vessels are based in small ports along the Cotentin west coast, and usually have two crew members (sometimes three in winter). Larger vessels of 10m or more tend to be based in Pirou, Carteret or the main port of Granville (see Figure 6 in the following section).

The majority of the licensed vessels fish for whelks as their main activity. Note that the 73 licences in 2013 were estimated by the Comité Régional des Pêches Maritimes et des Elevages Marins de Basse-Normandie (CRPM-BN) to make up about 60 full-time equivalents. Most vessels are reported to fish the maximum permitted number of pots (720), with pots being left in the water and hauled in rotation until the daily quota is met. Note that there is no means of verifying directly how many pots are in the water from a given vessel, so it is certainly possible that some vessels fish more than the permitted limit. Since whelks tend to leave the pots when the bait has been consumed, pots left for longer periods (e.g. over the weekend) fish at a declining rate (also see Section 3.4.4 on ghost fishing). Fishermen reported '*Mondays we catch more but not double*'. Some vessels bring all their pots in in the closed season (January) but others do not.

Pots are strung in lines (filières) of 40 to 60 pots, with one pot every ~15m, weighed down at each end and marked with a float and flag, as shown schematically in Figure 5.

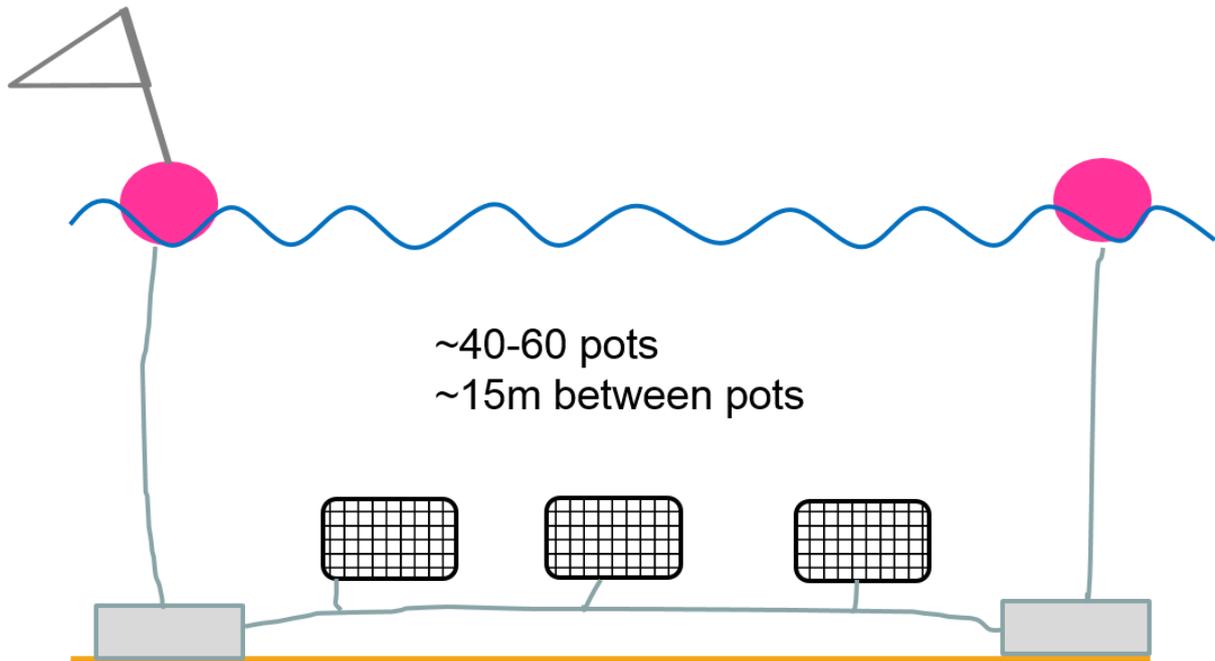


Figure 5. Diagram of how a pot string is deployed. A string would consist of 40-60 pots about 15m apart, with a weight at each end.

3.2.3. Fishing areas

In Basse-Normandie whelks are caught in coastal waters at depths shallower than 30-40m between Diélette and Granville as far as around Jersey, preferably on sandy grounds (Figure 6). The region is at the southern edge of the whelk's geographical range and catches are lower in August and September as whelks burrow to shield from higher water temperatures.

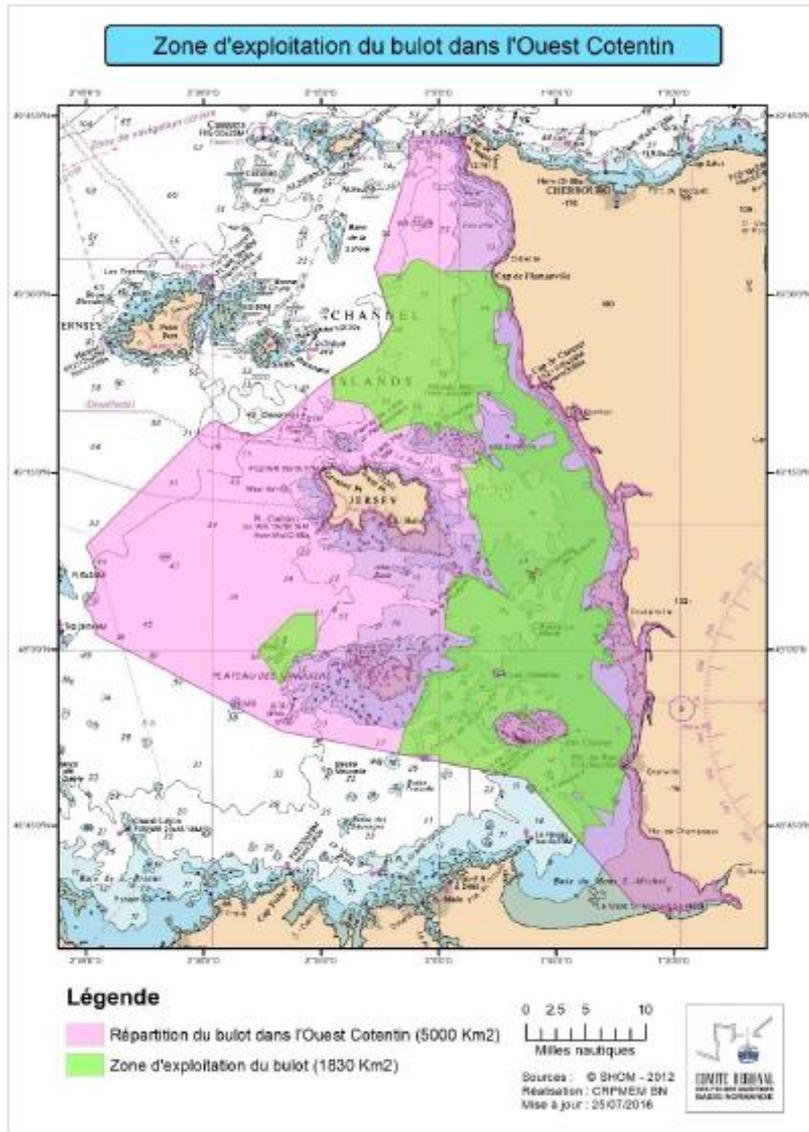


Figure 6. Map showing i) the zone where whelks are found in Granville Bay (purple) and ii) the area used by the fishery (green). From CRPM-BN.

3.2.4. Vessels

The vessels included in the UoC are those that have been issued whelk fishing licenses by the CRPM-BN, as shown in Table 1.

Table 1. Vessels with whelk fishing licenses issued by the CRPM-BN (up to date as of March 2015).

Vessel name	Home port	Registration number
AU GRES DES FLOTS	AG	827378
PASANMAL	AG	922422
LE CEOL II	AN	930262
BONNE FORMULE	BL	878711

Vessel name	Home port	Registration number
CHEZ WAM	BL	922428
CYMALISE II	BL	879303
DAUDJY	BL	922429
DOM KHA	BL	878369
EMILIEN MATHILDE	BL	922402
KERSTIMAEEL	BL	922430
LA BETE A BON DIEU 2	BL	922502
LASGOT	BL	930472
LE RESCATORE	BL	922499
L'ENZAUDE	BL	907926
MALIGO	BL	929824
NOTIJU	BL	930264
COSTEGNO	BL	922589
C'EST L'AMERIQUE	DEN	925064
LES ANTILLES	DI	590401
O-GRE-DES-VENTS	DI	922599
A TOI DE JOUER	GO	518418
DAUPHIN II	GO	922416
GREBA	GO	878373
OLAF 4	GO	922427
PETITE MARION	GO	922431
PRINCESSE	GO	878374
QUO VADIS	GO	627959
VERIC II	GO	878935
ASTRAGALE	GR	750734
BELLE EPOQUE	GR	638760
CALEAN	GR	932880
CHERIE D'AMOUR	GR	922419
GERLEAN	GR	681985
JOKER	GR	775898
JPAUL HENRY II	GR	753056
KAN A DISKAN	GR	221408
L'OMERTA	GR	917408
MA FE DES ILES	GR	659690
NAUSITHOE	GR	925094
OCTOPUSSY II	GR	883742
ROCALAMAUVE	GR	517594
ROCAVI	GR	775960

Vessel name	Home port	Registration number
SPARTIATE	GR	711421
LAURA VINCENT	PBL	775921
LE SRI LANKA	PBL	922497
BULOTIER 2	PI	929558
BULOTIERE 3	PI	922540
FLASH	PI	925050
LA MONDREE 2	PI	922450
LA PIROUAISE 3	PI	711630
LE PROLETAIRE	PI	711420
PERE JULES 2	PI	922539
PETITE PRINCESSE 2	PI	922494
Vessel entering fleet	PI	518412
DEFI III	SG	931912
DOBERMAN	SG	922567
LA CHUCHEROLLE	SM	907974
BOUKALOT II	CA	613692
CAP LIZARD	CA	918522
FILS DU VENT	CA	922393
GAVROCHE 2	CA	922378
HUGALICE	CA	933042
LA PRESQU'ILE II	CA	922541
L'EQUINOXE	CA	775925
ROSE DES CHAMPS II	CA	925078
SERPICO 2	CA	607610

3.2.5. Landings data

3.2.5.1. Basse-Normandie landings

In order to explain how catch data are collected, it is first useful to describe briefly a few of the organisations involved – more detailed information is given below:

- Direction départementale des territoires et de la mer (DDTM) – Government services in charge of local maritime, coastal and agricultural sustainable development, natural risk management and transport (département Manche number 50)
- Délégation à la mer et au littoral (DML - DML50 for département Manche) – part of DDTM responsible for fisheries monitoring, control and enforcement for the département of Manche
- FranceAgrimer – central French body responsible for agriculture and fisheries statistics

All vessels in the UoC are under 12m in length and are therefore exempt from having to complete EU logbooks. Other sources of landings data for whelks in Basse-Normandie are available, however, and these include: i) landings declarations, ii) fiches de pêche (logbooks for vessels <10m) and iii) sales notes. Unfortunately each source of data has its own pace and path into the national database, and some data are not systematically copied to the CRPM-BN before being entered into the national database managed by FranceAgrimer.

Landings declarations concern all landings into the Granville fish market (or other designated port), whether the whelks are just passing through or are temporarily stored and sold through contracts, or sold at the market's auction. Landings declarations (Fiches de vente) are forwarded daily to DML50 for Département de la Manche - see below), with a copy to the CRPM-BN. After some crosschecks DML50 forwards the data to FranceAgrimer to collate and publish weekly landings figures (volume and value) for key species at selected ports. These data are considered very reliable. For whelks, landings declarations account for about half of total landings in volume and they also provide price information.

Fiches de pêche are mandatory for all under-10m vessels (and professional fishermen on foot but they are not relevant here). They provide monthly tables of daily fishing effort, fishing area, duration and type of pot or other gear) and daily catch by species. The fiches de pêche have to be submitted no later than the 5th for the following month to DDTM. A copy is sent to the CRPM-BN. Within the DDTM, DML50 collates the fiches de pêche, does some crosschecking validation and forwards them to FranceAgriMer. A number of local vessels (10-15 in addition to those landing at the market) give a copy of their fiches de pêches to the CRPM-BN directly.

By contrast, non-auction landings can take place at multiple small ports along the west Cotentin coast, with sales to multiple buyers (usually wholesalers – direct sale to the consumer is not common for whelks). These are declared through sales sheet, which are forwarded to the authorities but not systematically copied to the CRPM-BN.

FranceAgriMer is the national statistical organisation for agriculture and fisheries, with regional offices for Basse-Normandie based in Caen. Small-scale fisheries have not been well served by FranceAgriMer, because its focus is on meeting European requirements for statistics on catch of quota species. As a result, by the time these catch statistics become available to end users, including the CRPM-BN, they may be two or more years out of date and are not necessarily completely accurate. In fact, data for 2009 were lost, as a result of upheaval associated with the creation of FranceAgriMer, and these data were eventually re-entered by CRPM-BN and Ifremer from the original logsheets. DDTM/DML are also new organisations (replacing the former Affaires Maritimes) so this system is still to some extent bedding in – it may be possible in the future for DDTM to provide these fiches de pêche data directly to CRPM-BN in a shorter timeframe than FranceAgrimer, although there are some issues around confidentiality of personal data to be addressed. It is also worth noting that catches recorded on the fiches de pêche are estimated by the skipper, while landings are weighed – landings data are therefore more accurate. FranceAgrimer also sends a copy of all data to Ifremer for stock assessment purposes. Ifremer has all fiches de pêche and logbook data. So far only 2011 and 2012 data have been fully cross-checked but Ifremer is currently processing the data from 2009 to 2014 and expects to be able to show results at the end of 2015.

Scientists at CRPM-BN therefore have to be somewhat ingenious in piecing together estimates of total landings from these various sources. They use good information from a

'flottille de référence' (reference fleet) of about 20 boats, who voluntarily provide their fiches de pêche directly to the CRPM-BN as well as to DDTM (as well as providing other data – see below). (In general, the various organisations have tried to avoid multiple entry of the same data, but in this case it is the only way to have the data without too much delay.) Part of the reference fleet lands to the auction and part elsewhere, so the reference fleet is considered to be a representative sample of the fleet as a whole. CRPM-BN has used the data from the auction at Granville, plus extrapolation from the fiches de pêche of the reference fleet not landing to the auction, plus correction by comparison between landings declarations and fiches de pêche from the reference fleet landing to the auction, to estimate overall landings (Table 2).

3.2.5.2. Jersey landings

Jersey annual landings are likewise presented in Table 2. As of 2014 there are two French-owned Jersey-registered vessels actively fishing whelks in the Granville Bay area, and both provide logbook data to the Jersey authorities. They mostly land in France being based in Carteret, and when they do, their landings are systematically checked by the French customs.

3.2.5.3. Brittany landings

The CRPM Brittany allocates 12 licences a year to Breton vessels in this area (the coast of département Ile et Vilaine – to the east of the Rance estuary), plus 12 licences to Basse-Normandie vessels under an agreement with the CRPM-BN for sharing of fisheries in the Mont St. Michel area – these vessels do not have general access to Breton waters, however – only in this area. It is not known how active the vessels holding these licences are in the fishery – the information below suggests that not all of them are active.

Estimates of Brittany landings were requested from the CRPM Brittany but could not be provided. It may be that because this fishery is much less significant for Brittany than for Basse-Normandie, that the Comité Régional does not invest the same effort in estimating non-auction landings as in Basse-Normandie. FranceAgrimer does not provide estimates of total landings publically, but does provide landings by species by auction, for auctions for which sales of that species exceed a certain quantity (one tonne per year for whelks). The main auctions for this area of the Brittany coast (St. Malo and Cancale) do not feature in their data, although there were significant landings to the auction at Erquy, to the west of this area (415 t in 2013), some of which may be from the vessels licensed to fish in the Granville Bay zone.

Note that although the Breton boats may land their catch to the auction in Granville, these landings are subtracted out of the data used to estimate landings by the Basse-Normandie (BN) fleet, which include only BN-licensed boats. However, from this information, the landings of non-BN vessels to the auction in Granville can be calculated. Since the only Jersey vessels in the fishery are currently, reportedly, landing in Carteret, this can be assumed to represent Breton landings to Granville auction. Further assuming that ~50% of landings are non-auction, as for BN vessels, then overall, Breton landings are estimated to be of the same order of magnitude as Jersey landings, or ~5-10% of BN landings (Table 2).

Table 2. Landings of whelks from the Granville Bay area, 2010-2015 (tonnes) (As of November 2016, no publicly available information for Jersey or Brittany after 2013.)

Year	Basse-Normandie		Jersey*	Brittany (landings to Granville)
	Total sales CRPM-BN (incl. non-auction estimated as above)	Total sales DML50 (Fiches de pêche / logbooks)		
2010	6051		497	60
2011	5685	5862	244	7
2012	6228	6473	218	83
2013	5747	6117	253	225
2014	5442	5114		
2015		5687		

* This is total landings by Jersey vessels, but a proportion come from Guernsey waters, which are not part of the shared Granville Bay zone (reportedly ~50% in 2007 – see PV BG Granville 2008)

3.2.6. Whelk discards

There is an EU minimum size of 45mm. The minimum size in France is also 45mm but in Jersey it is 50mm. The minimum size in Basse-Normandie is enforced via a requirement for a 22mm on-board sorting grid, which in fact results in a minimum landing size of around 47-48mm (see discussion of management, Section 3.2.1). This means that a good percentage of the catch is discarded as the pots are emptied onto the sorting grid on board, but apparently without any damage or significant mortality. The lines of pots are baited and shot immediately after being emptied, and therefore the whelks are returned close to the grounds where they were caught.

3.2.7. Other data

As well as the monitoring of landings as described above, there are four other key sources of data on the fishery based on work undertaken by the CRPM-BN and, on its behalf by the Synergie Mer et Littoral (SMEL):

- i. monitoring of commercial CPUE for the reference fleet;
- ii. an onboard observer programme which takes place every two years;
- iii. a programme of self-sampling ('autoéchantillonnage') by fishermen in the reference fleet, consisting of 5 or 6 vessels sampling 2 lines ('filières') per trip; and
- iv. an annual survey carried out by the Jersey Department of the Environment (Marine Resources) in Jersey waters up to 2013.

There have also been various scientific studies done by SMEL with other partners on aspects of whelk biology in Granville Bay. These datasets provide time series of CPUE, which are shown in the section discussing stock status (Section 3.3.3). The onboard sampling also provides detailed data on population size structure, below as well as above the MLS, as well as collecting data on the environment, size at first maturity and on bycatch.

Table 3. Information about the CPUE data provided by the various surveys taking place for the whelk fishery. Basse-Normandie information from CRPM-BN, Jersey information from Annual Report (2013) and Morel and Bossy (2004).

Data set	Basis	Whelk size	Time series	Area covered	Sample size
Commercial CPUE, Basse-Normandie	Declared landings by ref. fleet	>MLS only	2009-date	2009-10: zones 1-3, 2011: zones 2-3, 2012-13: zones 1-2	~20 reference vessels, all landings, all trips
Onboard sampling, Basse-Normandie	Measurement of whelks caught on a given day/vessel	>MLS, <MLS	from 2007, alternate years	2007, 09, 11: zones 1-3; 2013: zones 1-2	Trips on 12 à 15 points/year 3 pots/station biennial (every 2 years)
Self-sampling, Basse-Normandie	Fishermen record whelk volume per line caught in pot lines	>MLS	2009-date	2009-10: zones 1-3, 2011: zones 2-3, 2012-13: zones 1-2	2009-11 : 4 points/day and for all trips ; 2012-13 : 2 points/day and for all trips
Survey, Jersey	Annual survey of 10 fixed sampling stations	>MLS, <MLS	1996-2013 except 1997, 2006.	2 stations north coast, 3 east coast, 5 south coast / Minquiers	10 stations, strings of 8 pots/station, annual (Feb.)

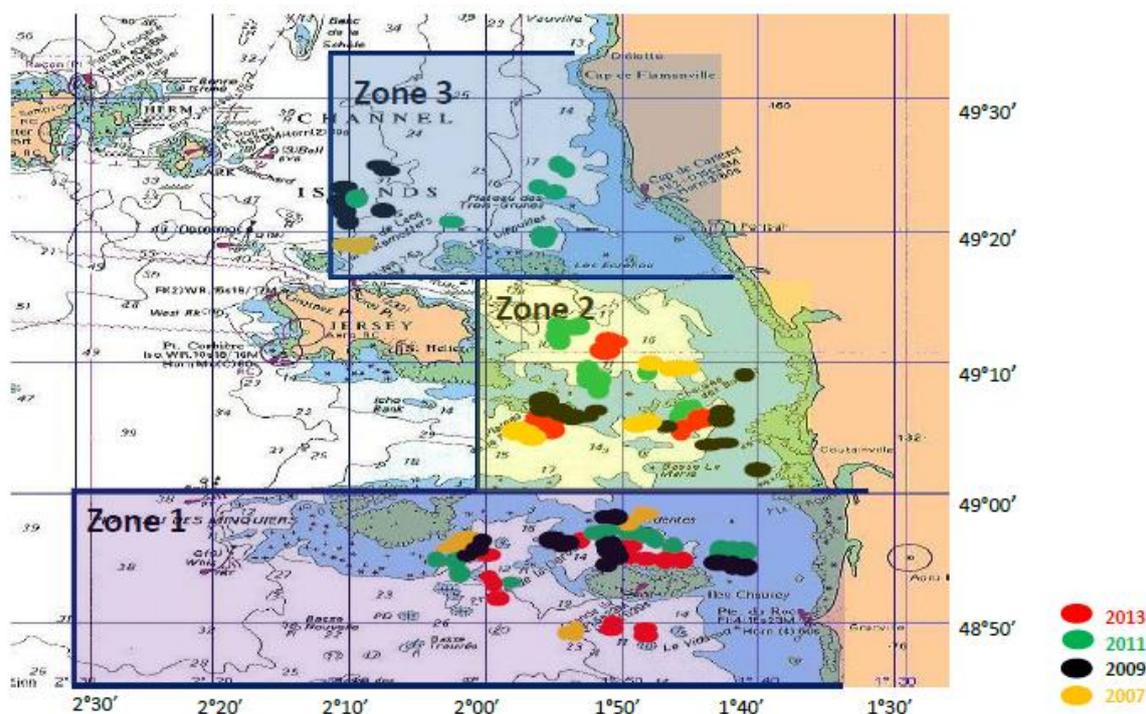


Figure 7. The sampling zones used for stratification of Basse-Normandie whelk data collection, with sample areas for 2013 (red), 2011 (green), 2009 (black) and 2007 (yellow).

3.2.8. Fisheries Management framework

3.2.8.1. Institutions

In France, the Granville Bay whelk resource is managed through the French fisheries management arrangements, which come under the recently reformed Common Fisheries Policy. Local management measures are agreed with Jersey and Brittany through the Bay of Granville Treaty arrangement.

The French fisheries management system is a decentralised form of co-management, in which fishing rights holders, here mostly vessel owner-skippers, actively initiate management measures through elected representatives sitting on the CRPM Basse-Normandie regional fisheries committee or CRPM-BN for short.

The institutions involved are listed in Table 4.

Table 4. Institutions involved in the Granville Bay whelk fishery management system

National level	
Ministère de l'Écologie, du Développement Durable et de l'Énergie (DPMA)	Direction des pêches maritimes et de l'aquaculture – DPMA Central government legislative level also on the basis of the EU Common Fisheries Policy Regulations.
Comité National des Pêches maritimes et des élevages marins (CNPMEM)	<ul style="list-style-type: none"> • Policy and regulatory recommendations for national-level licence and conservation measures • Licensing and other bylaws; • Represents BN at national fisheries level and on JMC; • Undertakes some scientific research projects; • Commission Bulot / Whelks Committee : obtains and provides expert advice to regional committees
Sub-national 'région' level	
Préfecture de Région (DIRM), based in Le Havre	Direction inter-régionale de la mer (DIRM) Manche Est-Mer du Nord represents the wider regional (Haute+Basse-Normandie) coastal jurisdiction (formerly the DRAM). <ul style="list-style-type: none"> • Executes ministerial instructions (from DPMA) and CFP measures. • Its Unité Ressources Réglementation publishes Departmental bylaws ('arrêtés') from CRPM proposals ('délibérations') • Coordinates enforcement on the quayside and at sea • Regional pole (formerly DRAM Direction Régionale des Affaires Maritimes).
Comité Régional des Pêches Maritimes de Basse-Normandie (CRPM-BN)	Regional Committee responsible for management of the fishery and initiates data collection and research projects
Commission Bulot	Commission régionale <i>Bulot Manche Ouest</i> of the CRPM-BN. Makes management recommendations, initiates data collection and research projects

Ifremer	Scientific research and stock assessment – a national organisation with headquarters in Brest (Brittany) but with various regional offices dealing with locally-relevant issues, including one in Port-en-Bessin, Basse-Normandie.
Local level ‘Manche (50) département’	
Délégation Départementale des Territoires Marins (DDTM/ DML50)	Direction Départementale des Territoires et de la Mer (formerly the DDAM): Délégation de la Mer et du Littoral, Département Manche (50). The DML50 is in charge of monitoring and control.
Syndicat Mixte pour l’Equipement du Littoral (SMEL)	Local partner and sponsor of scientific research into coastal marine environmental issues.
Normandie Fraîcheur Mer (NFM)	<ul style="list-style-type: none"> Promotes and supports Normandy seafood production, including quality and geographical origin (“Bulots de la Baie de Granville”) standards; Project managers for this assessment
Granville Bay Treaty	
Joint Management Committee (JMC)	Committee made up of management authorities from Jersey, Basse-Normandie and Brittany (CRPM from Basse-Normandie and Brittany, and Jersey Marine Resources Section). Take decisions at Granville Bay Treaty level – Includes representatives of sub-national and local levels.
Joint Advisory Committee (JAC)	Committee made up of four fishermen from each of Jersey, Basse-Normandie and Brittany, Jersey and French government representatives, and Ifremer – to debate and propose management measures to JMC for decision-making.

3.2.8.2. Management Plan

The management framework is provided by the French fisheries legislation at national and local levels and by the Bay of Granville arrangements for shared waters. A timeline of the introduction of management measures for the Basse-Normandie whelk fishery is shown in Table 5.

Table 5. History of management, and progressive introduction of management measures in the fishery (from 2004 in particular). Source: CRPM-BN, 2014. Historique de la pêche du bulot.

Year	Measure
1983 or before	MLS 45mm, fishery closed on weekends (total fishing days ~250), fishery licences introduced, limited to vessels <12m
1985	Fishery closed Saturdays, Sundays and bank holidays
1994	65 licences, daily quota 300kg/crew member

1997	Limit on licences lifted; licences increase to 85, daily quota increased to 400kg/crew member, sorting grid gap increased to 19mm
1999	Licences reduced to 82
2000	Granville Bay Treaty: agreement with Jersey and Brittany for fishermen to operate in each other's waters in certain zones. Normandy whelk fishery expands into Jersey shared waters.
2001	Quota of 400kg/crew member, max. 1200 kg/vessel (i.e. additional crew members above 3 provide no additional quota)
2004	Start of management plan to reduce effort in the fishery: each year for x licences that become available, x-1 licences are redistributed (half to current fishermen wishing to diversify and half to new entrants). Daily quota reduced to 300kg/crew member and 900kg/vessel.
2005	Increased controls on landings of undersized whelks – tolerance fixed at 3.5%. Most vessels enlarge their sorting grid to 20mm.
2006	Introduction of mechanical controls on whelk size in the auction in Granville, 1-2 times per month (conducted by NFM).
2007	Fishery closed in January (total fishing days ~220).
2008	80 licences. Limit on total number of pots/vessel of 240/crew member, up to a maximum of 720 pots. Plan adopted to decrease 1 in 3 licences that are relinquished each year.
2009	Sorting grid gap increased to 22mm (in practice increasing minimum size to ~47-48mm although MLS remains 45mm). 77 licences.
2010	76 licences
2011	75 licences
2012	74 licences
2013	73 licences
2014	72 licences
2015	71 licences
2016	69 licences Reference points agreed (see below)

3.3. Principle One: Target Species Background

3.3.1. Biology and ecology of the target species

3.3.1.1. Biology

The common whelk (*Buccinum undatum*) is a gastropod in the family Buccinidae (the true whelks). It is distributed in temperate / polar regions of the North Atlantic, from Northern Europe / Gulf of Maine northwards to the Arctic. The Granville Bay / Channel populations are therefore on the southern edge of the range of this species. The species is less common elsewhere in France, and this fishery represents ~75% of French whelk production. In terms of habitat, the species appears to occur over a range of bottom substrata wherever food is available, from the low tide line down to ~200m. It is not commonly found in the intertidal, since it is not tolerant to exposure to air or to low salinities.

The common whelk is a predator and scavenger. They can open live bivalves such as mussels and cockles with their foot, and are also commonly found feeding on dead animal material of more or less any kind. They can reportedly detect proteins given off by prey or food 30m or more upstream using their proboscis (Ruppert et al., 1994). In whelk pots, the fishermen use a combined bait of fish ('roussette', small spotted catshark, *Scyliorhinus canicula*) to attract the whelks, and crustaceans to provide tempting food to detain them in the pots.

Relatively extensive work has been done on the life history of whelks in Granville Bay, including work on age, size at maturity and reproductive output (e.g. Heude-Berthelin et al., 2011). Ageing is done by reading the striae on the operculum, as well as via evidence of different age class peaks in the size distribution. The size at 50% maturity was estimated to be 49mm for males and 52mm for females, corresponding to an age of 3-4 years (it is estimated that males reach 50% maturity during their third year, and females during their fourth year). A similar study at various sites around the English coast (Lawler, 2013) found that size and age at maturity were highly variable, being as low as 45mm / 2 years in the Solent and as high as 70mm / 4 years in sites in the Western Channel (Exmouth) as well as sites further north. It is not clear why this should be, although presumably temperature plays some role.

Unlike most molluscs, whelks do not broadcast spawn and do not have a planktonic larval stage. Instead, fertilisation is internal, and females subsequently produce egg capsules, within which the larvae grow and mature before emerging as small versions of adult whelks. This obviously means that dispersal rates are much lower than for most molluscs, and the fishermen are well aware that they are easily able to deplete whelks in local areas by concentrated fishing in that area.

Extensive work has been done by scientists at the SMEL on the relationship between size and fecundity in the Granville Bay population; they have shown that there is a direct relationship between the number of egg capsules and female size, from 30-40 capsule per egg mass for a female of 45mm up to 100-150 per egg mass for a female of 55mm or larger. Likewise the mean size of each capsule (and hence the number of eggs it contains) varies from ~6mm for a 47mm female up to ~11mm for a 55mm female (Figure 8). The larger females also produce more egg masses.

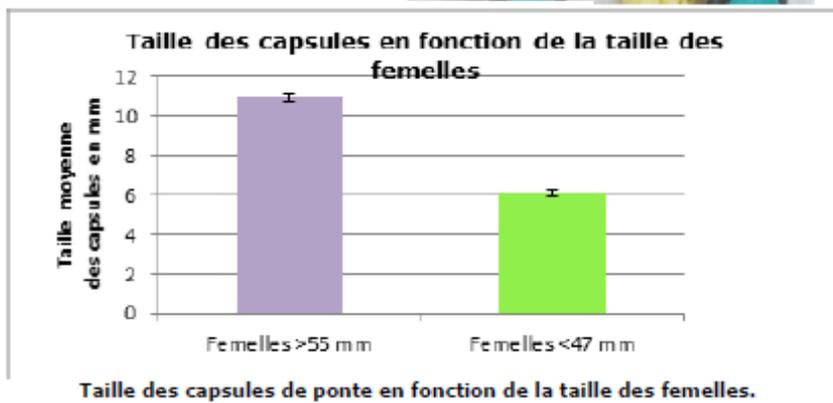


Figure 8. Size of egg capsules in an egg mass by female size: purple = large female (>55mm); green = small female (<=47mm).

The females may lay egg masses several times over the course of a season. Histological analysis showed that the highest percentage of ripe gonads (for both sexes) is in October, and spawning takes place mainly from October to December (V. Legrand, CRPM-BN and L. Hégron-Macé, SMEL, pers. comm.). In general, the whelks are active (available to the fishery) during the autumn, winter and spring, but not during the summer, and it is assumed this is because they are less tolerant of high water temperatures during this period. The summer 'low season' varies from year to year but typically runs from ~June to ~September. Work at SMEL has shown that while higher temperature shortens the period of development inside the egg capsule (as you would expect) it reduces both the number of egg masses produced per female and the proportion of whelks which successfully hatch from the capsule.

3.3.1.2. Stock definition

As far as the assessment team and the client are aware, no work has been done on the population structure of whelks in the Western Channel. Since there is no planktonic life history stage, an appropriate spatial scale cannot be inferred from the oceanography of the system. On this basis, the only option is to manage the 'stock' in a pragmatic way based on appropriate political units, while ensuring some cooperation with neighbouring jurisdictions – as is done in this case. This fishery is far from unique in having this difficulty, particularly for shellfish fisheries. This is, however, not sufficient here because the PSA (used to score PI 1.1.1 under the risk-based framework – details below) requires a definition of the stock with some biological basis. In this section, therefore, we consider the existing evidence as to how a 'stock' might suitably be defined for the purposes of an MSC assessment.

It is known that whelks have a reduced ability to disperse compared to most other marine invertebrates, because they do not have planktonic larvae. Larvae develop in an egg case and hatch out as small benthic whelks. The assumption on this basis has been that populations may be structured at quite a local scale. Conversely, the egg cases themselves can disperse – they are a familiar site on beaches around France and the UK, for example. Individual whelks may also move – a recent (non-peer-reviewed) study in North Wales suggests a minimum movement rate of >100m per day (Turtle, 2014). It is not known whether adults make directed movements (e.g. if they have a 'home range' or if they move at random, although they are known to respond strongly to food cues). The net impact of egg-case plus adult dispersal on overall dispersal rates is not known.

Phenotypic differentiation between different areas is known, as discussed above. There is, however, no information as far as we know as to whether this implies some underlying population structure (i.e. if it has a genetic basis) or whether it is simply a plastic phenotypic response to different environmental conditions. No detailed genetic information could be found for the general area of this fishery (the Channel or Western Channel). A 2006 study, however (Weetman et al., 2006) considered whelk genetics at a wider scale – across the whole range of the species in the northern Atlantic. They found four main genetic clusters in their samples: Nova Scotia, Iceland, Skagerrak and the NW European shelf, which included samples from the east, west and south coasts of the UK mainland, Jersey and the south coast of Brittany. Within this large grouping there was genetic differentiation, but no clear evidence of finer spatial genetic structure, with two exceptions: a north-south trend on the UK east coast (samples from Kent to Fife), and a differentiation of samples from the Solent from elsewhere, which the authors speculate results from a population bottleneck caused by past TBT poisoning (imposex) and perhaps exacerbated by fishing.

Looking in detail at the samples in this study, which may be informative for this fishery: a sample is included from Jersey – i.e. within the area of this fishery. The closest samples, for comparison, are one from Hastings (from the other main whelk fishery in the Eastern Channel), three from Carmarthen Bay in SW Wales and one from Carnac on the south coast of Brittany – i.e. none of them very near. Five loci were tested for significant allelic differentiation, with the following results for each comparison:

- Jersey-Hastings – 0 samples out of 5 showed significant differentiation
- Jersey-Carnac – 1/5
- Carmarthen Bay A – 1/5
- Carmarthen Bay B – 0/5
- Carmarthen Bay D – 2/5 (but this sample also showed significant differences at 1/5 and 2/5 loci with the other Carmarthen Bay samples)

The authors summarise their overall results as follows:

In summary, our results show that Buccinum undatum exhibits widespread population structure, but high differentiation only across very large geographical scales. Low F_{ST} levels across most of the European continental shelf appear at odds with the limited potential for dispersal of B. undatum, and are unlikely to be attributable solely to either high marker polymorphism or historical connectivity of populations. We suggest that semi-continuity of populations may permit exchange of migrants, despite low individual vagility.

The authors also note that where smaller-scale differentiation was found (e.g. for one sample in Carmarthen Bay and some others) this appears to be correlated with inshore populations. They suggest that gene flow from inshore to offshore is greater than vice versa, and hence that populations in small bays or estuaries may be more isolated than other populations.

Overall, the authors hypothesise that high local movement rates (although the definition of 'local' is unclear), combined with continuous, unfragmented populations, result in population connectivity over large spatial scales. Of course, the amount of connectivity required to maintain genetic homogeneity is most likely a lot smaller than the amount required to give populations the same dynamics in the short-term when some sub-populations are fished and

some are not – this is also the case for fin fish, of course, although the timeframes will vary with species life history and the spatial scale under consideration.

This assessment has gone back and forth on how best to define the ‘stock’ for Principle 1 in this context. Initially, it was defined as the same as the area of the fishery (mainly for purposes of convenience, without the review of genetic evidence provided above), but it was noted that this definition for most of Principle 1 was inconsistent with how the risk-based framework (PSA) had been used to evaluate PI 1.1.1 (i.e. trying to give ‘credit’ to the fishery for the fact that most of the ‘stock’ outside the immediate area of the fishery was unexploited). The spatial scale on which the rest of Principle 1 was evaluated was therefore expanded to correspond to that considered most appropriate for the PSA, having first concluded that this approach was appropriate based on the genetic evaluation.

This approach raised concerns, however, with stakeholders and MSC (see comments provided on previous PCDR, Appendix 4), and has therefore been rethought. The client has provided sufficient information that the risk-based framework is no longer required in order to score Principle 1, which has therefore been re-evaluated and scored using the default assessment tree (version 1.3). In terms of the spatial scale, the team concluded that it would be more precautionary (and more consistent with the information obtained during the assessment process – a key concern of MSC) to evaluate Principle 1 at a spatial scale consistent with the fishery – i.e. to revert to the initial definition of the ‘stock’ as the population in the Granville Bay area.

3.3.2. Other fisheries on the stock

The Granville Bay area is shared between Normandy, Brittany and Jersey, with a system of co-management in place for shared areas based on the Granville Bay Treaty (see Figure 1). The vast majority of the fishery is based in Basse-Normandie (71 whelk permits issued in 2015), but there are also small fisheries based in Brittany (12 permits for this area in 2014, number of active vessels unknown) and Jersey (2 active vessels in 2014). These Breton and Jersey vessels are not part of the UoC. The Breton and Jersey management systems and the shared Granville Bay system have been considered in the evaluation of the fishery to the extent that they impinge on the management of the stock, and the definition of the general management framework (Principle 1, Principle 3.1).

There is a small amount of whelk fishing on the east side of the Cotentin peninsula (Baie de Seine) but it is assumed for management purposes that the Eastern Channel operates on a different stock.

There is no recreational or land-based fishery (‘pêche à pied’) for whelks in this area.

3.3.3. Current stock status

The CRPM-BN monitor stock status based on a variety of indicators:

- Landings (see Section 3.2.5)
- Fishing effort
- Landings per unit effort (nominal)
- Size structure of the population
- Area fished

3.3.3.1. Fishing effort

Indicator	Numbers			% change
	2005	2010	2015	2005-2015
Licences	82	76	71	-13%
<u>Vessels*</u>				
Licensed	77	72	70	-9%
Active	76	66	59	-22%
<u>Mean length of vessel (m)</u>				
Licensed	9.3	9.3	9.3	0%
Active	9.3	9.5	9.4	+1%
<u>Mean power of vessel* (kW)</u>				
Licensed	117	116	120	+2.6%
Active	117	122	124	+5.9%
<u>Total power* (kW)</u>				
Licensed	8,997	8,382	8,406	-6.6%
Active	8,906	8,044	7,304	-18%
<u>Fishermen</u>				
Licensed	229	206	188	-18%
Active	227	197	169	-25.5%
<u>Mean crew size</u>				
Licensed	3	2.9	2.7	-10%
Active	3	3	2.9	-3.3%

* taken together these figures seem incoherent; this is a result of uncertainty because all the figures are estimated individually by CRPM-BN rather than calculated from each other.

3.3.3.2. Landings and catches per unit effort

These data provide the key information for tracking stock status. They are not statistically standardised to take account of other sources of variation (e.g. seasonality, inter-annual variability, fishing area etc.). However, CRPM-BN and the SMEL are aware that all these factors are important, and are trying design the sampling such that these factors can be to some extent standardised. They use two complementary approaches:

1. Scientific observers on board vessels: 6-9 vessels in total spread along the coast to cover all areas and spread across the year from March to September (with the aim to ensure inter-annual consistency). This sampling takes place every second year, starting (with a pilot) in 2005 and most recently in 2015. The observer selects haphazardly 4 pot strings (out of 10 or 12) and then 3 pots from each of the selected pot strings (out of 50-60). For these 12 pots, each whelk is individually measured and weighed before sorting (i.e. including the undersized). This allows for the calculation of both catch per unit effort (including the whelks <45mm) and landings per unit effort (including only the legal-sized whelks).
2. Self-sampling by a group of fishermen (volunteers): For a given fishing day, the fishermen select two pot strings and provide full information on weight and number of whelks caught from these two strings, as well as information on the total weight of the

catch and the number of pots hauled for the day. This also provides landings per unit effort data, although only in full for whelks >48mm; the 22mm sorting grill means that whelks in the size class 45-48mm are only partially sampled. The time series for this sampling runs from 2009.

The annual data are summarised in Figure 9. Both show a general increase across the times series, as well as a slight dip in 2014 which is considered likely to be due to the exceptionally hot spring/summer. Figure 10 shows the seasonal pattern, including the summer decline in CPUE related to the relative inactivity of whelks during the hottest part of the year, in this southerly part of their range (which lasted an unusually long time in 2014).

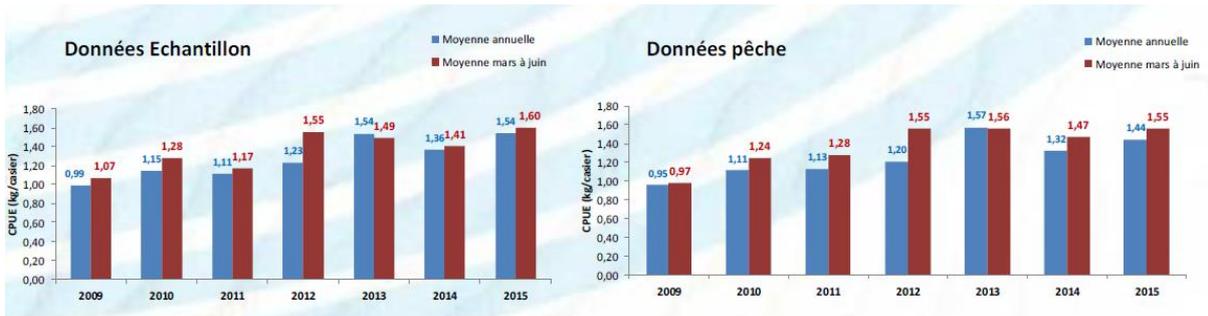


Figure 9. Landings / catch per unit effort (kg/pot) for the two sampling methods: observers (left) and self-sampling (right). Blue = annual mean; red = mean for March-June. Data from CRPM-BN.

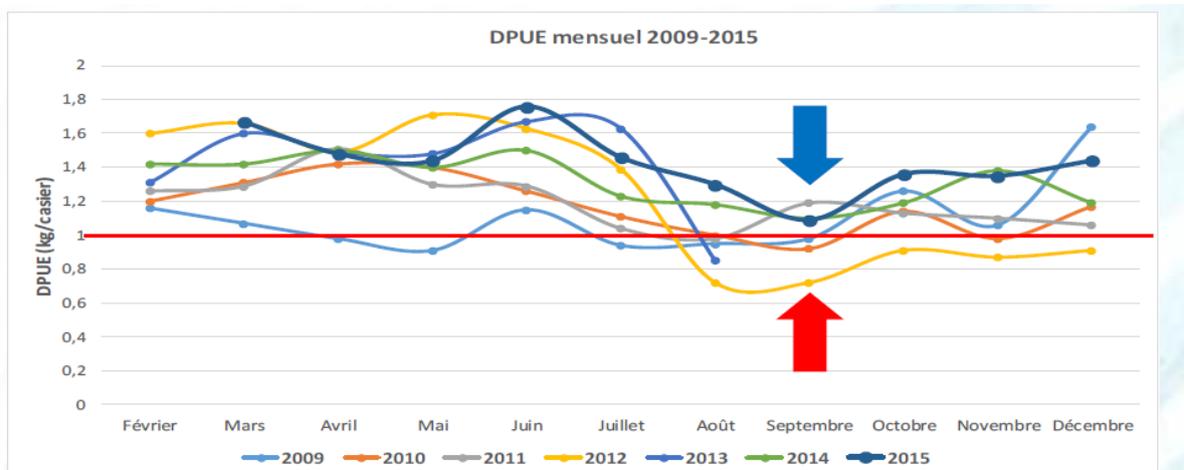


Figure 10. Seasonal and annual trends in landings per unit effort (kg/pot, from self-sampling), 2009 (light blue)-2015 (dark blue) (some data missing from 2013). Arrows are explained further down. Data from the CRPM-BN.

Landings per unit effort can also be evaluated in a more large-scale way using landings per trip from vessels landing their entire catch to the auction in Granville (Figure 11).

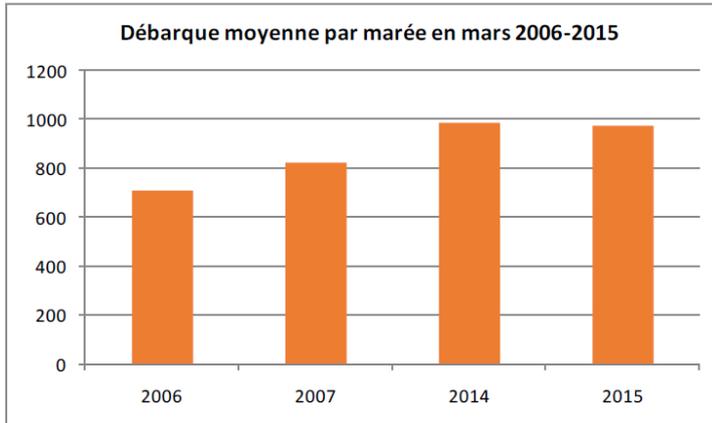
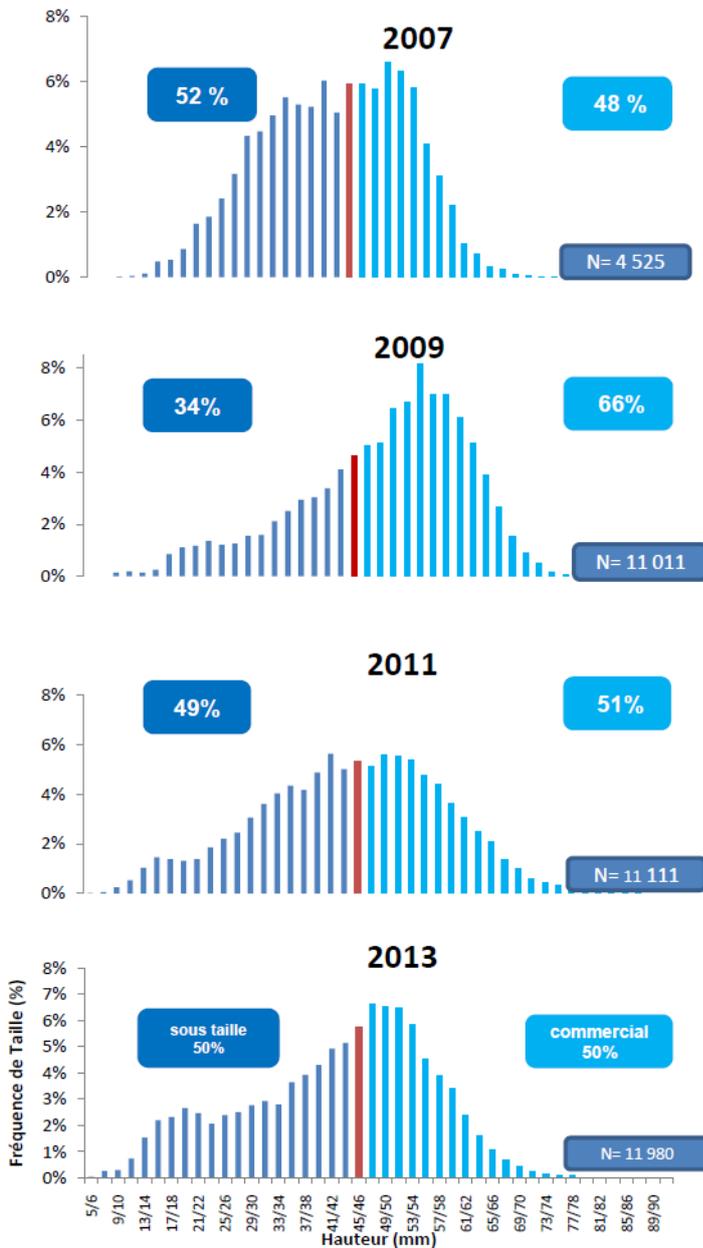


Figure 11. Landings per trip, to the auction in Granville, 2006, 2007, 2014 and 2015. Data from the CRPM-BN.

3.3.3.3. Size structure of the population

The observer data also allows the size structure of the population (down to the size entering and retained in the traps) to be monitored (Figure 12), including the proportion above the MLS and the size at maturity. The biological data on size-specific fecundity (summarised above) also allows an estimate of the egg production of the population, and the proportion of females above ~55mm which are highly fecund compared to smaller females.



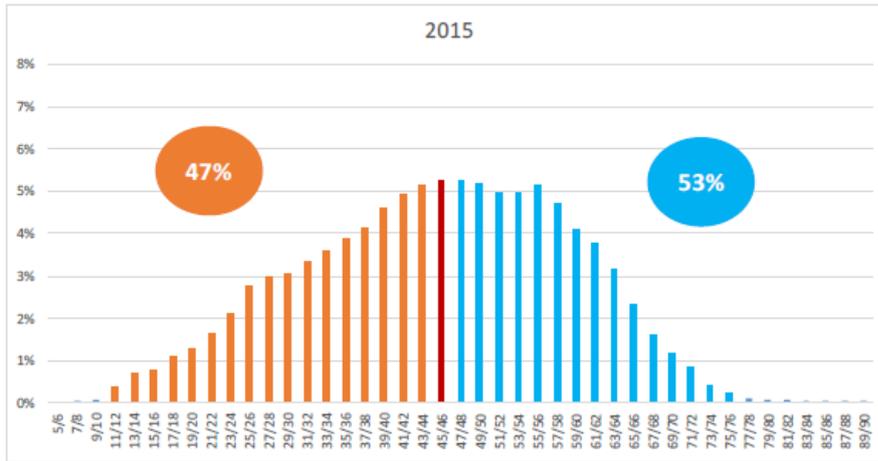
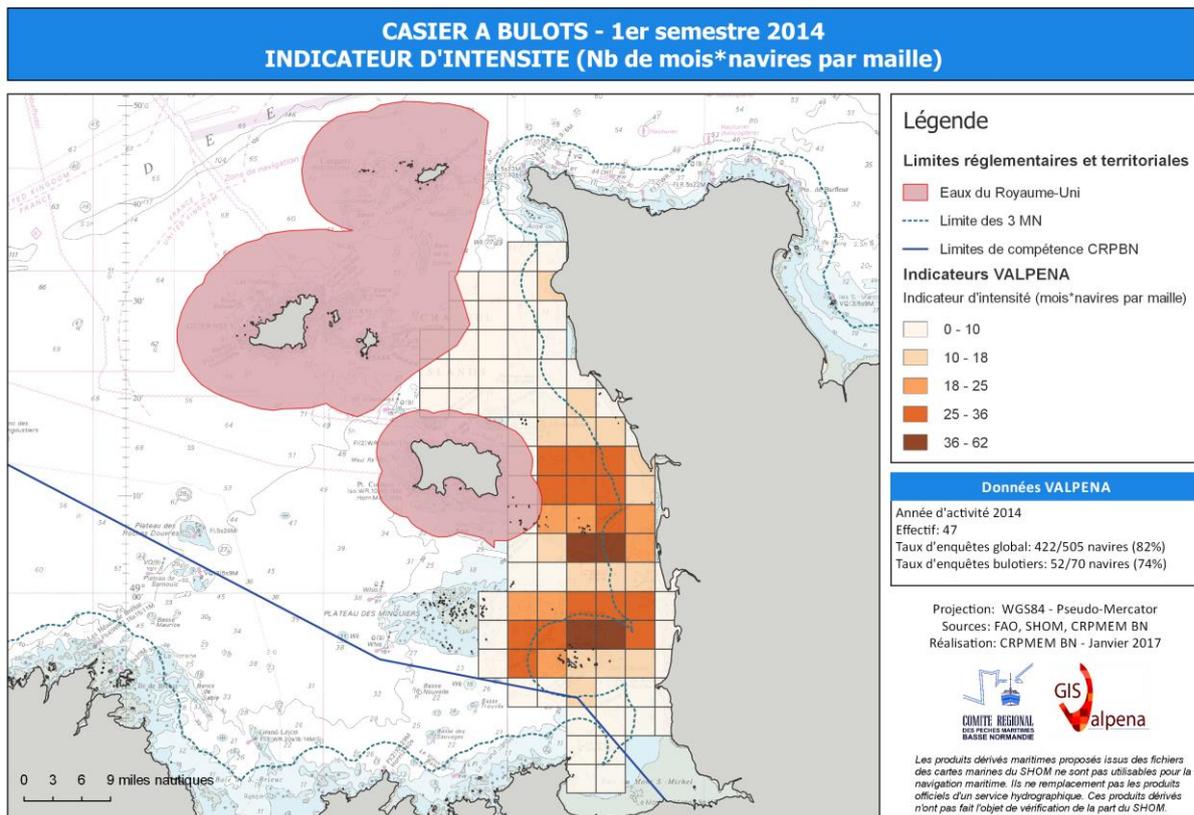


Figure 12. Size structure from onboard whelk sampling, 2007-2015 (alternate years). Red line=MLS, percentages given are undersize ('sous taille') and commercial size. Data from CRPM-BN / SMEL

3.3.3.4. Fishing area

Maps showing the intensity of whelk fishing by semester in 2014 are shown in Figure 13.



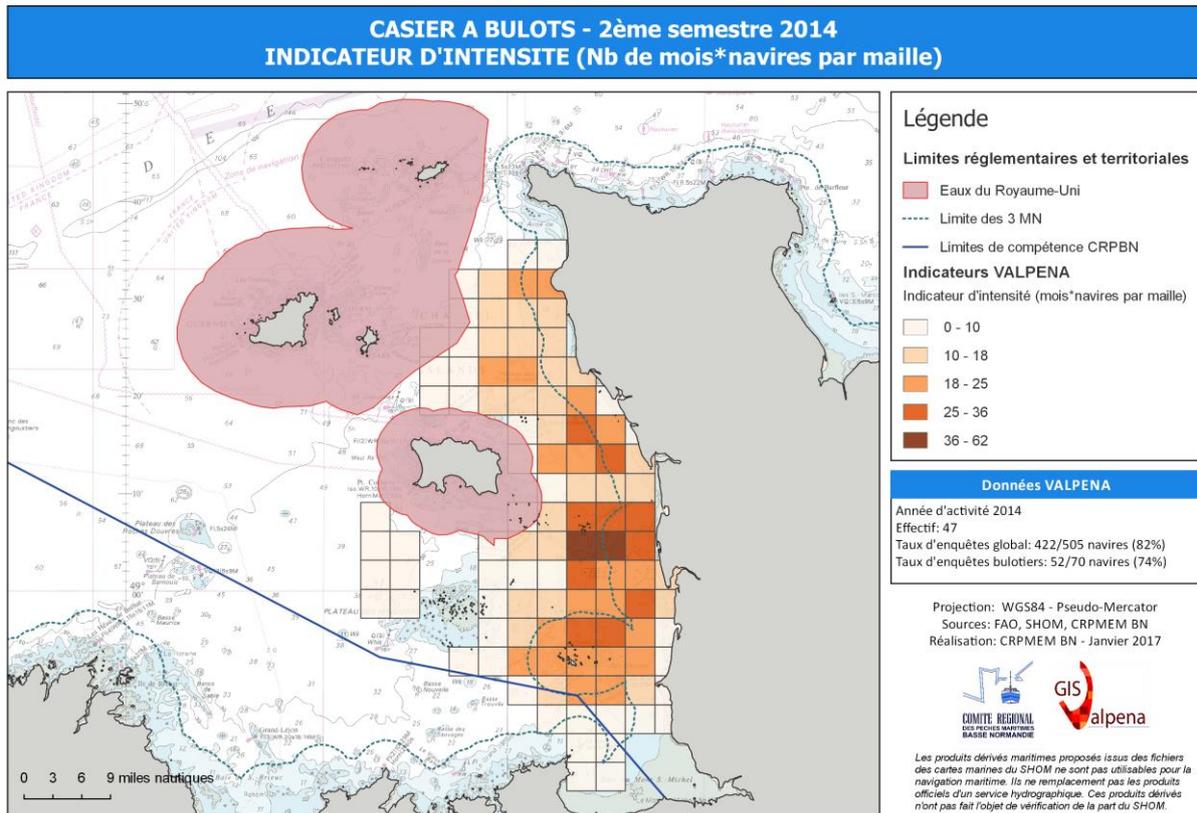


Figure 13. Maps showing whelk fishing intensity by semester in 2014.

3.3.3.5. Jersey survey

From 1998-2013, Jersey undertook an annual fisheries-independent survey for whelks every February, consisting of 10 fixed stations around Jersey, 8 pots per station. The survey provides a longer time series than the BN datasets. Survey CPUE was higher in the earlier part of the time series (up to ~2005) than in the later part, and does not show the same upwards trend from ~2009 as the BN data. This has contributed to a different perspective on stock status and hence management needs between Jersey and Basse Normandie, which is discussed further below.

Nevertheless, it is not clear that the data from Jersey and BN should necessarily be comparable. Normandy fishermen do not fish in the Jersey zone at all, and the key fishing areas are much closer to the Normandy coast (see Figure 13). The Jersey survey is very site-specific (fixed sampling sites), and given the possibility for whelks of localised population dynamics, at least over the short-term, it is not clear to what extent the dynamics of particular sample sites can be extrapolated more widely, particularly to an area away from the area of sampling (it may be more applicable to the fishery around Jersey). For this reason, this dataset is not included in the report.

3.3.4. Reference points

In 2016, the Commission Bulot agreed reference points for the management of the BN whelk fishery. Following the system already in use for the BN-Jersey lobster fishery, these consist of a 'seuil d'alerte' (a warning level or trigger reference point) and a 'seuil d'alarme' (a danger level or limit reference point). The reference point levels are calculated using the self-sampling

data, because these are considered the most reliable stock indicators (because of good temporal and spatial coverage), as well as being representative of fishing activity. They are expressed in terms of landings per unit effort (kg/100 pots).

- Seuil d'alerte: The lowest mean annual LPUE in the time series 2009-2015 (2009; 109kg/100 pots)
- Seuil d'alarme: The lowest mean monthly LPUE in the time series (September 2012: 70kg/100 pots)

3.3.5. Harvest strategy

3.3.5.1. Basse Normandie

The history of management of the whelk fishery in Basse-Normandie is given in Table 5, Section 3.2.8.2. The general harvest strategy in Basse-Normandie is to continue with gradual reduction of effort in the fishery, by reduction of the total number of whelk permits (as well as continuation of the other measures for regulation of effort), which has cut landings in half compared to the peak in 2001. The scientists involved in the management of the fishery are reluctant to commit to a quantitative target as far as effort (number of licences) or CPUE is concerned; the strategy is to continue to monitor the fishery both biologically and economically and to reach a point at which stakeholders agree that an appropriate balance between biological sustainability and economic return has been found.

Reference points have recently been introduced to the fishery, and the discussion around actions to be taken if the fishery drops below either the seuil d'alerte or the seuil d'alarme is not yet concluded. Nevertheless, the Commission Bulot has agreed a list of measures which will be put in place, depending on what is considered to be the main source of the problem:

- reduction in the daily landings quota (likely to be the first measure to be taken)
- increase in the minimum size
- increase in the size of the sorting grill
- maximum legal size (70mm suggested)
- biological rest period (closure)
- escape gaps in the pots

3.3.5.2. Granville Bay

For the whole Granville Bay fishery (including Jersey and Brittany), there is no explicit harvest strategy. Although whelk stock status and the whelk fishery has been extensively discussed by the Granville Bay Joint Advisory Council (JAC) and Joint Management Council (JMC) (e.g. meeting minutes of the Granville Bay JAC, 15th session, 9 and 10 December 2008, Granville), there has never been any success at agreeing formal joint management measures between the three parties other than a joint Granville Bay whelk permit, and management measures have therefore been put in place on a unilateral basis. The Breton and Basse-Normandie regulations, are, however, similar, although not the same (Jacques Doudet, CRPM Bretagne, pers. comm. – see details below).

As noted above, the perception of the stock status on the French and Jersey side has always been different – most likely informed by the different datasets obtained by each side. Jersey has at times used words such as ‘collapse’ to describe the stock status, while on the French side, although there is agreement that the stock has declined, this interpretation has always been vigorously refuted, and there is now a perception of recovery which is not shared by Jersey.

These different perceptions have obviously led to a different sense of urgency in terms of the need for additional management measures. Jersey has in the past urged more significant proposals for action from Basse-Normandie, who control most of the fishery, while Basse-Normandie has taken a more gradual approach to reducing effort and introducing other measures, with the aim of controlling effort without causing economic hurt to fishermen (as shown by the meeting minutes of the Granville Bay JAC, 15th session, 9 and 10 December 2008, Granville).

In addition, Jersey and Basse-Normandie have taken different approaches to the type of regulation used to control effort, with Basse-Normandie preferring to control catches or effort directly through the number of licences, pot limits and catch limits, while Jersey prefers technical measures such as size limits (see below). This reflects the preferences of fishermen on each side, since both management systems are stakeholder-driven.

In practice it does not really matter from the perspective of the stock if coordinated actions are taken at the Granville Bay level or if each side takes different individual actions, as long as actions are effective. Jersey does, however, have a valid concern about the management objectives on the Basse-Normandie side – although there is a trigger and a limit reference point, no particular targets have been defined, and it is thus not clear what would be regarded as an appropriate end point for management, or a suitable reference point to define ‘good’ stock status.

3.3.6. Harvest control tools

The current regulations controlling landings and effort for Basse-Normandie vessels are as follows:

- whelk permit required; only available to vessels <12m, total number limited to 69 (2016)
- 22mm sorting grid enforcing MLS of 45mm SL
- daily quota of 300 kg/crew member
- daily quota of 900 kg/vessel
- fishery closed weekends, holidays and January
- pots limit of 240 pots/crew member

These harvest control tools are employed with the objective of continuing to reduce effort in the fishery until all parties are happy that an appropriate point of biological and economic sustainability has been found. This point has not yet been defined quantitatively.

The regulations for Jersey vessels are as follows:

Inside 3 miles (Jersey exclusive zone):

- 50 mm MLS
- pot tagging required
- pot limit per vessel based on a 2 year track record (the maximum number of pots used in the period 2012-2013)
- whelk permit required; provides for the number of pot tags up to the vessel's limit
- (Note that the pot tagging system is currently in a two year trial period)

Outside 3 miles (shared Granville Bay zone):

- pot limit 900 per boat (same as Basse-Normandie)
- no tags

The regulations for Brittany vessels are as follows (comparison given with Basse-Normandie):

- whelk permit required; total number limited to 12 (2014)
- 20mm sorting grid enforcing MLS of 45mm SL (Basse-Normandie = 22mm)
- daily quota of 1 tonne per vessel (Basse-Normandie = 0.9 tonnes)
- annual quota of 250 tonnes per vessel (Basse-Normandie – no annual quota)
- fishery closed weekends from January to June inclusive, and 15 July to 12 August (Basse-Normandie – closed at weekends all year, also holidays; closed period in January rather than summer)
- pots limit of 720 pots/vessel – pots must be tagged (Basse-Normandie = 240 per crew member, tagging not required)

3.3.7. Information and monitoring

The key sources of data on the fishery and the stock are described in detail above. In summary, data are available from:

- landings data, Basse-Normandie, i) from auction records and ii) non-auction landings extrapolated from the fiches de pêche from the 'reference fleet'
- landings data, Jersey, from logbooks
- landings data, Brittany, from auctions – non-auction data unclear, although fiches de pêches / logbooks are reportedly provided to FranceAgriMer (J. Doudet, CRPM Bretagne, pers. comm.)
- Basse-Normandie at-sea observer research campaign every two years (commercial CPUE above and below MLS, size distribution)
- Basse-Normandie self-sampling (commercial CPUE above MLS, size structure)

- Jersey annual survey up to 2013 (survey CPUE above and below MLS, size structure; for 10 stations around Jersey)

3.3.8. Stock assessment

There is no formal stock assessment. The stock status is tracked via trends in nominal CPUE from the Basse-Normandie Granville Bay fishery as described above.

3.3.9. Key LTL species

Whelks are predators / scavengers. They are not, therefore, key low trophic level species.

3.4. Principle Two: Ecosystem Background

This section of the report outlines the fishery's potential impacts on the wider ecosystem. Five key components are considered to cover the range of potential ecosystem elements that may be impacted by the fishery. These are:

- i. Retained, non-target species: species that are retained by the fishery (usually because they are commercially valuable or because they are required to be retained by management rules).
- ii. Bycatch (discarded) species: organisms that have been taken incidentally and are not retained (usually because they have no commercial value).
- iii. ETP species: Endangered Threatened or Protected species
- iv. Habitats: the habitats within which the fishery operates
- v. Ecosystem: broader ecosystem elements such as trophic structure and function, community composition, and biodiversity.

Under each of those five components, particular attention was paid to:

- i. Outcome: the status of the impact or the risk that the fishery poses to that component.
- ii. Management: the management strategy for the component.
- iii. Information: the monitoring and information available to inform the outcome and management of the component.

3.4.1. Retained species

The information on retained species was obtained from the fiches de pêche and from stakeholders during the site visit. Other than whelks, no other species tend to be retained. Although some netted dog whelk (*Nassarius reticulatus*, "nasse") can occur in the landings in very small quantities, this is only through sorting error and most "nasse" are discarded. This species is therefore discussed in Section 3.4.2.

Within the MSC context, bait is considered under retained species. The volume of bait used in this fishery can be important and averages at approximately 200 - 300g per pot, generating about 1 to 1.6 kg of whelks. One baited pot requires a mix of fish and crustaceans and species used include:

- dogfish ("roussette"), from directed (mixed) demersal finfish fisheries – either from French sources, or sometimes imported from elsewhere in Europe
- edible crab ("tourteau"), low quality or individuals that died in viviers
- spider crab ("araignées"), low quality or individuals that died in the viviers
- green crab ("crabe vert"), from local sources although also imported from the UK and Ireland
- Pouting/bib ("tcaud")
- sausages made from a mixture of fish and crustaceans

Roussette, i.e. small-spotted catshark or lesser spotted dogfish (*Scyliorhinus canicula*) is by far the dominant species used in the bait, accounting for about a third of the total bait volume. The remaining two thirds tend to be a mix of the various crustaceans. On this basis, the team considered that the use of *S. canicula* as bait merited further investigation. The annual volume used by the fishery was estimated on the basis of 300g bait (i.e. 100g of *S. canicula*) generating on average 1,300g whelks per pot. In 2013 the total production of whelks in this fishery was 6,100 kg, according to CRPM-BN estimates, corresponding to an estimated 462 tonnes of *S. canicula* used as bait in that year or 7.7% of the total whelk catch¹. Note that for France, the 2013 landings of all Scyliorhinidae in the North Sea ecoregion combined was 2,146 tonnes (WGEF, 2014), to which the bait use by this fishery appears to have contributed approx. 22%. As such, the team considered *S. canicula* as a main retained species and the species is further discussed in the following section.

In relation to the crustaceans, the dominant source of bait is the local crustacean fisheries, with individuals unsalable on the crab/lobster market (dead, moribund, missing claws) going for bait. On this basis, their use as bait has no impact on fishing mortality on these stocks – they are ‘discards’. Green crabs may potentially be fished for use as bait (i.e. with an impact on fishing mortality) but the use of green crab in this fishery is very minimal.

3.4.1.1. Lesser spotted dogfish / Roussette (*Scyliorhinus canicula*)

Outcome:

S. canicula is a small, common catshark and is one of the most abundant shark species in the Northeast Atlantic and Mediterranean, with a distribution ranging from Norway and the Shetland Islands to Senegal and found throughout the Mediterranean Sea. Reproduction is oviparous and the species appears to be relatively productive biologically, thus may be able to withstand higher levels of exploitation than most shark species (Ellis et al., 2009). Though commercial landings are made and large individuals are retained for human consumption, the species is often discarded and studies show that post-discard survival rates are high. The species is listed as Least Concern on the IUCN red list (Ellis et al., 2009).

Although the stock units for this species are not known, tagging data indicate that movements are generally quite limited with separate stocks thought to reside in separate ICES Divisions. As such, the species would best be managed as local populations (e.g. on the level of an ICES division or adjacent divisions) (ICES, 2015d). Due to the locality of the fishery, the management units under consideration here are defined by ICES as those occurring in Division IIIa (Skagerrak and Kattegat), Subarea IV (North Sea), and Division VIIId (Eastern Channel) and in Subarea VI and Divisions VIIa–c, e–j (Celtic Seas and west of Scotland). ICES considers both units to be data-limited and advice is issued on a biennial basis; the most recent advice was issued in 2012 (valid for 2013 and 2014) and is based on a qualitative evaluation of stock status relying on fisheries-independent data provided by beam trawl surveys (BTS) and international bottom trawl surveys (IBTS).

¹ During the site visit fishermen estimated that 500 to 600 tonnes of *S. canicula* are used by the fishery each year. The team’s estimate is therefore not far off.

For the Eastern Channel, the overall stock size indicator is based on survey indices from IBTS Q1, IBTS Q3, CGFS², and UK-VIId-BTS, indicating an overall increase by 52%; the advice itself is based on a comparison of the last two values (index A, Figure 14) with the five preceding values (index B, Figure 14), combined with the average catches in 2012–2014. Given the longer-term increase in the stock size indicator (Figure 14, Figure 15), that this is a bycatch species (with high estimated discard survival for most métiers), and that scyliorhinids are generally productive species in comparison to other demersal elasmobranchs, the precautionary buffer is not applied (ICES, 2015a). Based on the ICES approach to data-limited stocks, the advice is given that catches in 2016 could be increased by no more than 20% compared to the average of 2012–2014, with the catch value advised for 2016 also applicable to 2017. For the time being ICES does not advise that an individual TAC be set for this stock.

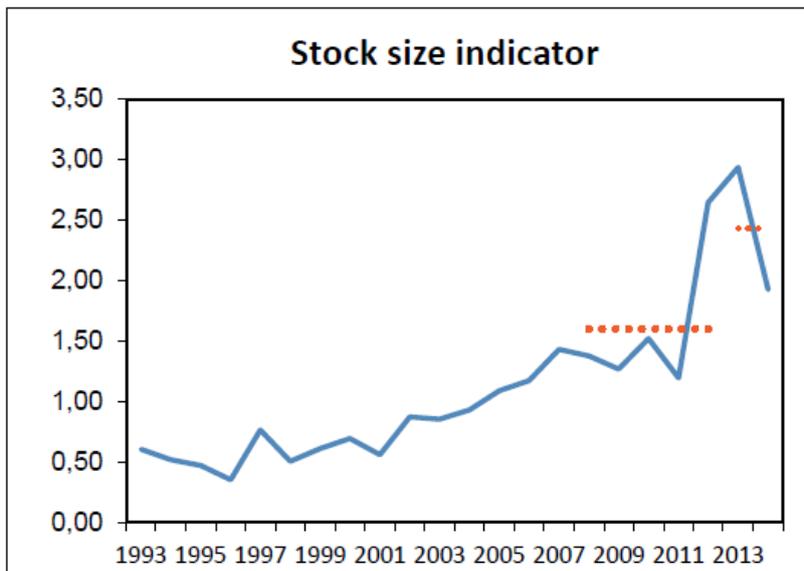


Figure 14. Lesser-spotted dogfish in Subarea IV and Divisions IIIa and VIId. Average of survey indices of abundance ($n\ h-1$, relative to the time-series mean) from trawl surveys (IBTS Q1, IBTS Q3, CGFS, UK-7d-BTS). The dotted horizontal lines indicate the mean catches rates for 2013–2014 (Index A) and 2008–2012 (Index B). Source: ICES (2015a)

		Fishing pressure				Stock size				
		2012	2013	2014		2012	2013	2014		
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	MSY	?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	-	-	-	Not applicable	SSB_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	↗	↘	Increasing

Figure 15. Lesser-spotted dogfish in Subarea IV and Divisions IIIa and VIId. State of the stock and fishery relative to reference points. Source: ICES (2015a)

For the Celtic Seas and West of Scotland, the overall stock size indicator is based on survey indices from EVHOE³, IGFS-WIBTS-Q4, Spanish Porcupine Bank, and UK-VIIaf-BTS, indicating an overall increase by 18%; the advice itself is based on a comparison of the last

² Channel Ground Fish Survey

³ evaluation of fisheries resources in Western Europe

two values (index A, Figure 16) with the five preceding values (index B, Figure 17), combined with the average catches in 2012–2014. As for the other stock, the precautionary buffer is not applied (ICES, 2015b). Based on the ICES approach to data-limited stocks, the advice is given that catches in 2016 could be increased by no more than 18% compared to the average of 2012–2014, with the catch value advised for 2016 also applicable to 2017. Here also, ICES does not currently advise that an individual TAC be set for this stock.

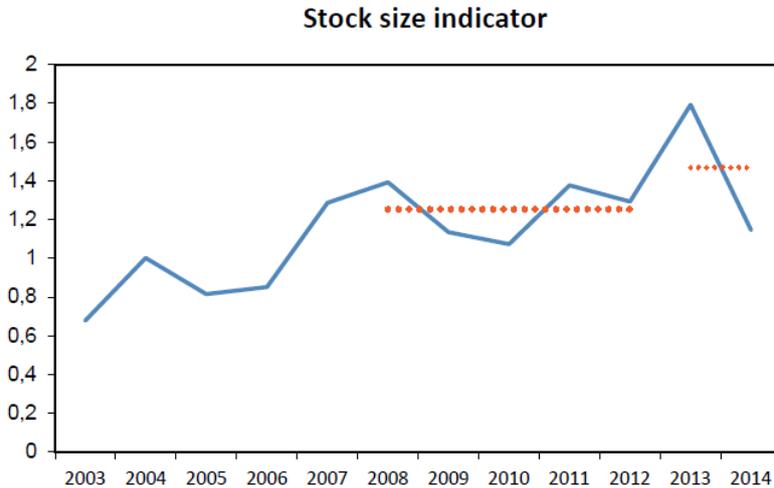


Figure 16. Lesser-spotted dogfish in Subarea VI and Divisions VIIa–c, e–j. Average of survey indices of abundance (n_{h-1} , relative to the time-series mean) from trawl surveys (EVHOE, IGFS-WIBTS-Q4, Spanish Porcupine Bank survey, UK-7af-BTS). Dotted horizontal lines indicating the mean catch rates for 2013–2014 (Index A) and 2008–2012 (Index B). Source: ICES, 2015b

	Fishing pressure			Stock size			
		2012	2013	2014	2012	2013	2014
Maximum sustainable yield	F_{MSY}	?	?	?	MSY	?	?
Precautionary approach	F_{pa}, F_{lim}	?	?	?	B_{pa}, B_{lim}	?	?
Management plan	F_{MGT}	-	-	-	SSB_{MGT}	-	-
Qualitative evaluation	-	?	?	?	-	↘	↗
						↘	↗

Figure 17. Lesser-spotted dogfish in Subarea VI and Divisions VIIa–c, e–j. State of the stock and fishery relative to reference points. Source: ICES, 2015b

Management

Management for these stocks follows the ICES approach to data-limited stocks, which fall under Category 3. This category includes stocks for which survey indices (*inter alia*) are available that provide reliable indications of trends in stock metrics such as mortality, recruitment, and biomass. The general concept of survey-based catch advice is based on the assumption that decreasing surveys suggest catch should be incrementally decreased and vice versa (ICES, 2012b). For these types of stocks, ICES therefore uses a harvest control rule based on an index-adjusted status quo catch. The advice is based on a comparison of the two most recent index values with the five preceding values, combined with recent catch or landings data. Knowledge about the exploitation status also influences the advised catch (ICES, 2012a). As the methodologies used to estimate stock status for data-limited stocks are

expected to be more susceptible to noise than methods used to produce forecasts for data-rich stocks, a change limit of $\pm 20\%$ (uncertainty cap) is applied in the advice (ICES, 2015c).

Information

This stock comes under the remit of the ICES Working Group on Elasmobranch Fishes (WGEF), which has been responsible for providing assessments and advice on the state of the stocks of sharks, skates, and rays throughout the ICES area since 2002. WGEF reviews and defines data requirements (fishery, survey and biological parameters) for stock identification as well as analytical models assessment methodologies to evaluate the status of the stocks, and adopts and extends the methodologies and assessments for elasmobranchs.

For *S. canicula*, there is no obligation to report catches at the species level, and the species is often included in generic categories such as “dogfish and hounds”. Therefore, landings data are not considered reliable. Furthermore, high levels of discarding take place and these are poorly quantified (ICES, 2012a). While some fisheries-dependent data are obtained through national observer programmes (WGEF, 2014), the stock assessments rely primarily on fisheries-independent data provided by the Beam Trawl Surveys (BTS) and International Bottom Trawl Surveys (IBTS). The stocks are therefore considered by ICES under category 3 of its data-limited approach as explained in the previous section.

3.4.2. Discards

The information on discards was obtained from stakeholders during the SICA workshop, as part of the Risk-Based Framework (RBF) approach. Other species encountered in whelk pots can include netted dog whelk (*Nassarius reticulatus*, “nasse”), dog whelk (*Nucella lapillus*, “nucelle”), hermit crabs disguising as whelks (Paguroidea), small velvet swimming crabs (*Necora puber*, “étrille”) and edible crab (*Cancer pagurus*, “tourteau”).

During the SICA workshop, stakeholders identified *N. reticulatus* as being by far the most dominant bycatch species and this species was retained for further SICA analysis, as discussed in the following section.

3.4.2.1. Netted dog whelk / Nasse (*Nassarius reticulatus*)

Outcome

During the SICA for this species, the fishery was identified as the most significant risk-causing activity, representing the worst plausible case scenario. The species can reach up to 3cm in height and occurs predominantly in coastal habitats in sedimentary areas of the lower rocky shore and sublittorally to 15 m on soft sediments, where it often buries itself and feeds on dead and decaying animal matter (MarLIN). The results of the SICA are presented in Appendix 2.2 (see Principle 2 SICA Scoring Table). The assessment and the stakeholders arrived at a consequence score of 1, indicating an MSC score of 100. In accordance with the MSC Certification Requirements v1.3 no further PSA was therefore required.

Management

After each pot is lifted, the catch is sorted immediately with an average time delay of approximately 3 seconds. A sorting grid of 22mm is used (Figure 18) and any small bycatch (<22mm) falls straight back into the sea. Larger bycatch is picked out and discarded. All stakeholders agreed that survival rates of discards were likely to be high. Pots are also equipped with small holes at their base, which allow bycatch to escape/fall through/be pushed out as the volume of whelks in the pot increases.



Figure 18. Images of sorting grid used aboard whelk vessels. A sorting grid of 22mm is used by the fishery under assessment (this is 20mm for Bretagne-based boats) (Left: image by MEC; Right: image by NFM/CRPM-BN/SMEL).

Information

Information on the fishery's bycatch, including *N. reticulatus* is collected through fishermen's observations (through a self-sampling programme which started in 2009, and which takes place every day during the fishing season aboard a number of participating vessels) as well as through data collection by the SMEL during at-sea observer campaigns, which take place every 2 years. Although so far no attempt at stock assessment has been made, any trend in bycatch of this and other species is likely to be detected (see SMEL, 2014)

3.4.3. Protected species interacting with the fishery

There is a number of protected areas designated under the EC Habitats and Birds directives within Granville Bay, the most relevant of which are listed in Table 6. Species of conservation concern include over 20 birds species, allis shad (*Alosa alosa*), twaite shad (*A. fallax*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*), Atlantic salmon (*Salmo salar*), grey seal (*Halichoerus grypus*), common seal (*Phoca vitulina*), harbour porpoise (*Phocoena phocoena*), European otter (*Lutra lutra*) and bottlenose dolphin (*Tursiops truncatus*).

In the context of the EC Birds and Habitats Directives (Natura 2000), the Agence des Aires Marines Protégées (AAMP) evaluated the interactions of various gear types with the qualifying habitats and species of designated protected sites (see le Fur, 2010). For pot fisheries, it was concluded that there is no accidental bycatch of any of the bird, fish and marine mammal species listed. Furthermore, stakeholders present at the site visit and SICA workshop agreed that interactions with birds or any other protected species are not an issue in this fishery.

Whelk pots sink very quickly (due to their concrete base) and those birds able to dive to the pots once settled would be unable to access the bait due to the small diameter of the pot opening (max 9cm). During and after hauling there is also limited opportunity for interaction as discards sink very quickly. Cetacean species are known to occur in Granville Bay, and are spotted from the vessels but are not reported to interact with the fishery. The risk of entanglement is also low as the pots are weighted with concrete bases and the lines between pots are taut (good weighting is important as the tidal currents in the area can be strong). In terms of the other ETP species listed, any risk of interaction with the fishery is extremely low and these are thus not considered further.

Table 6. List of protected areas and their qualifying features (species and habitats) within Granville Bay.

Protected area	Type	Relevant qualifying features
Ile Chausey	SPA (EC Birds Directive)	28 bird species (see this link)
Baie du Mont Saint Michel	Ramsar Convention on Wetlands	Low marshes and tidal coasts
	SAC (EC Habitats Directive)	Species: Allis shad, twaite shad, river and sea lamprey, Atlantic salmon, grey seal (amongst others) Habitats: sandflats, mudflats, estuaries, reefs (also see this link)
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard	SAC (EC Habitats Directive)	Species: Allis shad, twaite shad, common seal, harbour porpoise (amongst others) Habitats: sandflats, mudflats, estuaries, reefs (also see this link)
Tregor Goëlo	SAC (EC Habitats Directive)	Species: Allis shad, twaite shad, sea lamprey, Atlantic salmon, grey seal, European otter (amongst others) Habitats: sandflats, mudflats, estuaries, reefs (also see this link)
Anse de Vauville	SAC (EC Habitats Directive)	Species: grey seal, common seal, harbour porpoise, bottlenose dolphin Habitats: sandbanks and reefs (also see this link)
Banc et récifs de Surtainville	SAC (EC Habitats Directive)	Species: grey seal, common seal, harbour porpoise, bottlenose dolphin Habitats: sandbanks and reefs (also see this link)
Havre de la Sienne	SPA (EC Birds Directive)	20 bird species (see this link)
Récifs et landes de la Hague	SAC (EC Habitats Directive)	Species: grey seal, common seal, harbour porpoise, bottlenose dolphin Habitats: sandbanks, mudflats and reefs (also see this link)

The French government has instructed the AAMP to implement the programme PACOMM (Programme d'Acquisition de Connaissances sur les Oiseaux et les Mammifères Marins) that commenced in 2010 and is due to finish by the end of 2014. The programme aims to acquire data on birds and marine mammals (species distributions, population dynamics, etc.) within

French metropolitan waters in order to meet France's commitments under the EC Habitats and Bird Directives and the Marine Strategy Framework Directive. The programme includes aerial surveys (SAMM), boat-based surveys, acoustic harbour porpoise surveys (MARSAC), and telemetric surveys of birds through the project FAME in collaboration with the UK, Ireland, Spain and Portugal.

3.4.4. Habitats

In Granville Bay, benthic habitats are strongly scoured by tidal flows in most places, and any soft bottom habitat is therefore generally comprised of coarse mobile sand (see dark brown in Figure 19). Sensitive habitats do, however, exist in some places (as shown in Figure 20) and these include *Zostera* fields, maerl beds, sand mason (*Lanice conchilega*) banks and *Sabellaria* reefs.

Zostera occurs in shallow inshore areas and does not overlap with the fishery, which takes place at depths from about 7m to 40m (owing to topography and whelk abundance). In any case, the preferred habitat for whelks is sandy/muddy sediment and is therefore highly unlikely to be fished in these areas. The other sensitive habitats listed also occurred in inshore areas where overlap with the fishery is unlikely. Although maerl beds were known to exist further offshore in Granville Bay, these have degraded in the last 30 years (Olivier Abellard, AAMP, pers. comm.) and recent data suggest that these too are now concentrated in inshore areas (see Figure 20). Fishermen present at the site visit further indicate that they actively avoid any areas where reefs are known to be present as it reduces fishing efficiency and increases the likelihood of the line of pots snagging.

As already explained in Section 3.4.3 (Table 6), a number of sites in Granville Bay have been designated as SACs (Special Areas of Conservation) under the EC Habitats Directive. Protected habitats include sandbanks, mudflats and biogenic reefs (including *Sabellaria* reefs). In the context of Natura 2000, the AAMP evaluated the interactions of various gear types with the qualifying habitats of designated protected sites based on available literature (see le Fur, 2010). For pot fisheries, it was concluded that this gear type has a low physical impact on the benthic features they encounter (references cited include Chuenpagdee et al. (2003) and Brown et al. (2005)).

The occurrence of ghost fishing was also considered in this section. Individual pots are rarely lost; however entire lines can be lost especially because of incidents with trawlers (closer to the English Channel where there is more traffic). Whelk pots are not marked⁴ and gear is generally not recovered, especially as the buoys have often been removed by trawlers, or are submerged when other lines are dragged on top. Work has, however, been done to try and avoid conflicts between active and passive gear fishermen in this area. Stakeholders present at the site visit estimated that approximately 5 pots are lost per vessel per year. The residual fishing capacity of lost pots is low as the longer the pots stay on the seabed, the more sand enters, leaving less room for any whelks or other animals to enter. The bait also degrades quickly, which further reduces the risk of ghost fishing. Finally, the way the pots are configured means they open easily (the concrete base detaches from the plastic top) and therefore would

⁴ It is reportedly more common to lose whelk pots than lobster pots – one of the reasons why there is no pot tagging system in Basse-Normandie for whelk pots.

3.4.5. Ecosystem

Granville Bay is one of the more ecologically interesting marine areas in Western Europe. Its position at the confluence of warm and cold currents leads to high biodiversity, with species surviving at both the northern and southern limit of their distributions. Oceanographically, the ecosystem is characterised by large tidal amplitude (among the largest in the world) and very strong tidal currents, which dictate almost every aspect of the marine environment (and human activities within it). Granville Bay itself appears to be contained within a tidal gyre which may promote retention of planktonic larvae such as lobster (Bertrand, 1982; Bossy and Morel, 2001), for which there is an important (and MSC-certified) fishery. The strong currents also provide a plentiful supply of food to suspension feeders (an energy input which is propagated through the food web by the many species that feed on suspension feeders such as bivalves) (MEP, 2011).

The common whelk is a predator and scavenger, feeding off live bivalves such as mussels and cockles as well as dead animal material of any kind. Although the role of the common whelk in Granville Bay is not very well understood, the species is necrophagous and the fishery under assessment is therefore highly unlikely to cause irreversible ecosystem impacts. Nevertheless, aspects of the species' biology, including its relatively long lifespan, gregarious nature and relative lack of population mobility (i.e. absence of planktonic larval phase and limited mobility of the adults) (KEIFCA, 2012) make the species potentially susceptible to both growth- and recruitment-overfishing (Lawler and Vause, 2009). Over-exploitation of whelk stocks and a subsequent crash in stocks has been documented in the southern Irish Sea whelk fishery (Fahy et al., undated). In Granville Bay, however, following past declines in whelk catch rates in the 1990s, management of this fishery by CRPM-BN has significantly improved and is apparently succeeding in keeping the whelk stock relatively healthy (see Principle 1, Section 3.3.3), thereby avoiding any ecosystem-level impacts.

3.5. Principle Three: Management System Background

3.5.1. Governance and policy

3.5.1.1. Legal framework

The Basse-Normandie whelk fishery takes place entirely inside 12 nautical miles. Its management system is defined by the French fisheries management arrangements (Code rural et de la pêche maritime Livre IX: Pêche maritime et aquaculture marine⁵ and application decree n°2011-776). Local management measures are also coordinated with the Jersey management system through the Bay of Granville Treaty arrangement (see Table 4). However, the fisheries prosecuted by vessels registered in Jersey or in Brittany are not included in the Unit of Certification.

The Basse-Normandie whelk fishery is managed by the CRPM-BN on behalf of the French government (Décret n°2011-776 du 28 juin 2011), which delivers annual fishing permits (specific shellfish licence) (Article L921-1) through the government's delegated administrative authority. The permit allocation takes accounts of historical involvement and is not transferable. The current conditions for the whelk fishery are defined in the bylaw (DIRM arrêté n°09/2012⁶) and may be changed; they include closed areas, seasons (DIRM arrêté n°185/2013), minimum legal size and other technical measures, in response to local proposals. The award of a licence West-Cotentin by the CRPM-BN and its conditions are discussed by the Licence Committee (Délibérations BUMW17-2009 and ATT-D11-2013 and arrêté N°83/2013), which regularly considers mechanisms to allow young entrants. A refusal may be challenged in the competent administrative court (Préfecture de région – Haute Normandie).

The legal framework for the management system with Jersey and Brittany is provided by the Agreement on Fishing arrangements in the Bay of Granville, known as the Granville Bay Treaty, signed in 2000 between the United Kingdom and France. The broad scope of the agreement is to '*[...] conserve fisheries resource in the seas situated in the region of the Island of Jersey and the neighbouring coast of France*' and to '*[...] contribute to the prosperity of the local communities which depend [...] on the fisheries resources of those seas*'. The regulations implemented under the Agreement have to be set on the basis of a precautionary approach, but with regard to socio-economic factors. The Treaty recognises and is consistent with laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2 (see also MEP, 2011).

Under the Treaty, the Joint Management Committee (JMC) has the mandate to '*ensure the conservation and effective management of the fishery resources in the area covered by the Agreement*', with conservation meaning '*the rational use and the maintenance or re-establishment of stock of species at levels which ensure constant maximum yield*'. The JMC meets three times per year in ordinary session, but may hold extraordinary sessions.

⁵ See <http://www.legifrance.gouv.fr> for latest consolidated version

⁶ Rendant obligatoire la délibération EXP-BU-ME5-2011 du CRPMEM-BN portant création de la licence spéciale de pêche du bulot (*Buccinum undatum*) en Manche Est et portant organisation de cette pêche.

Decisions taken under the Treaty are translated into the French regulatory system for the fishery by Basse-Normandie and at national level if needed, and under the States of Jersey and UK system by Jersey. Both systems of fisheries management have a clear hierarchy of legal frameworks, management institutions and responsibility under the European Common Fisheries Policy.

The JMC is under an obligation to seek the views of the Joint Advisory Committee (JAC) before it reaches a decision. The JAC brings together fishermen's representatives, government officials and scientists and meets three times a year in ordinary sessions held in turn in Granville (Basse-Normandie), St Malo (Brittany) and Jersey in rotation (these meetings are generally held just before the JMC meetings). The JAC provides a forum for discussion and a transparent mechanism for the resolution of disputes including emergency arbitration procedures (Art. 4 and Art. 1 and 2 annex D) that is appropriate to the context of the fishery. The role of the JAC as a conduit to discuss, for example, gear conflicts and resolve them through the proposal of targeted management measures regarding fishing season and areas has been tested and proven to be effective (e.g. for spider crabs management measures). Through the JAC, the management system acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges (Art. 3I).

The Bay of Granville Agreement puts a cap on the total fishing effort in the Area through an access permit that was awarded to vessels registered in Jersey, in certain French ports and to those out-of-Area boats that can demonstrate a track record. The recognition and formal commitment to the legal rights created explicitly or established by custom on people dependent on fishing for livelihood in a manner consistent with the objectives of MSC Principles 1 and 2 is at the core of the Treaty.

The CRPM of Brittany manages the other fisheries on the stock in the Western Channel on the French side outside Granville Bay. It function on the same basis as the CRPM-Basse Normandy.

The CFP has a limited role to play in whelk fisheries, which are overwhelmingly inshore, but it does set a minimum size (shell height) of 45mm for whelks throughout Europe – local management may set a larger minimum size if desired.

3.5.1.2. Consultation, roles and responsibilities

The day-to-day management of a coastal fishery is the responsibility of the professional organization CRPM-BN⁷, with elected members representing the various categories of professional fishers in the local area. The regional level is supported at national level by the Comité National des Pêches Maritimes et des Elevages Marins (CNP MEM or CNPM for short), which examines and recommends legislation on strategic aspects of fisheries management, such as crustacean specific national licence types, principle and implementation of effort control, and minimum legal sizes. The CRPM-BN calls upon scientists (Ifremer, SMEL) to advise on stock status, data collection and fishing operations, and provides expert advice on management actions. Propositions from the CRPM-BN ('delibération') provide the basis for local fisheries co-management regulations.

⁷ <http://www.crpbn.fr/reglementation/cadre-general/>

The Granville Bay Treaty arrangement has a consultative committee, which sits at least twice a year and where the cooperative management of the whelk fishery by the CRPM-BN and Jersey are discussed.

3.5.1.3. Long-term objectives

The French fisheries legislation defers to the European Union and its Common Fisheries Policy (CFP), to cooperate with other States, to apply the precautionary approach to conservation, management and exploitation of fish stocks, to ensure compatibility of conservation and management measures where marine resources occur in sea areas of different jurisdictional status. Long-term objectives are clearly stated in the French primary legislation (Code Rural et de la Pêche Maritime and Code de l'Environnement) and fully consistent with the international conservation and cooperation obligations, as are French inshore conservation and management measures.

There is no specific 'objectives' section in the Granville Bay Treaty, but it states that management should be in accordance with the precautionary approach; that it should take into account socio-economic issues; and that it should be on the basis of 'constant maximum yield'.

3.5.1.4. Incentives for sustainable fishing

The French fisheries management system provides regular incentives for sustainable fishing, through the support of the co-management process and of the Bay of Granville Treaty process. Local and region-level grant and budget support to the CRPM-BN and various projects (most of which are part-funded by the European Fisheries Fund) have supported data collection and research to inform the management plan. The provision of state support from the European Maritime and Fisheries Fund (EMFF)⁸ in France is carefully scrutinized to ensure that negative incentives do not arise (e.g. see Cappell et al. 2010). For example, support provided by the French government in the past to mitigate fuel price increases, were deemed incompatible with EU regulations, and had to be paid back by those who had received it.

3.5.2. Fishery-specific management system

3.5.2.1. Fishery-specific objectives

Management measures put in place since 2009 all aim to decrease fishing mortality and ultimately increase production – these can be regarded as implicit objectives. There is not, however, a specific management plan for this fishery and explicit objectives are not set out for the fishery (e.g. in the form of reference points such as target CPUE levels). This was a concern expressed by Jersey during the consultation process for this assessment. Explicit management objectives for both Principle 1 (stock) and Principle 2 (ecosystem) need to be set.

⁸ http://ec.europa.eu/fisheries/cfp/emff/index_en.htm

3.5.2.2. Decision-making process

The decision-making processes in the fishery have largely been set out above. For the Basse-Normandie fishery, the management body is the CRPM-BN. The CRPM-BN has a Commission Bulot (whelk commission) which is open to all stakeholders but tries to ensure a wide geographical spread of representation, including having two sub-presidents, one from Granville and one from outside. The Commission Bulot provides advice and proposals to the CRPM-BN, who take decisions. These decisions are given legal force by the regional (Basse-Normandie) prefecture, via 'arrêtés préfectoraux' – e.g. licence conditions and regulations (conditions d'exploitation)⁹. These conditions usually last 5 years but can be renewed or revised at any time.

For the joint Granville Bay process, decisions are taken by the JMC – the JAC provides advice. Decisions are taken by consensus. Decisions of the JMC must be put into force in each of the three areas (Basse-Normandie, Brittany, Jersey) following their own national procedures – hence for Basse-Normandie it would be as described above (decision by the CRPM-BN put into force by an arrêté préfectoral).

3.5.2.3. Compliance and enforcement

A number of agencies come together to deliver monitoring, control and surveillance (MCS) of French coastal fisheries. For the Basse-Normandie whelk fishery, compliance and enforcement matters are coordinated by the pôle PPAM - Pôle pêches et activités maritimes, of the Délégation à la mer et au littoral (DML50 of the DDTM).

The 'note technique du 2 juin 2014' regarding control of landings declarations for marine fisheries¹⁰ defines control priorities for local services, obligations of skippers, of those involved in the first sale ('première mise sur le marché') and of those who transport fisheries products. It provides a summary of the different obligations and processes, in particular for the under-12m vessels operating in the whelk fishery:

1. Catch declarations: 'fiche de pêche' for under 10m vessels and log-books for those over 10m (EC regulation No 404/2011)
2. Landing declarations
3. Sales slips (note de vente)
4. Transfer declarations
5. Transport documents.

The note aims to improve the quality of the data collected. It defines the roles of local services (for this fishery the DML50-DDTM Table 4), the national fisheries surveillance centre (Centre national de surveillance des pêches - CNP), FranceAgrimer and the central government Directorate (DPMA - Direction des pêches maritimes et d' l'aquaculture), for the control and check of these documents.

⁹ see <http://www.crpbn.fr/wp-content/uploads/2015/12/146.2015avenant3delibCRPMBNbulotMO.pdf>

¹⁰ <http://circulaire.legifrance.gouv.fr/index.php?action=afficherCirculaire&hit=1&r=38395>

The DML50 systematically crosschecks commercial catch declarations with the sales notes as these are received (within 48 hours for over-10m, and monthly for under-10m), and reports no specific concerns for the fishery. Although there is a reporting gap when the vessels do not use the auction market (“criée”), it is essentially a time delay. The collection of sales slips for landings sold directly (“hors-criée”) provides a satisfactory coverage, as there are no direct sales to the public.

The DML replaced the Affaires Maritimes (DDAM) in January 2010 to implement the government policy in marine and maritime matters. It has a dual role of collecting data in support of regulations and of controlling fishing activities and landings, and has police powers at sea and on land. The DML50’s powers to enforce maritime and fisheries regulations are exercised in the field by ULAM’s vessels and fisheries enforcement agents (ULAM50 - Unité Littorale des Affaires Maritimes Manche, based in Cherbourg), in collaboration with the Gendarmerie Maritime, Customs, Gendarmerie nationale and the French Navy (Marine Nationale). The DML50 main office is in Cherbourg, with a local office in Granville (“Station Maritime”).

In addition, French vessels in the Bay of Granville Treaty area may be checked at sea by the Jersey authorities and vice-versa for the French control of Jersey vessels. Jersey-registered vessels landing in France are systematically checked by Customs. The monitoring, control and surveillance system in Granville Bay for the whelk fishery is able to enforce all relevant management measures.

Sanctions to deal with non-compliance exist for all coastal fisheries and are said by all stakeholders met to be consistently applied. They combine administrative sanctions (penalties, confiscation of catch and gear, licence suspension etc.) with sanctions from the judicial systems including fines, and suspension of fishing permits and licences. According to the fishermen, the CRPM-BN and the DML50, the combination of legal prosecutions and administrative sanctions provides an effective deterrence.

One concern raised by stakeholders during the site visit was the question of whether there is a loophole in the licensing process for Granville Bay as a whole, due to the presence of three separate licensing jurisdictions. However, the matter is addressed in Jersey legislation regarding areas with specific regimes (zones A and B in Jersey territorial waters and zones C and D) and through exchange of notes between Jersey and France, including agreed vessel lists).

Finally, at the site visit, the team got the impression that the pot limit per vessels is not really enforceable (since pots are mainly left at sea) and hence all fishers may not be in full compliance with this measure. This does not have significant implications for the fishery since there are limits as to how many pots a vessel can lift in a given time period.

3.5.2.4. Research Plan

The SMEL and CRPM-BN organise a survey every two years with at-sea observers to follow the stock recovery through CPUE, recruitment and size distribution in the fishery. The information is supplemented by a voluntary self-sampling programme from the reference fleet.

Several projects complement the scientific monitoring programme including research on size/age at maturity, reproductive output and the reproductive cycle, and the BULOCLIM

project (SMEL) on the effect of water temperatures on survival, growth, maturity and age. Full details of the various monitoring and research projects are provided above.

3.5.2.5. Monitoring and performance evaluation of the fishery management system

The effect of management measures is followed closely by the CRPM-BN, and is discussed with Jersey at the JAC meetings. An annual stocktake ('bilan') is presented to the 1st Bulot Committee meeting of the year (CRPM-BN meeting report 22 January 2013, 7 February 2014). More generally, the Granville Bay process can be seen as a process whereby each of the three jurisdictions is overseen by the other two. In typical JAC and JMC meetings, there are presentations of recent research, survey results and fisheries by representatives of the three areas, along with robust discussion about the interpretation of data, status of stocks and most appropriate management actions to take.

4. Evaluation Procedure

4.1. Harmonised Fishery Assessment

No other whelk fisheries are currently engaged in the MSC programme. The Normandy/Jersey lobster fishery is the only other MSC certified fishery, which takes place in Granville Bay. The Basse-Normandie client for this fishery was the same as for the whelk fishery and two of the three assessment team members (Principle 1 and 3) participated in both assessments. Some aspects of the approach to the management of the stock (e.g. in relation to how the reference points are conceptualised) are similar in both fisheries, and this has been taken into account in the scoring of Principle 1. There are also many similarities in Principle 3, which have also been aligned.

4.2. Previous assessments

There have been no previous assessments of this fishery.

4.3. Assessment Methodologies

The assessment methodology is given in Table 7.

Table 7. Assessment methodology used.

Version of Certification Requirements used	1.3
Version of Full Assessment Reporting Template used	1.3
Default assessment tree used with adjustments?	No
Details of adjustments made	N/A
Risk-Based Framework used?	Yes

4.4. Evaluation Processes and Techniques

4.4.1. Site Visits and consultations

During the assessment process, one site visit was held in Granville, France on the 8th and 9th July 2014. During the site visit a wide range of stakeholders were met with (see Table 8).

Table 8. Consultees and other participants in the Granville site visit –8 - 9 July 2014)

Name	Organisation	Type of consultation	Present at SICA workshop?
Roland QUARANTE	CRPM – co-président de la commission Bulot Manche Ouest	Provision of information	yes
Ghislaine HERVIEU	Antenne Ouest Cotentin du CRPM Basse-Normandie	Provision of information	no

Name	Organisation	Type of consultation	Present at SICA workshop?
Didier LEGUELINEL	CRPM – co-président de la commission Bulot Manche Ouest	Provision of information	yes
Laurence HEGRON MACE	SMEL	Provision of information	yes
Dominique LAMORT	NFM	Client	yes
Véronique LEGRAND	CRPM Basse-Normandie	Provision of information	yes
Béatrice HARMEL	CRPM Basse-Normandie	Provision of information	no
Olivier ABELLARD	Agence des Aires Marines Protégées	Provision of information	yes
Margaux FAVRET	MSC	Observer	yes
Régine TAVERNIER	DDTM/DML/PAM	Provision of information	no
Jacques DOUDET	CRPM Bretagne	Provision of information	no
Jo GASCOIGNE	MEC	Assessor	yes
Sophie DES CLERS	MEC	Assessor	yes
Chrissie SIEBEN	MEC	Assessor	yes

On the 16th July a conference call took place with Greg Morel and Jonathon Shrivess of the Jersey Marine Resources Section who were unable to attend the Granville site visit. Jacques Doudet of the CRPM in Brittany provided information and responded to questions by email.

At key stages of the assessment process, stakeholders were contacted and provided with an opportunity to comment (for a full list of stakeholders, please see Appendix 8).

4.4.2. Stakeholder comments during evaluation

The majority of consultations with stakeholders focused on the provision of information for the assessment and few concerns were raised about the fishery. Those concerns raised by the Jersey Marine Resources Section are summarised below (also see Appendix 4):

- How can Jersey fishermen get involved if they want to? Can we include some discussion of Jersey management system to facilitate this? They do not have the resources to participate directly. For example, if a Jersey fisherman agreed to abide by Basse-Normandie rules, would they be able to be included?
- Jersey fishermen and politicians will find it strange that there is a well-recognised certification for a fishery that operates in Jersey waters, but does not include Jersey fishermen.
- If Jersey stops some of their work on whelks (e.g. stop doing their annual survey) will that potentially impact on the Basse-Normandie certification? They do not want to affect their Basse-Normandie partners, but resources are getting tight and the Normans cannot assume that they will carry on with this. [The survey ended after 2013.]

- The Granville Bay system has not worked as well for whelks as for lobster – they feel that the Normans have been unilateral in their management decision-making.
- Action Plan – they would like the Client Action Plan to be put through the Granville Bay system if possible rather than being unilateral – at least they would like some discussion.
- Unclear what the Norman objective of management is in terms of CPUE. Agree that improvement from 0.8-1.5kg/pot is positive, but they used to get 2-3kg/pot at the start of the fishery. Question of what is their management baseline – what is an appropriate level at which the fishery has ‘recovered’.
- MLS – size at 50% maturity is actually ~50mm – thinks 45mm is not adequate.
- Closed season in January – question if this is the best month
- We discussed why the approach to management has been different between Jersey and Basse-Normandie – ultimately, Basse-Normandie prefers to control effort and Jersey prefers technical measures. This comes down to what the fishermen prefer on each side, since both systems are very driven by agreement of stakeholders. This is why harmonised Granville Bay regulations have never been achieved for whelks. This may not matter, as long as there are no loopholes and as long as both regimes are reasonably effective, and as long as the French regime does not result in displacement of French effort into Jersey waters.
- Nevertheless, they want the Granville Bay system to be considered as the preferred management system for whelks in the area – unilateral measures are a second best option.

4.4.3. Evaluation Techniques

a) Media announcements

MEC selected two media outlets: the Aquaculture Directory and the MSC website. Aquaculture Directory was selected as it requires no subscription and reaches a wide range of seafood professionals, while the MSC press release targeted a wide range of stakeholders within the sustainable seafood industry. The combination of both ensured that key stakeholders were notified of this fishery’s announcement.

b) Methodology for information gathering

Information for the assessment was gathered during the site visit and through separate consultation and correspondence with individual stakeholders. The CRPM-BN and SMEL were key in providing most of the information regarding the science and management of the fishery, while representatives of the whelk producers provided crucial, first-hand information on how the fishery operates. Despite their concerns raised, the Jersey Marine Resources Section were also very cooperative throughout the assessment process.

c) Scoring process

Scoring was partly completed during the site visit and partly completed afterwards. Some Principle 2 information was lacking during the site visit (for reasons outside the control of the

assessment team or the client) and PIs 2.3–1 - 2.5.3 were therefore mainly scored after the site visit, by remote discussion. The scores were decided as follows:

How many scoring issues met?	SG60	SG80	SG100
All	60	80	100
Half	FAIL	70	90
Less than half	FAIL	65	85
More than half	FAIL	75	95

Note that where there is only one scoring issue in the SG, the issue can be partially scored – in this case the team used their judgement to determine what proportion of it was met, e.g. at the 100 level, a small part met = 85, about half met = 90, nearly all met = 95.

For PIs where the RBF was used (PI 1.1.1 and 2.2.1), the following rules applied:

- For PI 1.1.1, regardless of the SICA outcome the PSA score was retained as overall score
- For PI 2.2.1, the SICA score was the final score of the PI if the consequence score of the most vulnerable scoring element was calculated at 1 or 2. For a higher consequence score the PSA score was retained as overall score.

d) Decision rules for final outcome

The decision rule for MSC certification is as follows:

- No PIs scores below 60;
- The aggregate score for each Principle, rounded to the nearest whole number, is 80 or above.

The aggregate score for each Principle is calculated by taking the average score for each section followed by the average of all the section scores (see Section 6).

e) Scoring elements

For Principle 1, only one scoring element was considered, i.e. Granville Bay whelks. The set of scoring elements that were considered for each outcome PI in Principle 2 is listed in Table 9.

Table 9. Scoring elements

Component	Scoring elements	Main/not main	Data-deficient or not
2–1 - Retained species	Small-spotted catshark	Main	No
2.2 – Discards	Netted dogwhelk	Main	Yes

f) Use of the Risk-Based Framework

The risk-based framework (RBF) is an alternative evaluation system for some Performance Indicators (PI), based on an acknowledgement by the MSC that in some cases quantitative data and formal stock assessments may not be available. In this case, the use of the default assessment tree becomes difficult and the RBF is triggered.

The RBF can be used for outcome PIs (PIs which are scored on the basis of the actual situation as opposed to the management system or the information available). These PIs are:

- 1.1.1 (target species outcome)
- 2.1.1 (retained species outcome)
- 2.2.1 (discarded bycatch outcome)
- 2.3.1 (endangered, threatened and protected (ETP) species outcome)
- 2.4.1 (habitats outcome)
- 2.5.1 (ecosystem outcome)

As noted above, the RBF was initially triggered for Principle 1. Following new information provided by the client, however, the PCDR was redrafted using the default assessment tree (since stock status can now be evaluated relative to reference points – see Section 3.3.1).

For Principle 2, although some biennial observer data were available for PI 2.2.1 (bycatch) via the SMEL observer-at sea programme, these data were not considered quantitatively sufficient to permit use of the default assessment tree. The RBF was thus also triggered for this PI.

The RBF is implemented via two methods – a Scale-Intensity Consequence Analysis (SICA) and a Productivity-Susceptibility Analysis (PSA).

The SICA is effectively a structured risk assessment exercise with stakeholders. The use of the RBF and the SICA workshop was announced to stakeholders in the site visit notification, sent on the 29th May 2014. The SICA workshop was organised in Granville on the 8th July when the greatest number of stakeholders were present during the site visit (see Table 8). The results of the SICA for PI 2.2.1 are shown in Appendix 2. Overall, there were no disagreements between stakeholders and a consensus could be reached.

The PSA is an analysis of the susceptibility of the population in question to the fishery in question, by review of the productivity of the population and its overlap with the fishery. For Principle 2, a PSA is only required if the SICA scores <80.

The SICA for Principle 2 (PI 2.2.1) focused on anecdotal information provided by the fishermen present, survey data stemming from the SMEL's biennial at-sea observer campaigns and expert opinion from the CRPM-BN representatives. The netted dog whelk (*Nassarius reticulatus*) was selected as the most vulnerable bycatch species in this fishery, with fishing the sole risk-causing activity. A consequence score of 1 was determined for this PI, leading to an MSC equivalent score of 100. No further PSA was therefore required.

5. Traceability

5.1. Eligibility Date

The actual eligibility date for this fishery has been set as the date of certification.

5.2. Traceability within the Fishery

The majority of the licensed vessels fish for whelks as their main activity. Although the vessels may have other gear types on board such as traps to target cuttlefish or crabs, these are unlikely to retain whelks. The risk of substitution at this level was considered minimal.

All vessels involved in the fishery under assessment complete 'fiches de pêche' which ensures that catches can be traced back to the fishing area. No processing takes place on board and whelks are sold live at auction or to fish merchants directly. As previously explained in Section 3.5.2.3, the DML50 systematically crosschecks commercial catch declarations with the sales notes as these are received (within 48 hours for over-10m, and monthly for under-10m), and reports no specific concerns for the fishery. Although there is a reporting gap when the vessels do not use the auction market ("criée"), it is essentially a time delay. The collection of sales slips for landings sold directly ("hors-criée") provides a satisfactory coverage as there are no direct sales to the public.

At sea and quayside inspections are carried out by the DML50 in collaboration with the Gendarmerie Maritime, Customs, Gendarmerie nationale and the French Navy (Marine Nationale). In addition, French vessels in the Bay of Granville Treaty area may be checked at sea by the Jersey authorities and vice-versa for the French control of Jersey vessels. Jersey-registered vessels landing in France are systematically checked by Customs. The monitoring, control and surveillance system in Granville Bay for the whelk fishery is able to enforce all relevant management measures and stakeholders report that the combination of legal prosecutions and administrative sanctions provides an effective deterrence.

The boats under assessment only fish in the UoC waters as specified in Section 3.1: Granville Bay (Basse-Normandie exclusive zone in West Cotentin, plus the shared Basse-Normandie /Brittany/Jersey zone as defined under the Granville Bay Treaty, plus zones A, B and C as defined under the Granville Bay Treaty for those Norman vessels which have rights to fish in those areas (see Figure 1). There is therefore minimal risk of mixing MSC and non-MSC product as the UoC is both defined by the Granville Bay geographical area and the Basse-Normandie licensed whelk boats which are subject to the BN management system wherever they fish. All whelk catch aboard the vessels listed in Table 1 would therefore be MSC certified.

No transshipment takes place in this fishery.

A list of landing sites authorised under the whelk-fishing license is given in the Arrêté préfectoral 110/2009 of 21 September 2009. The sites are the following:

- Granville (quai ouest)
- Bricqueville sur Mer (les Salines)
- Agon Coutainville (cale de l'école de voile)

- Blainville sur Mer (cale principale)
- Gouville sur Mer (cale principale)
- Pirou
- Saint Germain sur Ay (cale principale)
- Portbail
- Bretteville/Ay
- Denneville
- Carteret (port de pêche)
- Dielette
- Cherbourg (quai de la criée)

Although non-certified product can be landed at the above sites, a specific code is allocated to Granville Bay whelks upon landing at the criées (see Figure 21). The ticket also shows the name and registration number of the vessel, the fishing zone, species and live weight. This ticket therefore ensures that any MSC product is identified as such through its designation as Granville Bay-caught and permits the product to be traced back to the vessel and catch area. Whelks sold through the criées and coming from the UoC as defined in Section 3.1 would therefore be eligible to bear the MSC ecolabel. Separate Chain of Custody would be required after the first change in ownership.

Whelks are also sold to fish merchants ('mareyeurs') directly and these would have to be subject to separate CoC certification.



Figure 21. Image of ticket issued by the Granville auction. The Granville Bay-specific code is encircled in red. (Image taken by MEC)

5.3. Eligibility to Enter Further Chains of Custody

Granville Bay whelks caught by the vessels listed in Table 1 and coming from the UoC as defined in Section 3.1 after the date of certification will be eligible to enter further chains of custody subject to the following requirements:

- Whelks sold through the criées are eligible to bear the MSC ecolabel. Separate Chain of Custody would be required after the first change in ownership. The list of criées is shown below (note that invoicing is carried out by these same parties).

Criée de Granville
Halle à Marée de Granville
Quai Ouest
50400 GRANVILLE

Criée de Cherbourg
Centre de Marée de Cherbourg Cotentin
Bassin du Commerce
Quai Alexandre III
50100 CHERBOURG OCTEVILLE

- Whelks sold to fish merchants ('mareyeurs') directly would have to be subject to separate CoC certification. In this case, CoC starts at the point of landing.

5.4. Eligibility of Inseparable or Practically Inseparable (IPI) stock(s) to Enter Further Chains of Custody

There are no IPI stocks involved in this assessment.

6. Evaluation Results

6.1. Principle Level Scores

Table 10. Final Principle Scores

Principle	Score
Principle 1 – Target Species	83.1
Principle 2 – Ecosystem	88.3
Principle 3 – Management System	85.1

6.2. Summary of Scores

Principle	Component	Weighting	PI number	Performance Indicator	Score
1	Outcome	0.5	1.1.1	Stock status	90
			1.1.2	Reference points	75
			1.1.3	Stock rebuilding	n/a
	Management	0.5	1.2.1	Harvest Strategy	95
			1.2.2	Harvest control rules and tools	90
			1.2.3	Information and monitoring	75
			1.2.4	Assessment of stock status	75
2	Retained species	0.2	2.1.1	Outcome	80
			2.1.2	Management	85
			2.1.3	Information	80
	Bycatch species	0.2	2.2.1	Outcome	100
			2.2.2	Management	95
			2.2.3	Information	80
	ETP species	0.2	2.3.1	Outcome	100
			2.3.2	Management	100
			2.3.3	Information	100
	Habitats	0.2	2.4.1	Outcome	80
			2.4.2	Management	80
			2.4.3	Information	95
	Ecosystem	0.2	2.5.1	Outcome	80
			2.5.2	Management	80
			2.5.3	Information	90
3	Governance and Policy	0.5	3.1.1	Legal and customary framework	100
			3.1.2	Consultation, roles and responsibilities	95

			3.1.3	Long term objectives	90
			3.1.4	Incentives for sustainability	80
	Fishery-specific management system	0.5	3.2.1	Fishery specific objectives	60
			3.2.2	Decision making processes	100
			3.2.3	Compliance and enforcement	85
			3.2.4	Research plan	70
			3.2.5	Management performance evaluation	80

6.3. Summary of Conditions

The conditions are summarised in Table 11 (also see Appendix 1.2).

Table 11. Summary of Conditions

Condition number	Condition	Performance Indicator
1	By the end of Year 3, the limit reference point should be set above the level at which the reproductive capacity of the stock is impaired.	1.1.2
2	By the end of Year 4 there should be a review of the data being used to monitor the fishery and stock status, with an appropriate statistical analysis carried out to try as far as possible to reduce uncertainties associated with external variability or spatial variability in stock structure and dynamics and fishing pressure. The analysis may be used to inform future data gathering, such that data is gathered following a suitable statistical methodology where possible.	1.2.3
3	By the end of Year 3, the stock assessment approach should be peer-reviewed.	1.2.4
4	By the end of Year 3, there need to be explicit management objectives for both Principle 1 (stock) and Principle 2 (ecosystem). They do not have to be expressed in terms of stock biomass, but should be consistent with keeping the stock at a level of high productivity. The objectives could be at the level of the Basse-Normandie fishery or at the Granville Bay level.	3.2.1
5	By the end of Year 2, a formal research plan as a framework for guiding research should be prepared and adopted	3.2.4

6.3.1. Recommendations

The team recommends that any lost whelk pots be reported on so that this can be monitored by the CRPM-BN/SMEL and any increase in risk to habitat structure and function can be determined.

6.4. Determination, Formal Conclusion and Agreement

Following consideration of all stakeholders' inputs and comments to the Public Comment Draft Report (PCDR), the fishery assessment team concludes that the fishery should be certified against the MSC standard. This determination remains a recommendation pending the completion of the formal objections process and the final certification decision by the MEC official decision making entity.

No objections were received during the 15 day working period which closed on the 5th September 2017. The certification decision was approved by the Certification Committee on the 8th September 2017 that the fishery should be certified against the MSC standard.

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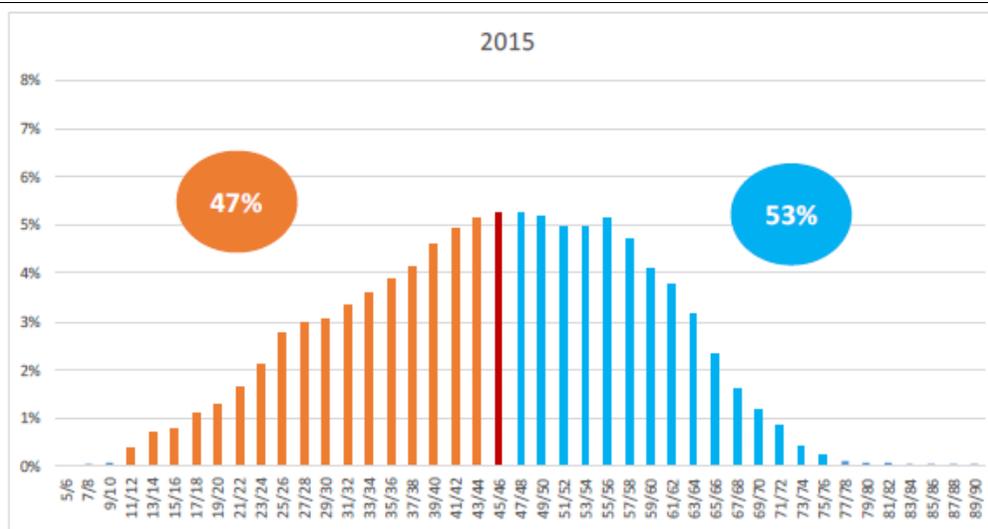
Appendices

Appendix 1. Scoring and Rationales

Appendix 1.1 Performance Indicator Scores and Rationale

Evaluation table 1 PI 1.1.1

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.
	Met?	Y	Y	Y
	Justification	<p>Recruitment is not measured directly, but can be evaluated via trends in stock biomass and via size structure, along with information on reproductive output at size.</p> <p>1. Relative stock status There are two main methods of tracking relative stock status for the Basse Normandie fishery: CPUE from observers and fisherman self-sampling (auto-échantillonnage). Both show an increasing trend over the time series (2009-2015; see report Figure 9. Landings per trip into the Granville auction have also increased from 2006/7-2014/15 (Figure 11). In other words, biomass is increasing.</p> <p>2. Size frequency In Granville Bay, size at 50% maturity is ~48mm for males and ~52mm for females. There is also a clear relationship between female size and egg mass size, at least up to ~55mm (Section 3.3.1). Size frequency from observers in 2015 is given below (red line at minimum legal size of 45mm). Whelks >55mm make up ~28% of total biomass; and >52mm ~one third of the total biomass. In other words, there is good evidence for a large brood stock; of which a good proportion of the females are highly reproductive (large egg masses, large number of eggs per capsule).</p>		



There is therefore i) evidence for high reproductive output from the population and ii) evidence that this translates into recruitment to the fishery. The team concluded therefore that there is a 'high degree of certainty' that the stock is above the PRI. SG100 is met.

b	Guide post		The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.
	Met?		Y	N
	Justification	<p>The Commission Bulot has agreed two reference points: a 'seuil d'alerte' and a 'seuil de danger'. The seuil de danger can be regarded as a limit reference point, but the seuil d'alerte is not intended to be a target; it is a level which triggers increased scrutiny and management – analogous to ICES' precautionary reference points. On the same basis as for ICES Bpa, the implicit target is therefore taken to be to maintain the biomass above the seuil d'alerte.</p> <p>There is no information for this stock as to where MSY-based reference points might lie – this is in fact the case for many if not most invertebrate fisheries. Qualitatively speaking, the intent of having a target consistent with B_{MSY} would be to ensure that the stock is maintained at a level where stock productivity is high, rather than just a level which avoids the risk of total collapse. Nevertheless, the information set out under scoring issue a above suggests that the stock is at a productive level.</p>		

		<p>The seuil d'alerte has been set by the Commission Bulot (on a preliminary basis) at an average annual LPUE of 100 kg/100 pots, which was the 2009 level. Average LPUE 2010-2015 was above, and in 2015, monthly LPUE (which is variable according to water temperature) was always above this level. The stock status is therefore clearly above the seuil d'alerte, and hence 'fluctuating around' in the target zone. SG80 is met.</p> <p>In relation to SG100, the problem is that the target is implicit rather than explicit. The overall management strategy has been to continue to rebuild the stock for as long as this seems appropriate (i.e. a highly empirical approach). On this basis, it is hard to argue that there is a 'high degree of certainty'. SG100 is not met.</p>	
References	CRPM-BN and SMEL, 2016. Gestion de la pêche du bulot 2016. Compte Rendu Commission BULOT 27 mai 2016 - SMEL, Blainville sur Mer (available on request)		
Stock Status relative to Reference Points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
	Precautionary / trigger Limit	Mean annual LPUE = 109 kg/100 pots 70kg/100 pots	153 kg/100 pots
OVERALL PERFORMANCE INDICATOR SCORE:			90
CONDITION NUMBER (if relevant):			N/a

Evaluation table 2 PI 1.1.2

PI 1.1.2		Limit and target reference points are appropriate for the stock		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	Y	Y	
	Justification	The seuil d'alerte and seuil de danger are empirical reference points, based on the evolution of the fishery over the last few years. This is a reasonable approach given that there are no estimates of MSY reference points or others such as B_0 , and no widely-accepted techniques for making such estimates for whelk populations, as far as the team is aware. On this basis, the reference points are appropriate for the stock. They are estimated based on the self-sampling data (checked by observer and other data sources as summarised in Section 3.3). SG80 is met.		
	Guide post		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		N	N
	Justification	The 'seuil de danger' (limit reference point) is set at lowest mean monthly LPUE observed during any year 2009-2015 (septembre 2012 – 70 kg/100 casiers – see thick red arrow on Figure 10). In the absence of a means to estimate absolute stock status in a quantitative way, it is clearly challenging to set reference point levels, but nevertheless, the team considered that the selection of the reference point level was a bit arbitrary – in particular the application of a mean monthly value to a reference point measured as a mean annual level. It is not clear what stock status would be required to generalise a September level of LPUE across the whole year, bearing in mind that September is in the summer low season where whelks are less active and LPUE therefore always lower than earlier and later in the year. It is not clear that this stock level would be above the point at which reproductive capacity is impaired. This scoring issue is not met.		

c	Guide post		The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?		Y	N
	Justification	<p>NB: The seuil d'alerte is not intended to be a target; target is to maintain LPUE above this level. There are no estimates of any MSY reference points, which is generally the case for whelk fisheries; there are, as far as we can tell, no accepted methods for estimating them. Therefore, the question is whether the target is set at a level such that the stock is productive. Consider a range of arguments:</p> <ol style="list-style-type: none"> 1. It is clear from the size structure of the stock (see 1.1.1a) that a good proportion of the biomass is above the MLS – not only that but also above the size at 50% maturity (52mm for females) and above the size at which spawning females are highly productive (~55mm). 2. The fishery only uses ~one third of the available habitat; the coastal zone (too many users), rocky areas (impractical) and offshore area (too far) are not fished. Note that the surveys are conducted in the fished areas so if there is local depletion, this would be taken into account. Also see Figure 13. 3. The overall biomass is increasing measurably year on year – this can happen at any stock level if fishing effort is reduced (which it has been) but happens quickest when biomass is $\sim B_{MSY}$. <p>In other words, the lines of evidence point (empirically) to the stock being at a productive level – SG80 is met. In relation to SG100, it is arguable that such an empirical approach can be quite precautionary compared to a more quantitative one since it relies on close assessment of all sources of data; nevertheless as noted above, the target level itself is not very certain, so a 'high degree of certainty' is not met.</p>		
d	Guide post		For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?		n/a	
	Justification	Whelks are not a key LTL species (see Section 3.3.9).		
References		CRPM-BN and SMEL, 2016. Gestion de la pêche du bulot 2016. Compte Rendu Commission BULOT 27 mai 2016 - SMEL, Blainville sur Mer (available on request)		
OVERALL PERFORMANCE INDICATOR SCORE:				75
CONDITION NUMBER (if relevant):				1

PI 1.1.3 – only scored if PI 1.1.1 scores between 60 and 80

Evaluation table 3 PI 1.2.1

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.
	Met?	Y	Y	Y
	Justification	<p>MSC defines a harvest strategy as ‘the combination of monitoring, stock assessment, harvest control rules and management actions, which may include an MP or an MP (implicit) and be tested by MSE’ (MSC CR v1.3).</p> <p><u>Overall strategy:</u> The harvest strategy for this fishery can be summed up as follows: Continue to reduce effort in the fishery for as long as benefits can be seen in terms of the stock status (as monitored by landings, CPUE and size structure) while remaining compatible with the maintenance of a robust fishery.</p> <p><u>Monitoring and stock assessment:</u> In common with many invertebrate fisheries and all the whelk fisheries in this region (France and UK), there is no formal stock assessment for this fishery (in the form of a population or statistical model), but the population is monitored using a series of fishery-dependent indicators. Further details of monitoring are given in the rationale for PI 1.2.3 below. These indicators have been used to inform management.</p> <p><u>Reference points:</u> Seuil d’alerte and seuil de danger as described in Section 3.3.4.</p> <p><u>Harvest control rules:</u> The harvest control rule situation is discussed in detail under PI 1.2.2 below.</p> <p><u>Management actions:</u> The harvest strategy is implemented via a set of management tools, including a minimum size, a minimum sorting grid size, trip quotas, limited licences and a vessel size limit. There is also a pot limit per vessels, although stakeholders were less convinced about its usefulness than for the other measures.</p> <p>A history of the implementation of management measure is set out in Table 5 of the main report. It is clear from this table that the harvest strategy is responsive to the state of the stock – the introduction of the various management measures has been an iterative and adaptive process. In this sense, the team considered that the harvest strategy was ‘designed’ to achieve stock management objectives: not in the sense that a system has been designed from scratch, but rather in the sense that stakeholders and managers have worked together to try out, adjust, adapt and expand measures, according to what seems to be working both for the stock and for the fishery. This is a suitable and effective approach for a fishery for this one which is relatively small-scale and which has a co-management type system. SG100 is met.</p>		

b	Guidepost	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Y	Y	N
	Justification	<p>The evidence from the fishery (LPUE, size structure; see 1.1.1a) suggests that the harvest strategy is working. The harvest strategy is subject to regular evaluation by stakeholders (the Commission Bulot, Granville Bay JAC), and actions taken are adapted according to perceptions of stock status and the operation of the fishery, as described above. Recent changes include the agreement of formal reference points in June 2016.</p> <p>Overall, the evidence suggests that the harvest strategy is keeping the stock at the target level and productive – SG80 is met. There are, however, some issues; the strategy relies mainly on unstandardised fishery-dependent data, there have been no attempts to estimate the absolute (as opposed to relative) stock status, e.g. via the estimate of MSY or other reference points (although for whelks this is not easy). It is also not true to say that the performance of the harvest strategy has been full evaluated, since this implies a simulation or MSE approach, while the harvest strategy is strictly empirical. On this basis, the team concluded that SG80 is met, but SG100 is not met.</p>		
c	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	Monitoring is described in detail in the rationale for PI 1.2.3.		
d	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	As noted above, the harvest strategy is iterative, and over the last 15 years has been subject to continual improvement following the results of monitoring; most recently via the addition of formal reference points in 2016.		

e	Guidepost	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	The target species is not a shark – not relevant.		
References		CRPM-BN and SMEL, 2016. Gestion de la pêche du bulot 2016. Meeting minutes of the Granville Bay JAC, 15 th session, 9 and 10 December 2008, Granville https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/ResearchandEvidencePlan.pdf https://secure.toolkitfiles.co.uk/clients/15340/sitedata/byep/Potting%20Permit%20Byelaw.pdf		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				N/a

Evaluation table 4 PI 1.2.2

PI 1.2.2		There are well defined and effective harvest control rules in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	<p>Harvest control rules (HCR) are defined as the adjustment of one or several management measures based upon the evaluation of an indicator against an established reference point (Rice and Connolly, 2007). Harvest control tools are the means by which the harvest control rules (and more broadly, the harvest strategy) are implemented.</p> <p>For this fishery, there is empirical evidence that harvest control tools have been adjusted based on monitoring data on the stock status. For example: 2001: daily vessel quota introduced; 2004: plan to reduce licence numbers introduced, maximum daily quota reduced; 2005-6: more controls on MLS; 2007: January closure introduced; 2008: pot limit introduced; 2009: 22mm sorting grid introduced. Since 2007, CPUE or LPUE data from observers, auto-échantillonnage and landings per trip has suggested a significant and ongoing recovery of stock biomass. As described above (see rationale for PI 1.2.1), there are formal precautionary and limit reference points. There is not a formal harvest control rule in place along the lines of: if stock is below target, X will be done, if stock is below limit, Y will be done, but there is an agreed list of actions that will be considered in each case (these are listed in Section 3.3.5). The selection of a specific management action is subject to stakeholder discussion, following the management system in Basse Normandie (see Section 3.2.8) and will depend on the issue that arises (e.g. observation of local depletion in some areas would require a different response to observation of a generalised reduction in CPUE or a change in the mean size). In addition, the scientists (CRPM and SMEL) note that any observed stock decline could have various drivers other than overfishing; notably climate change (extensive work having been done on the response of whelks to increasing temperatures, which would imply a reduction in reproductive output per female in Granville Bay) and might therefore require different management responses according to what was ascertained to be the cause. This flexible approach was therefore considered by the team to be appropriate. Consistent with the scoring of the Normandy-Jersey lobster fishery, the team concluded that this is sufficient to meet SG80.</p>		
b	Guide post		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		Y	N

	Justification	The management of the fishery has been adaptive and based on empirical data – and in that sense, key uncertainties are taken into account. The continuing policy of reducing effort is also precautionary. Some key uncertainties, such as impacts of climate change, are also being addressed in research, monitored and considered in discussion of management on an ongoing basis – the analysis of the likely impact of climate is in fact one of the most detailed and thoughtful that the assessment team members have seen anywhere. SG80 is met. Nevertheless, some uncertainties remain – in particular, in relation to the harvest control rule, the level of the reference points is not connected to any absolute measure of stock status and while the team considered that it is safe to conclude that the stock at its current level (above the seuil d’alerte) is productive, the dynamics of the stock between the target and limit reference points is hard to predict. On this basis, SG100 is not met.		
c	Guide post	There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	Y
	Justification	The tools used to implement management objectives are set out in the main report. For the Basse-Normandie fishery, they consist, in brief, of controls on effort (reductions in the number of licenses, restrictions on vessel size and pot limits); controls on landings (daily quotas) and technical measures (22mm sorting grid). According to stakeholders, these are generally effective. There was, however, some scepticism about the enforcement of the pot limit, since pots are kept at sea most of the time, conversely it was reported that the other measures are respected. (The pot limit is maintained mainly as a subliminal signal to fishermen that they are not encouraged from increasing the number of pots, rather than as a genuine management measure.) In terms of their practical effectiveness in achieving objectives, LPUE has increased and is clearly at the target level (see 1.1.1), which is consistent with a productive stock (see 1.1.2); gradual reductions in effort remain ongoing. On this basis, the team concluded that the evidence clearly show that the tools are appropriate and effective at achieving appropriate exploitation levels. SG100 is met.		
References	CRPM-BN and SMEL, 2016. Gestion de la pêche du bulot 2016. Rice and Connolly (2007)			
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				N/a

Evaluation table 5 PI 1.2.3

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	N
	Justification	<p><u>Stock structure</u>: Data are available on relative biomass, size structure and stock productivity (reproductive output). Stock structure, in terms of connectivity between areas, has not been evaluated for Granville Bay, but given that egg masses disperse widely on currents (which are strong in the area) then it is assumed to be a single stock.</p> <p><u>Stock productivity</u>: CPUE/LPUE is tracked in various ways. There has been extensive research on size/age at maturity, reproductive output and the reproductive cycle, as part of the 'BuloClim' project. See 1.1.1 and 1.1.2.</p> <p><u>Fleet composition</u>: A license is required to harvest whelks, and therefore the fleet composition is known with certainty. Vessels are required to submit landings declarations, so landings can be matched to individual vessels.</p> <p>The harvest strategy is supported by the following key datasets: i) at sea sampling by researchers; ii) self-sampling by fishermen; iii) fiches de pêche from the reference fleet; iv) landings data from the Granville auction. Jersey formerly had a fishery-independent survey at fixed locations, but this has not happened since 2013. The biology and ecology of whelks in Granville Bay is also quite well understood.</p> <p>Overall, the team considered that the information available is sufficient to support the harvest strategy, given that the harvest strategy is empirical. SG80 is met.</p> <p>SG100 requires a 'comprehensive range of information'. Data in some areas e.g. biology and reproductive output, are comprehensive. However, some elements are still missing; e.g. historic catch data from France remain approximate, LPUE is not standardised and there is no fishery-independent survey in Basse Normandie waters (e.g. covering unfished areas). SG100 is not met.</p>		
b	Guide post	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Y	N	N

	Justification	<p>Stock abundance in Granville Bay is monitored using a proxy measure of nominal LPUE from the reference fleet. Fisheries removals are monitored via landings to the auctions and via fiches de pêche (as noted in the main report, the data are available although the data entry and archiving system is over-complicated and inefficient).</p> <p>The key indicator which supports the Basse-Normandie harvest strategy is nominal LPUE. The team were concerned that there has been no attempt to standardise the LPUE dataset. The datasets start in 2009 which means that the change in the sorting grid size is not an issue, but, other inter-annual differences are noticeable – for example, for 2012 and 2013 there no data were available from zone 3. Likewise, sampling at different times of year might be an issue, given that whelk activity is somewhat related to water temperature, which varies by season and by year. It may be that the dataset so far is too rather short for meaningful standardisation, but a more sophisticated analysis is essential in the long term, if trends related to biomass are to be disentangled from other factors.</p> <p>Overall, since catch and CPUE are monitored with sufficient frequency to evaluate progress in the fishery and stock, SG60 is met. In relation to SG80, the team was concerned about the 'level of accuracy' in the dataset, and concluded that SG80 is not met.</p>	
c	Guide post		There is good information on all other fishery removals from the stock.
	Met?		Y
	Justification	<p>The stock structure, in terms of genetics or connectivity, is unclear. Basse Normandie accounts for the majority of landings from Granville Bay. However, Jersey and Brittany have small fisheries which may overlap (see Table 2 for figures).</p> <p><u>Jersey</u>: Vessels submit catch data to the authorities, who were confident that these are reliable – since there are no quotas there is no reason for the vessels to alter data (G. Morel and J. Shrives, pers. comm.). Some concern was expressed during the site visit by some stakeholders that Jersey vessels were landing large amounts in Carteret which did not match with logbook submissions, but the Jersey authorities suggested that this was most likely due to both vessels amalgamating their catch for landing by one vessel.</p> <p><u>Brittany</u>: Although full information on catch data from the Brittany fishery was not available to the team, the CRPM Bretagne reported that landings data (fiches de pêche / landings declarations) are passed on to FranceAgrimer as required by law. (The complicated process gone through by CRPM-BN to estimate total landings is essentially to avoid a long delay in receiving the data back from FranceAgrimer.) These data are, therefore, available, at least to interested parties such as CRPMs, albeit not very quickly.</p>	
References	Laurence Hégron-Macé, SMEL et Véronique Legrand, CRMP-BN, pers. comm., Jersey Fisheries Annual Report (2013), Lawler (2013).		
OVERALL PERFORMANCE INDICATOR SCORE:			75
CONDITION NUMBER (if relevant):			2

Evaluation table 6 PI 1.2.4

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
	Met?		Y	Y
	Justification	The stock assessment is empirical, not model based, and uses data coming directly from the fishery from various sources as described above. The harvest strategy is likewise empirical, so this is appropriate. This empirical approach takes into account by definition the major features of biology and stock dynamics. Considerable biological research is also conducted (e.g. fecundity and reproductive output at size and in relation to environmental conditions) which feed into the stock assessment, generally in a qualitative way. SG100 is met.		
b	Guide post	The assessment estimates stock status relative to reference points.		
	Met?	Y		
	Justification	See 1.1.2 for full details.		
c	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Y	Y	N
	Justification	The stock assessment does not try to be predictive – it is retrospective and based on empirical data, therefore uncertainty is included by definition. The key source of uncertainty is probably seasonal and inter-annual variability which seems to be largely dependent on water temperatures (according to research by CRPM-BN and SMEL). These data are not incorporated into the assessment in the sense of a model, but are analysed carefully and used to inform management decision-making. Other uncertainties such as vessel power as a factor in fishing effort, fishing areas etc. are also tracked and evaluated. On this basis, the team concluded that SG80 is met. SG100 not met because the assessment is not probabilistic.		

d	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	Alternative approaches have not been tried.		
e	Guide post		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		N	N
	Justification	There has not so far been a peer review of the stock assessment approach.		
References		SICA Scoring Table and PSA (Appendix 2.1)		
OVERALL PERFORMANCE INDICATOR SCORE:				75
CONDITION NUMBER (if relevant):				3

Evaluation table 7 PI 2.1.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	Y	Y	N
	Justification	<p>Also see Section 3.4.1.</p> <p>The only main retained species identified by stakeholders and the assessment team was roussette, i.e. small-spotted catshark or lesser spotted dogfish (<i>Scyliorhinus canicula</i>), used as bait. The stocks under consideration here are defined by ICES as those occurring in Division IIIa (Skagerrak and Kattegat), Subarea IV (North Sea), and Division VIIId (Eastern Channel) and in Subarea VI and Divisions VIIa–c, e–j (Celtic Seas and west of Scotland). – both of which are considered to be data-limited (ICES, 2012a). The most recent advice for both stocks was issued in 2015 (valid for 2016 and 2017) and is based on a qualitative evaluation of stock status relying on fisheries-independent data provided by beam trawl surveys (BTS) and international bottom trawl surveys (IBTS). Given the longer-term increase in the stock size indicator, that this is a bycatch species (with high estimated discard survival for most métiers), and that scyliorhinids are generally productive species in comparison to other demersal elasmobranchs, the precautionary buffer is not applied (ICES, 2015a,b). Based on the ICES approach to data-limited stocks, the advice is given that catches in 2016 could be increased by no more than 20% (18% for the Celtic Seas stock) compared to the average of 2012–2014, with the catch value advised for 2016 also applicable to 2017.</p> <p>ICES considers that the current approach for <i>S. canicula</i> is sufficiently precautionary given that there has been a consistent increase in survey catch rates over an extended period of time and that current exploitation levels are not thought to be detrimental to the stocks. Based on the ICES (2012a and c) assessments, ICES does not advise that an individual TAC be set for these stocks.</p> <p>On this basis the team felt that the stocks are highly likely to be within biologically based limits. SG80 is therefore met. However, considering the fact that these are data-limited stocks and that the stock evaluation relies primarily on fisheries-independent data there is no high degree of certainty that the species is within biologically based limits. SG100 is not met.</p>		
b	Guide post			Target reference points are defined for retained species.
	Met?			N

	Justification	Both stocks are considered to be data-limited (ICES, 2012 and c) and as such no reference points have been defined. This scoring issue is not met.		
c	Guide post	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	Y	Y	
	Justification	The <i>S. canicula</i> stocks under consideration here is not thought to be outside biological limits. Both SG60 and SG80 are met by default.		
d	Guide post	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	Although fisheries-dependent data for <i>S. canicula</i> are not considered to be reliable (ICES, 2012a and c), sufficient fisheries-independent data continue to be collected that provide reliable indications of trends in stock status (ICES, 2012b). SG60 is therefore met.		
References		ICES (2012a), ICES (2012c), WGEF (2014), ICES (2012b), ICES (2015a,b)		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 8 - PI 2.1.2

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	N
	Justification	Also see Section 3.4.1.1. Management for these stocks follows the ICES approach to data-limited stocks which fall under Category 3 in which advice is based on survey indices providing reliable indications of trends in stock metrics such as mortality, recruitment, and biomass. The general concept of survey-based catch advice is based on the assumption that decreasing surveys suggest catch should be incrementally decreased and vice versa (ICES, 2012b). For these types of stocks, the advice is based on a comparison of the two most recent index values with the five preceding values, combined with recent catch or landings data. Knowledge about the exploitation status also influences the advised catch (ICES, 2012a). As the methodologies used to estimate stock status for data-limited stocks are expected to be more susceptible to noise than methods used to produce forecasts for data-rich stocks, a change limit of $\pm 20\%$ (uncertainty cap) is applied in the advice (ICES, 2015c). Although precautionary TACs for data-limited stocks have been applied for other species (e.g. monkfish, megrim), ICES does not advise that an individual TAC be set for these stocks. The team felt that this constituted at least a partial strategy expected to maintain the species within its biologically based limits. As such SG80 is met. There is, however, no strategy in place to manage all retained species (including all bait species); SG100 is therefore not met.		
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N
	Justification	Scyliorhinids are generally productive species in comparison to other demersal elasmobranchs with high discard survival rates for most gear types (particularly otter and beam trawl) (ICES, 2015d). Given that there has been an overall increase in survey catch rates over an extended period of time, there is some objective basis for confidence that the partial strategy is effective. SG80 is met. As there is no full strategy in place, SG100 is not met.		

c	Guide post		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	ICES advice for these stocks is issued on a biennial basis and survey catch data are considered regularly by the WGEF, as shown in their working group reports (e.g ICES, 2015d). This constitutes evidence that the partial strategy is being implemented successfully. SG 80 is met. However, in the absence of a full strategy, SG 100 is not met.		
d	Guide post			There is some evidence that the strategy is achieving its overall objective.
	Met?			N
	Justification	In the absence of a full strategy, this scoring issue is not met.		
e	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Y	Y	Y
	Justification	<i>S. canicula</i> is the only shark species that this fishery interacts with (through its bait use) and there is a high degree of certainty that shark finning of this or any other shark species does not take place in this fishery.		
References		ICES (2012a), ICES (2012c), ICES (2012b), WGEF (2014), ICES (2015c, d)		
OVERALL PERFORMANCE INDICATOR SCORE:				85
CONDITION NUMBER (if relevant):				N/a

Evaluation table 9 – PI 2.1.3

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	See Section 3.4.1. Qualitative information on the amount of <i>S. canicula</i> (the only main retained species identified) was provided by stakeholders and on this basis a quantitative estimate could be made, i.e. the <i>S. canicula</i> volume used as bait corresponds to approx. 7.7% of the overall annual whelk catch. In 2013 this corresponded to approx. 22% of the overall French landings for all Scylliorhinidae combined in the North Sea ecoregion. The team felt that some quantitative information was therefore available. SG80 is met. However, quantifiable information was not available for all bait species concerned. As such, SG100 is not met.		
b	Guide post	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	Y	Y	N
	Justification	Although fisheries-dependent data for <i>S. canicula</i> are not considered to be reliable (ICES, 2015d), sufficient fisheries-independent data continue to be collected that provide reliable indications of trends in stock status. SG80 is therefore met. The information available, however, is not sufficient for outcome status to be estimated with a high degree of certainty. SG100 is not met.		
c	Guide post	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	As explained in PI 2.1.2, management for this stock follows the ICES approach to data-limited stocks which fall under Category 3 in which advice is based on survey indices providing reliable indications of trends in stock metrics such as mortality, recruitment, and biomass (ICES, 2012b). ICES considers this approach to be sufficiently precautionary given that there has been an overall increase in survey catch rates over an extended period of time. On this basis, information is considered adequate to support a partial strategy for <i>S. canicula</i> . SG80 is met. In the absence of a full strategy for all retained (and bait) species however, SG100 is not met.		

d	Guide post		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		Y	N
	Justification	The same rationale as given in scoring issue b applied. SG80 is met but not SG100.		
References	ICES (2012a), ICES (2012 c), ICES (2012b), ICES (2015d)			
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 10 - PI 2.2.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	Y	Y	Y
	Justification	The RBF was used to score this PI. The consequence score for the SICA was 1 corresponding to an overall MSC score of 100 (see Appendix 2.2, Principle 2 SICA Scoring Table).		
b	Guide post	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	Y	Y	
	Justification	As above		
c	Guide post	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	As above		
References		SICA Scoring Table (Appendix 2.2)		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				N/a

Evaluation table 11 - PI 2.2.2

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing and minimizing bycatch.
	Met?	Y	Y	Y
	Justification	Also see section 3.4.2. After each pot is lifted, the catch is sorted immediately with an average time delay of approximately 3 seconds. A sorting grid of 22mm is used (see Figure 18 in main report) and any small bycatch (<22 mm) falls straight back into the sea. Larger bycatch is picked out and discarded. All stakeholders agreed that survival rates of discards were likely to be high. Pots are also equipped with small holes at their base which allow bycatch to escape/fall through/be pushed out as the volume of whelks in the pot increases. The team felt that these measures constitute a strategy for managing and minimizing all bycatch. SG100 is met.		
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N
	Justification	Information on the fishery's bycatch, including <i>N. reticulatus</i> is collected through fishermen's observations (through a self-sampling programme) as well as through data collection by the SMEL during at-sea observer campaigns which take place every 2 years. Data collected by the SMEL indicates a gradual reduction in the amount of bycatch in the two sampled zones during the period 2007 - 2013, from 46% to 29% in zone 1 and from 33% to 24% in zone 2. This decrease occurred in parallel with the increase in sorting grid spacing (from 19/20mm to 22mm) as well as the installation of holes at base of the pots (SMEL, 2014). Furthermore, landings of bycatch species are rare (although minimal amounts of <i>N. reticulatus</i> can be included through sorting error). This constitutes some objective basis for confidence that the current management strategy is working. SG80 is therefore met. However, the effectiveness of the strategy has to the team's knowledge not been tested – SG100 is not met.		

c	Guide post		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	While the holes at the base of the pots are not a legal requirement but rather a voluntary action by the fishermen, the 22mm sorting grid is a condition of the license and no systematic non-compliance has been reported to date (see Section 3.5.2.3). The arguments listed under scoring issue c also apply. For this reason, the team considered that this is clear evidence that the strategy is being implemented successfully and that SG100 is met.		
d	Guide post			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y
	Justification	As already explained under scoring issue b, there is some evidence that the strategy is achieving its objective. This scoring issue is therefore met.		
References	SMEL (2014)			
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				N/a

Evaluation table 12 - PI 2.2.3

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	Information on the fishery's bycatch, including <i>N. reticulatus</i> , is collected through fishermen's observations (through a self-sampling programme which started in 2009, and which takes place every day during the fishing season aboard a number of participating vessels) as well as through data collection by the SMEL during at-sea observer campaigns which take place every 2 years (SMEL, 2014). Qualitative and some quantitative information is therefore available on main bycatch species taken by this fishery and SG80 is met. This information, however, is not considered sufficient for the status of all bycatch species to be estimated. As such SG100 is not met.		
b	Guide post	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	N/a	N/a	N/a
	Justification	This scoring issue is not scored when the RBF is used.		
c	Guide post	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	The data collected through the fishermen' self-sampling programme as well as those collected by the SMEL are sufficient for any obvious trends in bycatch abundance to be detected and for appropriate management measures to be taken (although not for bycatch, a precedent was set by the SMEL in 2002 - in cooperation with NFM and CRPM-BN - when significant amounts of under-sized whelks were detected. A 19mm sorting grid was in place at the time and this was gradually increased to 22mm in 2009, leading to a reduction in the number of retained under-sized whelks). On this basis the team felt that SG80 is met; however the information collected is not sufficient for impacts to be estimated with a high degree of certainty. As such SG100 is not met.		

d	Guide post		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		Y	N
	Justification	As per scoring issue c, SG80 is met. The SMEL observer-at-sea programme only takes place every 2 years and this would not provide sufficient detail for all ongoing mortalities of bycatch species to be assessed. SG100 is not met.		
References	SMEL (2014)			
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 13 - PI 2.3.1

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	Y	Y	Y
	Justification	Also see section 3.4.3. There is a number of protected areas designated under de EC Habitats and Birds directives within Granville Bay, the most relevant of which are listed in Table 6 of the main report. Species of conservation concern include over 20 birds species, allis shad (<i>Alosa alosa</i>), twaite shad (<i>A. fallax</i>), river lamprey (<i>Lampetra fluviatilis</i>), sea lamprey (<i>Petromyzon marinus</i>), Atlantic salmon (<i>Salmo salar</i>), grey seal (<i>Halichoerus grypus</i>), common seal (<i>Phoca vitulina</i>), harbour porpoise (<i>Phocoena phocoena</i>), European otter (<i>Lutra lutra</i>) and bottlenose dolphin (<i>Tursiops truncatus</i>). In the context of the EC Birds and Habitats Directives, the Agence des Aires Marines Protégées (AAMP) evaluated the interactions of various gear types with the qualifying habitats and species of designated protected sites (see le Fur, 2010). For pot fisheries, it was concluded that there is no accidental bycatch of any of the bird, fish and marine mammal species listed. Furthermore, stakeholders present at the site visit and SICA workshop agreed that interactions with birds or any other protected species are not an issue in this fishery. There is therefore a high degree of certainty that the effects of the fishery are within national and international protection limits. SG100 is met.		
b	Guidepost	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	Y	Y	Y
	Justification	Based on the information gathered during the SICA workshop and from the AAMP (see above and see section 3.4.3), there is a high degree of confidence that there are no significant detrimental effects of the fishery on ETP species.		
c	Guidepost		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	Y
	Justification	As per scoring issues a and b, SG100 is met.		

References	le Fur (2010)
OVERALL PERFORMANCE INDICATOR SCORE:	100
CONDITION NUMBER (if relevant):	N/a

Evaluation table 14 - PI 2.3.2

PI 2.3.2		The fishery has in place precautionary management strategies designed to: <ul style="list-style-type: none"> • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species. 		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are measures in place that minimise mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	Y	Y	Y
	Justification	Within Granville Bay a number of sites and their qualifying features have been designated under the EC Birds and Habitats Directives (see Table 6 in main report). In accordance with EU legislation an appropriate assessment (i.e. impact assessment) must be carried out prior to any project (which may include fisheries) taking place within these sites. There is therefore a framework in place which manages any human activities which may affect protected habitats and species. Considering that pot fisheries have been assessed by the AAMP as having no impact on the qualifying features of these sites, the team concluded that there is a comprehensive strategy in place for managing the fishery's impact on ETP species. SG100 is therefore met.		
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.	The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Y	Y	Y
	Justification	Stakeholders (including fishermen, SMEL and AAMP) confirm that this fishery does not impact on ETP species. This is further supported by the AAMP assessment (Le Fur, 2010) that pot fisheries do not interact with any of the qualifying features of sites designated under the EC Birds and Habitats Directives (see section 3.4.3). Furthermore, every two years the SMEL carries out observer trips aboard the vessels involved in the fishery. To date, no interactions with ETP species have been recorded (SMEL, 2014). The team considered that this provided sufficient evidence to conclude with high confidence that the fishery does not impact on ETP species and that SG100 should be met.		

c	Guide post		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	As per scoring issue b, the absence of any impacts on ETP species means SG100 should be met.		
d	Guide post			There is evidence that the strategy is achieving its objective.
	Met?			Y
	Justification	As per scoring issue b, the absence of any impacts on ETP species means SG100 should be met.		
References	Ie Fur (2010) SMEL (2014)			
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				N/a

Evaluation table 15 - PI 2.3.3

PI 2.3.3		Relevant information is collected to support the management of fishery impacts on ETP species, including:		
		<ul style="list-style-type: none"> • Information for the development of the management strategy; • Information to assess the effectiveness of the management strategy; and • Information to determine the outcome status of ETP species. 		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	Stakeholders (including fishermen, SMEL and AAMP) confirm that this fishery does not impact on ETP species. This is further supported by the AAMP assessment (Le Fur, 2010) that pot fisheries do not interact with any of the qualifying features of sites designated under the EC Birds and Habitats Directives (see section 3.4.3). Furthermore, every two years the SMEL carries out observer trips aboard the vessels involved in the fishery. To date, no interactions with ETP species have been recorded (SMEL, 2014). The team considered that this is sufficient information to quantitatively estimate outcome status of ETP species with a high degree of certainty. SG100 is therefore met.		
b	Guidepost	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	Y	Y	Y
	Justification	As per scoring issue a, accurate and verifiable information is available from the AAMP (Le Fur, 2010) and the SMEL (SMEL, 2014) on this fishery's impacts on ETP species. SG100 is therefore met.		
c	Guidepost	Information is adequate to support measures to manage the impacts on ETP species.	Information is sufficient to measure trends and support a full strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	Y	Y	Y
	Justification	As per scoring issues a and b, SG100 is met.		
References		le Fur (2010)		

	SMEL (2014)	
OVERALL PERFORMANCE INDICATOR SCORE:		100
CONDITION NUMBER (if relevant):		N/a

Evaluation table 16 - PI 2.4.1

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	Y	Y	N
	Justification	<p>Also see Section 3.4.4</p> <p>Some sensitive habitats exist within Granville Bay. These include <i>Zostera</i> fields, maerl beds, sand mason (<i>Lanice conchilega</i>) banks and <i>Sabellaria</i> reefs. A number of sites have also been designated as SACs (Special Areas of Conservation) under the EC Habitats Directive (see Table 6 in the main report). As explained in Section 3.4.4, there is minimal overlap between the fishery and these habitat types as they occur predominantly in inshore waters and the fishery takes place in deeper water from about 7m to 40m. In the context of Natura 2000, the AAMP evaluated the interactions of various gear types with the qualifying habitats of designated protected sites based on available literature (see le Fur, 2010). For pot fisheries, it was concluded that this gear type has a low physical impact on the benthic features they encounter. Eno et al. (2001) examined the effects of fishing with traps on benthic species in Great Britain by means of qualitative and quantitative experiments. The results suggested that four weeks of fairly intense fishing did not have immediate detrimental effects on the abundance of the species selected for study which included sponges, soft corals, bryozoans, tube worms, ascidians and gorgonians. Some pots can be lost (mostly due to incidents with trawlers) and gear is generally not recovered. The residual fishing capacity of lost pots, however, is low as the longer the pots stay on the seabed, the more sand enters, leaving less room for any whelks or other animals to enter. The bait also degrades quickly, which further reduces the risk of ghost fishing. Finally, the way the pots are configured means they open easily (the concrete base detaches from the plastic top) and therefore would not trap anything. On this basis, the fishery is considered highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. SG80 is met. There is, however, no direct evidence which demonstrates this for the fishery in question. As such, SG100 is not met.</p>		
References		Eno et al. (2001) Le Fur (2010)		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 17 - PI 2.4.2

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	Y	Y	N
	Justification	As for ETP species, in accordance with EU legislation an appropriate assessment (i.e. impact assessment) must be carried out prior to any project (which may include fisheries not previously taking place in these areas) taking place within the SACs designated in Granville Bay (see Table 6 in the main report). The whelk fishery is perceived as a low-impact fishery and occurred prior to the creation of the SACs; as such no appropriate assessment has been carried out – there are also no specific management measures which affect the whelk fishery in these areas. The team considered that although the EC Habitats Directive provides to framework for a partial strategy which is at least expected to achieve the habitat outcome SG80, there is no full strategy in place for managing the impact of this specific fishery on all habitat types (either via direct interactions or through ghost fishing). SG100 is therefore not met.		
b	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	N
	Justification	Based on the information available on benthic interactions in pot fisheries (see le Fur, 2010; Chuenpagdee et al. 2003; Brown et al. 2005 and Eno et al. 2001 cited in Section 3.4.4) there is some objective basis for confidence that any impacts are low and that the partial strategy is therefore effective. SG80 is met. However, in the absence of a full strategy and without interactions between the whelk fishery and habitats in Granville Bay having specifically been tested, SG100 cannot be met.		
c	Guide post		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	As per scoring issue b, there is some evidence (inferred from literature on benthic interactions in pot fisheries) that the partial strategy is being implemented successfully. SG80 is met. However, in the absence of a full strategy, SG100 is not met.		

d	Guide post		There is some evidence that the strategy is achieving its objective.
	Met?		N
	Justification	In the absence of a full strategy, this scoring issue is not met.	
References	le Fur (2010) Chuenpagdee et al. (2003) Brown et al. (2005) Eno et al. (2001)		
OVERALL PERFORMANCE INDICATOR SCORE:			80
CONDITION NUMBER (if relevant):			N/a

Evaluation table 18 - PI 2.4.3

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	Y
	Justification	As shown in Figure 19 and Figure 20 in the main report, the distribution of habitat types, including that of vulnerable habitats such as <i>Zostera</i> fields, maerl beds, sand mason (<i>Lanice conchilega</i>) banks and <i>Sabellaria</i> reefs is known throughout Granville Bay. On this basis, the team felt that SG100 is met.		
b	Guidepost	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N
	Justification	The distribution of vulnerable habitats and the spatial and temporal footprint of the fishery are known and are sufficient for any overlap to be detected. Further information is based on scientific literature investigating benthic interactions in pot fisheries (see le Fur, 2010; Chuenpagdee et al. 2003; Brown et al. 2005 and Eno et al. 2001 cited in Section 3.4.4). On this basis, the team felt that sufficient data are available for SG80 to be met. However, no research has been done assessing benthic interactions in the whelk fishery specifically. Furthermore – and although this is not reported to be an issue in this fishery - no attempts have been made to quantify the extent of gear loss in the fishery. On that basis SG100 is not met.		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y	Y

	Justification	Within the framework set by the EC Habitats Directive, habitat distributions are monitored over time and are fed into EUNIS (European Nature Information System). This information is sufficient for any increase in risk to vulnerable habitats to be detected. As such, the team considered that sufficient data continue to be collected to detect any increase in risk to habitat (SG80 is met) and changes in habitat distributions over time are measured (SG100 is met).
References	EUNIS, AAMP websites	
OVERALL PERFORMANCE INDICATOR SCORE:		95
CONDITION NUMBER (if relevant):		N/a

Evaluation table 19 - PI 2.5.1

PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	Y	Y	N
	Justification	Also see Section 3.4.5 Although the role of the common whelk in Granville Bay is not very well understood, the species is necrophagous and the fishery under assessment is therefore highly unlikely to cause irreversible ecosystem impacts. Although aspects of the species' biology, including its relatively long lifespan, gregarious nature and lack of population mobility make the species potentially susceptible to both growth- and recruitment-overfishing (Lawler and Vause, 2009) and some population collapses have been recorded in other areas (e.g. in the South Irish Sea – see Fahy et al. (undated)), improvements in the fishery's management over the last decade have thus far succeeded in maintaining the stock at a healthy level (see Principle 1). On the basis that the current status of the stock is healthy, the team considered it highly unlikely that the fishery would disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. SG80 is therefore met. More targeted research could, however, be carried out into the role of the whelk in the Granville Bay ecosystem and for this reason SG100 is not met.		
References		Fahy et al. (undated) Lawler and Vause (2009)		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 20 - PI 2.5.2

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	Y	Y	N
	Justification	<p>The management measures pertaining to the whelk fishery are listed under Principle 1. Furthermore, under the Marine Strategy Framework Directive (MSFD) (2008/56/CE) each member state should achieve 'good ecological status' by 2020 and establish an action plan on how this will be achieved. For the implementation of the MSFD, four sub-regions have been defined within French waters, including the sub-region of the Channel/North Sea. The action plan for the sub-region includes an initial diagnostics and data gap analysis of the status of the marine environment, a definition of what 'good ecological status' is within the context of the sub-region, environmental objectives and management measures to reach that status (to be established by 2015 and implemented in 2016) and a monitoring programme to see how the objectives are being reached (to be established in 2014). The report providing the initial diagnostic for the sub-region is available via this link: http://webissimo.developpement-durable.gouv.fr/IMG/pdf/Evaluation_initiale_Manche_-_mer_du_Nord_cle72511e.pdf. The report provides in-depth analysis on the ecological characteristics and status of the marine environment within the sub-region and the anthropogenic influences acting on this environment. Following the issuing of this report a number of objectives were identified in 2012. These objectives are very generic however, and more specific ones are due to be identified by 2015. Similarly, work also continues on the management plan. Although the activities under the MSFD are work in progress, the management measures put in place by the CRPM-BN for the whelk fishery ensure that the fishery does not pose a risk to the whelk stock and therefore to the wider ecosystem. The team therefore felt that at least a partial strategy is in place and that SG80 is met. However, in the absence of in-depth knowledge about the role of whelks in the Granville Bay ecosystem, it cannot be said that there is a full strategy in place. For this reason SG100 is not met.</p>		
b	Guide post	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.

	Met?	Y	Y	N
	Justification	As per scoring issue b, the management measures put in place by the CRPM-BN for the whelk fishery ensure that the fishery does not pose a risk to the whelk stock and any bycatch and therefore to the wider ecosystem. The CRPM-BN regularly considers new data collected by the SMEL as part of its biennial at-sea observer programme (SMEL, 2014) and management measures are adapted as required (see section 3.2.8.2). On this basis, the partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance. SG80 is met. In the absence of a strategy which consists of a plan, however, SG100 is not met.		
c	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	Y	Y	N
	Justification	Management measures put in place by the CRPM-BN for the whelk fishery have thus far succeeded in maintaining the whelk stock in a healthy state. There are further no issues in this fishery with retained or discarded bycatch, benthic habitats or ETP species. On this basis, the partial strategy is considered likely to work and SG80 is met. In the absence of a strategy which consists of a plan, however, SG100 is not met.		
d	Guide post		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		Y	N
	Justification	Compliance with the management measures put in place by the CRPM-BN is verified by the DDTM/DML. The absence of non-compliance records (see Section 3.5.2.3), constitutes evidence that the measures comprising the partial strategy are being implemented successfully. SG80 is met. In the absence of a full strategy, SG100 is not met.		
References	http://webissimo.developpement-durable.gouv.fr/IMG/pdf/Evaluation_initiale_Manche_-_mer_du_Nord_cle72511e.pdf . SMEL, 2014			
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 21 - PI 2.5.3

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	Information on key elements of the ecosystem continues to be collected under the Marine Strategy Framework Directive (see PI 2.5.2, scoring issue a), the EC Habitats (e.g. EUNIS) and Birds Directives as well as by the SMEL as part of this fishery's monitoring programme (SMEL, 2014). Information is thus adequate to broadly understand the key elements of the ecosystem. SG80 is met.		
b	Guide post	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.
	Met?	Y	Y	N
	Justification	Impacts from this fishery on the whelk stock and on other bycatch species are investigated in detail by the SMEL (SMEL, 2014). Information on interactions with other ecosystem components such as habitats can be inferred from information on other, similar fisheries (see Section 3.4.4). Although main interactions between the fishery and the affected ecosystem elements have been investigated, some questions remain as to the role of the whelk in the Granville Bay ecosystem, which has to date not been investigated. Although SG80 is met, SG100 is not met.		
c	Guide post		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these Components in the ecosystem are understood.
	Met?		Y	Y
	Justification	As detailed in the sections relating to retained and discarded species, ETP species and habitats, the impacts of the fishery on the corresponding ecosystem components are known and are well understood. Both SG80 and SG100 are therefore met.		

d	Guide post		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	N
	Justification	As per scoring issue c, sufficient information is available on the impacts of the fishery on retained species, bycatch and ETP species to allow the main consequences for the ecosystem components to be inferred. As such SG80 is met. Considering however that the role of the whelk in the ecosystem and therefore its interactions with all ecosystem elements has not yet been investigated, SG100 is not met.		
e	Guide post		Sufficient data continue to be collected to detect any increase in risk level (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		Y	Y
	Justification	Information on key elements of the ecosystem continues to be collected under the Marine Strategy Framework Directive (see PI 2.5.2, scoring issue a), the EC Habitats (e.g. EUNIS) and Birds Directives as well as by the SMEL as part of this fishery's monitoring programme (SMEL, 2014). Sufficient data are therefore collected for any increase in risk level to be detected. SG80 is met. Under the Marine Strategy Framework Directive, information has been collected and analysed for the elaboration of an action plan to achieve 'good ecological status' of the French North Sea/Channel sub-region by 2020. This information is already available in the relevant report for the sub-region: http://webissimo.developpement-durable.gouv.fr/IMG/pdf/Evaluation_initiale_Manche_-_mer_du_Nord_cle72511e.pdf . The report provides in-depth analysis on the ecological characteristics and status of the marine environment within the sub-region and the anthropogenic influences acting on this environment. Based on this report, environmental objectives and management measures are being identified which will ultimately permit the achievement of 'good ecological status' by 2020. The available information is therefore sufficient to support the development of strategies to manage ecosystem impacts. SG100 is also met.		
References	SMEL, 2014 http://webissimo.developpement-durable.gouv.fr/IMG/pdf/Evaluation_initiale_Manche_-_mer_du_Nord_cle72511e.pdf .			
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				N/a

Evaluation table 22 - PI 3.1.1

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: <ul style="list-style-type: none"> • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and • Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and • Incorporates an appropriate dispute resolution framework. 		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	<p>The French system of central (DPMA) and devolved administrations (DIRM, DDTM-DML50) and Comités des Pêches (Comité national CNPM and Comité régional Basse-Normandie CRPM-BN) recognises and is consistent with laws and standards aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2 (French primary legislation – Code Rural and Code de l’Environnement, 2015). The CRPM-BN is in charge of management of the whelk fishery. Management measures consistent with MSC Principles 1 and 2 are proposed in its ‘délibérations’ which become bylaws upon agreement of the government representative (Préfet de region).</p> <p>The Granville Bay Treaty system provides a framework and procedures for cooperation with the other relevant parties (Jersey and Brittany). These are binding, in the sense that Basse-Normandie (or any other party) cannot opt out of it –although it is not a requirement that all fisheries management must pass through the Granville Bay structure, if this is not possible or appropriate or necessary. For Granville Bay, the team considered that i) there is an effective national legal system, ii) there are binding procedures for cooperation, and iii) these two systems deliver management consistent with P1 and P2, as shown above. Overall, the team considered that i) there is an effective national legal system, ii) there are binding procedures for cooperation, and iii) these two systems deliver management consistent with P1 and P2, as shown above, SG 100 is met.</p>		
b	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the fishery.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.
	Met?	Y	Y	Y

	Justification	The decisions of the CRPM-BN can be argued against during the Bulot (whelk) Committee meetings, and are adopted by a majority vote. Once validated by the Préfet into bylaws ('arrêté'), the measures can be contested as any administrative decisions in the local administrative court. The bylaws may be revised annually. Measures are discussed at the Bay of Granville level by the JAC three times a year, and so far remain different between BN and Jersey for lack of agreement – the parties have 'agreed to differ'. Any legal disputes between the French and Jersey authorities and vessels are settled in the Court of the prosecuting authority, according to the dispute resolution system set out in the Granville Bay Treaty. The system is transparent and has been tested and proven to be effective for the fisheries – for example, in relation to access to zones A, B and C (see Figure 1 of the report). Disputes between BN and Brittany are resolved by the French legal system – an example was a dispute about licensing in the Mont St. Michel area, which was resolved by tribunal, after which a system of shared licences for limited spatial areas was created. Overall, the team considered that there is a transparent dispute resolution mechanism – both non-legal (e.g. discussion in the Commission Bulot or in the JAC and JMC) and legal (via French administrative tribunal or the Granville Bay Treaty mechanism). It has been tested and proven effective. SG100 is met.		
d	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	The French policy formally recognises, is committed and to respect the legal rights attached to historical involvement and track records for the annual delivery of licences and fishing entitlements by the CRPM-BN, which could only exclude a fisher or reduce its entitlement through and administrative decision and on the basis of a serious infringement regarding either the capture or sale of the target species or associated ecosystem impacts, in a manner consistent with MSC Principles 1 and 2. This also the case for the Jersey fisheries Policy and the Bay of Granville Treaty. There is no issue with subsistence or recreational fishers, or pêcheurs à pied in this fishery. SG100 is met.		
	References	Code rural et de la pêche maritime Livre IX: Pêche maritime et aquaculture marine (France, 2015) Code de l'Environnement Livre II Stratégie nationale pour la mer et le littoral (France, 2015) Délibérations CRPM-BN EXP BUMW 17/2009 portant création de la licence spéciale de pêche du bulot; DRAM-HN, DIRM Seine Maritime et Eure, Arrêté Préfectoral N°110/2009 Granville Bay Treaty, 2000. Agreement concerning the Fishing in the Bay of Granville; Explanatory memorandum on the Agreement between the UK and France concerning fishing in the Bay of Granville, Presented to Parliament in 2004. http://www.fco.gov.uk/en/about-us/publications-and-documents/treaty-command-papers-ems/explanatory-memoranda/explanatory-memoranda-2004/FishingGranville Arbitration of the Tribunal Administratif de Rennes Nos 01-1806 and 01-1807, May 2004.		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				N/a

Evaluation table 23 - PI 3.1.2

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties.		
		The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	Y	Y	N
	Justification	Functions, roles and responsibilities are well understood, within the French and Jersey systems, and through the Bay of Granville Treaty. This applies to most areas of activity, as set out in detail in the main report, so SG 80 is met In relation to SG100, the team questions whether this is the case for <u>all areas of responsibility and interactions</u> . Specifically, within the French system, a duplication of some data entry remains necessary until FranceAgriMer is able to reconstitute cross-checked information in a timely fashion or delegates the process to the local level – overall, the process for data handling and data entry for these small-scale fisheries is unnecessary complex, creating confusion, delay and sometimes the need for duplicate data entry. SG100 is not met, on this basis.		
b	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.
	Met?	Y	Y	Y
	Justification	The Basse-Normandie whelk fishery is managed by the CRPM-BN (Basse-Normandie) on behalf of government. Membership of the CRPM-BN is compulsory for all involved in commercial fishing in the region, from catching to selling to processing. One of the roles of the CRPM-BN is to participate in the drafting of fisheries management regulations. It is apparent that the functions, roles and responsibilities of its members are clearly defined in the 1992 legislation (art. 21), and that they are well understood in all areas.		

		<p>Within the CRPM, its “Commission Bulot” discusses matters specifically related to whelks. The Commission also includes the CRPM’s and other scientists involved in fisheries research and assessment projects (from NFM, SMEL and Ifremer), although these do not have voting rights. Minutes of the “Commission Bulot” provides evidence that the management system directly relies on information provided by professional fishers, including local knowledge and debates how information is used or not.</p> <p>The management systems for the other two parties in the Granville Bay Treaty are likewise stakeholder driven. Brittany does not (as far as we can tell) have a Commission Bulot (because this fishery is much less important) but likewise has a structure, which ensures representation via the CRPM. Jersey has a similar system (see full details given in MEP, 2011). The Granville Bay Treaty is also consultative and participative, via both the JAC and the JMC. The CRPM and its “Commission Bulot” meet at least twice per year and the JAC and JMC have annual back to back meetings that take place either in Normandy or in Jersey. Full minutes of all meetings are available to interested parties, summarising the discussion and showing how information is used or not used.</p> <p>Non-fisheries stakeholders (e.g. environmental NGOs) have never shown any interest in involvement with this fishery. SG100 is met.</p>	
c	Guide post	The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?	Y	Y
	Justification	The French and Jersey Granville Bay systems provide for regular consultation and decision making with interested and affected parties for all relevant aspects of marine resources policy and management, which are then discussed at the JAC. Encouragement for potentially affected parties to be involved is also provided through consultations and other advisory groups, for example within the French Golfe Normand-Breton Marine Park process and Jersey Department of the Environment MRP. Overall, the team concluded that further to the description above, the fishery management system ‘facilitates the effective engagement of interested parties’. SG100 is met.	
References	<p>Décret n°2011-776 du 28 juin 2011 fixant les règles d’organisation et de fonctionnement du Comité national des pêches maritimes et des élevages marins ainsi que des comités régionaux, départementaux et inter-départementaux des pêches maritimes et des élevages marins; minutes of JAC 2010 and 2013 presenting both management systems and list of attendees. JAC and Crustaceans WG minutes and CRPMEM-BN Délibérations (CRPMEM V. Legrand copies on request); Jersey Marine Resources Panel minutes: https://www.gov.je/Government/Departments/PlanningEnvironment/AdvisoryGroups/Pages/FisheriesManagement.aspx See also http://www.aires-marines.fr/L-Agence/Organisation/Missions-d-etude-de-parc/Golfe-normand-breton MEP, 2016. Public Certification Report Normandy and Jersey lobster fishery https://fisheries.msc.org/en/fisheries/normandy-and-jersey-lobster/@@assessments</p>		
OVERALL PERFORMANCE INDICATOR SCORE:			95
CONDITION NUMBER (if relevant):			N/a

Evaluation table 24 - PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are implicit within management policy	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.
	Met?	Y	Y	P
	Justification	Fisheries management systems in France and Jersey (through its Agreement with UK) have clear and explicit long-term objectives that guide decision-making and are consistent with MSC Principles and Criteria and the precautionary approach. For Principle 1, these are required and set out explicitly in the Granville Bay Treaty, SG100 is met. For Principle 2, national level objectives meet SG80 but not 100. The overall score is 90.		
References		Décret n°2011-776 du 28 juin 2011 CNPM, CRPM; Bay of Granville Treaty 2000 (art. 1 and Annex C- JAC p15 and art. 2) Jersey Marine Strategy Consultation document 220713 http://www.aires-marines.fr/L-Agence/Organisation/Missions-d-etude-de-parc/Golfe-normand-breton/Mission-d-etude ; AAMP and Ifremer (eds) 2011.		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				N/a

Evaluation table 25 - PI 3.1.4

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that perverse incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices.
	Met?	Y	Y	N
	Justification	Through their respective collaborative management systems, the French, Jersey and Granville Bay systems provide incentives consistent with achieving the outcomes expressed by P1 and P2. The most important for the small-scale coastal whelk fishery is security of tenure and the co-management arrangements ensure active representation that involve all interested parties. The system of allocation is seen to be fair and transparent. Subsidies may occur through EU-funded (the EMFF) locally supported projects that are carefully scrutinized against providing perverse incentives. However, since there is no specific regular review explicitly considering incentives, only SG 80 is met.		
References		EU Regulations 508/2014, Regulation 1380/2013 and EMFF annual reports http://ec.europa.eu/fisheries/cfp/emff_en Ernst and Young, et al. 2011. Interim evaluation of the European Fisheries Fund (2007-2013) Synthesis of the 26 national evaluations; Review of EU fisheries subsidies: http://www.europarl.europa.eu/RegData/etudes/divers/join/2013/513980/IPOL-PECH_DV%282013%29513980_EN.pdf ; Channel Islands Brussels Office (2014).		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Evaluation table 26 - PI 3.2.1

PI 3.2.1		The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's management system	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.
	Met?	Y	N	N
	Justification	The Basse-Normandie management of the fishery aims specifically to match fishing pressure to the whelk resource available. In the short term this is translated into a phased reduction of fishing licences and other measures. Objectives relating to P2 concern protected habitats and waste management. In Jersey, fisheries management is objective-driven. Short and long-term objectives are set out in the Planning and Environment annual Department Business Plan, and performance against these are discussed in the Fisheries and Marine Resources (FMR) annual reports. Some objectives are measurable – and measured, but not brought together in an explicit set for the whelk potting fishery. SG80 is therefore not met.		
References		Décret n° 83/2013 and Délibération CRPM-BN ATT-D11-2013 on licences for the whelk fishery; Jersey annual report 2013; Granville Bay Treaty JAC minutes 2013.		
OVERALL PERFORMANCE INDICATOR SCORE:				60
CONDITION NUMBER (if relevant):				4

Evaluation table 27 - PI 3.2.2

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Y	Y	
	Justification	The CRPM-BN management system for the whelk fishery has clear established decision-making processes reinforced in 2011 by setting up a Whelk Committee ('Commission Bulot). This is evidenced by the detailed set of measures proposed by the CRPM-BN and translated into bylaws (arrêtés) by the prefecture. The decision-making processes for the Granville Bay Treaty process are well established by the French and Jersey systems and are strengthened by being brought together, even though management measures for the whelk fishery differ. Decision-making processes are described in detail in the main report. SG80 is met.		
b	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Y	Y	Y
	Justification	The whelk fishery experienced decreasing catches that became a serious issue in 2007, when a new set of management measures was introduced. Measures differ in BN and Jersey, but they were nevertheless introduced in a timely manner. They were discussed at the JAC and took account of the different contexts and evidence and wider implications in BN and in Jersey, hence the different systems. SG100 is met.		
c	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	
	Justification	A precautionary approach and use of the best available information are intrinsic to the French, Jersey and Treaty decision-making processes (cf. the main report). The precautionary approach is enshrined in the Granville Bay Treaty.		

d	Guide post	Some information on fishery performance and management action is generally available on request to stakeholders.	Information on fishery performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on fishery performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Y	Y	Y
	Justification	Reports on the fishery's performance are presented at least annually by the CRPM-BN and Jersey (annual report) and discussed at the JAC meeting as necessary. The CRPM-BN Whelk Committee minutes are not widely distributed, but are available to all those who express an interest. To develop the "Bay of Granville whelk" brand, NFM has widely distributed research findings and information on management measures. SG100 is met.		
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Y	Y	Y
	Justification	Both French and Jersey management systems have been presented with challenges regarding whelk license conditions in the past, or instances of gear conflicts between crustacean and whelk potting, which were dealt with immediately. Since 2004, the Bay of Granville whelk-potting permit is part of the Treaty discussions, providing an additional forum to avoid legal disputes. In combination and separately, the management systems act proactively to avoid disputes. SG100 is met.		
References		CRPM-BN, Commission Bulots deliberations and bylaws; Calendar of historical management measures from CRPM-BN; Jersey FMR Advisory Panel; JAC minutes; NFM – project of geographical origin label 'Baie de Granville' for the whelk fishery since 2010 (IGP Indication Géographique Protégée).		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				N/a

Evaluation table 28 - PI 3.2.3

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	N
	Justification	The French MCS system mobilises a number of agencies and mechanisms at sea and onshore, which are taken to be proportionate and effective. Together, the systems put in place by the CRPM-BN and the DDTM-DML50 are able to monitor and control the fishery. In a context of co-management, where fishers propose management measures and rules, the system in place has demonstrated its effectiveness. SG80 is met. For Jersey-registered vessels, the system is also demonstrably effective, and the agreement on controls of vessels in the Granville Bay Treaty area by both French and Jersey agencies provides added coverage. The FranceAgrimer database systems are not yet entirely joined up for all data to be cross-referenced in a timely manner so SG 100 not met.		
b	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	Y	Y	Y
	Justification	There are no recreational catches in the whelk fishery (too deep on foot, and not prosecuted by recreational sailors) and no direct sales to the public. Therefore the MCS system developed by and for professional fishers is well adapted and provides full coverage. The various agencies involved coordinate their inspections at sea and on land and have two avenues to prosecute fishers. The administrative and the judicial. Sanctions range from penalties, catch confiscation and licence suspension to court orders and permanent licence suspension. The DDTM-DML50, which prosecutes for the government, and the CRPM-BN, which develops the co-management measures, are confident that the system is consistently applied and provides effective deterrence. Both French and Jersey authorities are confident that their separate systems are consistently applied and provide effective deterrence. SG 100 is met.		

c	Guide post	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	N
	Justification	Evidence exists to demonstrate that fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery – both via the legal requirements to submit ‘fiches de pêche’ and landings declarations, as well as through voluntary schemes such as the self-sampling and other voluntary reporting directly to the CRPM-BN. Overall, evidence shows that fishers comply and that the current management system is effective. However, one of the measures - the pot limit per vessels - is not really enforceable, since pots are mainly left at sea. Even if this does not have significant implications for the fishery (since there are limits as to how many pots a vessel can lift in a given time period), it nevertheless means that there cannot be said to be ‘a high degree of confidence’ that all parts of the management system are complied with. Only SG80 is met.		
d	Guide post		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	Communications from CRPM-BN and DDTM-DML50 during the site visit, and consultations with the Jersey Marine Resources Section have confirmed that there is no-evidence of systematic non-compliance.		
References	SMEL and CRPM-BN reports to ‘Commission Bulot’ on self-sampling (auto-échantillonnage)			
OVERALL PERFORMANCE INDICATOR SCORE:				85
CONDITION NUMBER (if relevant):				N/a

Evaluation table 29 - PI 3.2.4

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	N	N
	Justification	Research is conducted as required and in a timely fashion, by the SMEL principally, Ifremer providing additional analyses of catch data. Jersey also conducts some annual monitoring of whelk catches. However, there is no Research Plan to give evidence of a strategic approach, only part of SG80 is met.		
b	Guide post	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	Y	N
	Justification	The results are presented to a wide audience of professional fishermen, scientists and managers through the CRPM-BN, national Committee CNPN and at JAC meetings in a timely fashion. Some of the research is published in the scientific literature (e.g. results of Buloclim) All elements of SG 80 are met		
References		Synthèse des études techniques menées par le CRPM (22/01/13), le SMEL et NFM entre 2002 et 2007; SMEL annual presentations to CRPM-BN Commision Bulot, and to JAC - 2013 Bilan 2009-2012, SMEL UMR Caen University on whelk reproduction, powerpoint presentations (2008, 2010);Ifremer synthesis for JAC meeting June 2010. Jersey Department of Marine Resources Annual Report 2013. Heude-Berthelin et al., 2011. Growth and reproduction of the common whelk		
OVERALL PERFORMANCE INDICATOR SCORE:				70
CONDITION NUMBER (if relevant):				5

Evaluation table 30 - PI 3.2.5

PI 3.2.5		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives		
		There is effective and timely review of the fishery-specific management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Guide post	The fishery has in place mechanisms to evaluate some parts of the management system.	The fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	Y	Y	N
	Justification	The management system is scrutinized regularly by the CRPM-BN 'Commission Bulot'. The review concerns all parts of the French management system. The Bay of Granville Treaty JAC reviews key parts of the management system. However, the difference between French and Jersey management measures for the whelk fishery are often brought up, but the impact of these differences on overall management is not reviewed. Only SG 80 is met.		
b	Guide post	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	Y	Y	N
	Justification	The CRPM-BN reviews management measures for their effect on the CPUE regularly, and at least annually. The new information and reviews are presented by CRPM-BN to Jersey and discussed at some JAC meetings (2008, 2010, 2013), which amounts to occasional external reviews. The national research institute Ifremer provides occasional external reviews discussed at the JAC meetings mentioned. SG 80 is met.		
References		CRPM Commission Bulot see for example 14/10/13 and 7/02/14, procès verbal (PV) JAC 10/12/08 and 16/06/10, then 25/06/13.		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				N/a

Appendix 1.2 Conditions

Table 12. Condition 1

Performance Indicator	PI 1.1.2
Score	75
Rationale	In the absence of a means to estimate of absolute stock status in a quantitative way, it is clearly challenging to set reference point levels, but nevertheless, the team considered that the selection of the limit reference point level was a bit arbitrary – in particular the application of a mean monthly value to a reference point measured as a mean annual level. It is not clear what stock status would be required to generalise a September level of LPUE across the whole year, bearing in mind that September is in the summer low season where whelks are less active and LPUE therefore always lower than earlier and later in the year. It is not clear that this stock level would be above the point at which reproductive capacity is impaired.
Condition	By the end of Year 3 the limit reference point should be set above the level at which the reproductive capacity of the stock is impaired.
Milestones	Year 1: Review of options; discussion with stakeholders. Score: 75 Year 2: Proposal put forward for a suitable limit reference point level. Score: 75 Year 3: Limit reference point agreed and implemented. Score: 80
Client action plan	See Appendix 7
Consultation on condition	Stakeholders within Commission Bulot, JAC participants

Table 13. Condition 2

Performance Indicator	PI 1.2.3
Score	75
Rationale	The most important index used for the monitoring of stock abundance is nominal CPUE. The team were concerned about the level of accuracy in this dataset – specifically that it is not standardised, despite some year-to-year differences, e.g. in fishing areas and periods. Because the data time series is short, at present, it may not be feasible to impose too much statistical analysis on it, but there needs to be an appropriate level of analysis, consistent with what the data will bear.
Condition	By the end of Year 4, there should be a review of the data being used to monitor the fishery and stock status, with an appropriate statistical analysis carried out to try as far as possible to reduce uncertainties associated with external variability or spatial variability in stock structure and dynamics and fishing pressure. The analysis may be used to inform future data gathering, such that data is gathered following a suitable statistical methodology where possible.
Milestones	Year 1: Review of the dataset, first attempt at analysis. Score: 75 Years 2-3: On-going review. Score 75 Year 4: establishment of a long-term analysis protocol as appropriate. Score: 80
Client action plan	See Appendix 7
Consultation on condition	SMEL (for letter of support for Action Plan – see Appendix 9) Stakeholders within Commission Bulot JAC participants

Table 14. Condition 3

Performance Indicator	PI 1.2.4
Score	75
Rationale	There has not so far been a peer review of the stock assessment approach.
Condition	By the end of Year 3, the stock assessment approach should be peer-reviewed.
Milestones	Year 1: Commission and undertake peer review. Score: 75 Year 2: Review conclusions of the review, evaluate if changes are required to the stock assessment approach. Score: 75 Year 3: Agree and implement revised approach if necessary. Score: 80
Client action plan	See Appendix 7
Consultation on condition	SMEL (for letter of support for Action Plan – see Appendix 9) Stakeholders within Commission Bulot JAC participants

Table 15. Condition 4

Performance Indicator	PI 3.2.1
Score	60
Rationale	As already noted in the condition for PI 1.2.2 (Condition 1), there are no formal, explicit objectives for the target stock.
Condition	By the end of Year 3, there need to be explicit management objectives for both Principle 1 (stock) and Principle 2 (ecosystem). They do not have to be expressed in terms of stock biomass, but should be consistent with keeping the stock at a level of high productivity. The objectives could be at the level of the Basse-Normandie fishery or at the Granville Bay level.
Milestones	<p>Year 1: Start a process to agree a management target via the Commission Bulot, the JAC/JMC, or both, or some other process as appropriate. Score: 60</p> <p>Year 2: Agree set of objectives, consistent with maintaining the stock at a level of high productivity and minimizing ecosystem impacts. Score 60</p> <p>Year 3: Implement additional management, if required, to ensure that the target can be met. Score: 80</p>
Client action plan	See Appendix 7
Consultation on condition	Stakeholders within Commission Bulot, JAC participants

Table 16. Condition 5

Performance Indicator	PI 3.2.4
Score	70
Rationale	Although considerable research has been carried out in the fishery, there is no formal research plan.
Condition	By the end of Year 2, a formal research plan as a framework for guiding research should be prepared and adopted
Milestones	Year 1: Prepare draft plan. Score: 70 Year 2: Consult stakeholders and adopt research plan. Score: 80
Client action plan	See Appendix 7
Consultation on condition	Stakeholders within Commission Bulot, JAC participants

Appendix 2. SICA and PSA Tables with scores and justifications

Appendix 2.1 Principle 2 SICA table.

SICA Scoring Template for PI 2.2.1 Bycatch Species

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Bycatch Outcome Species:	<ul style="list-style-type: none"> Fishing 	5	4	1	Population size	1	100
					Reproductive capacity		
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	Nasse or netted dog whelk (<i>Nassarius reticulatus</i>) is by far the most dominant bycatch species representing over 50% of catches other than whelks. All stakeholders agreed that this species was the most vulnerable bycatch species in this fishery.						
Rationale for Spatial scale of activity	Based on the distribution of the species (which occurs up to depths of 15m (MarLIN)) and the spatial extent of the fishery (up to depths of 40m), the spatial overlap was estimated as 50%.						
Rationale for Temporal scale of activity	Most of the overlap between <i>N. reticulatus</i> and the whelk fishery is likely to occur during spring. Later in the season, whelks become more difficult to fish in shallow waters and boats venture out to deeper water where there is no overlap. On this basis stakeholders estimated a total of 100 days overlap.						
Rationale for Intensity of activity	Any bycatch, including <i>N. reticulatus</i> , is rapidly discarded and stakeholders agreed that discard survival rates were likely to be high. On top of this the 'nasses' feed on the bait while in the whelk pots. Their main competitor in the ecosystem is the whelk						

	(also necrophagous) and their removal by the fishery might therefore be a benefit to <i>N. reticulatus</i> . Overall, stakeholders agreed that there was a remote likelihood of detection of the fishing activity on the <i>N. reticulatus</i> population.
Rationale for choosing most vulnerable sub-component	Population size was chosen as the most vulnerable sub-component as relatively little is known on the other sub-components and population size is relatively easy to observe (through fishermen's observations as well as data collection by the SMEL during at-sea observer campaigns which take place every 2 years).
Rationale for Consequence score	Based on the fact that the overall impact on the <i>N. reticulatus</i> population might actually be positive, stakeholders agreed that any changes to population size/growth were likely to be insignificant in comparison with existing background variability.

Appendix 3. Peer Review Reports

NB: The first response (in blue) relates to the previous version of the PCDR; the second response (in green; Principle 1 and general comments only) relates to the revised version (this document) and acts as a check that the concerns of the peer reviewers have been addressed in this version as well as the previous.

Peer Review 1

Overall Opinion

<i>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</i>	Yes	Conformity Assessment Body Response
<p><u>Justification:</u> The assessment report is clear and comprehensive in gathering together and presenting information on the nature of the fishery, management and monitoring frameworks and procedures, context of national and international law, interactions with non-target species, ecosystems and habitats, and the biology of the target species. Assessment of the fishery against the Performance Indicators for the MSC Principles demonstrates full and appropriate use of this information, and the final conclusion is sound. I have one caveat relating to whelk productivity (see below), but this does not affect the overall conclusion of the assessment.</p>		<p><u>In relation to productivity, see response to detailed comments below</u></p> <p><u>Since PSA is no longer being used for P1, this concern no longer applies.</u></p>

<p>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?</p>	<p>No (1) Yes (2-4)</p>	<p>Conformity Assessment Body Response</p>
<p><u>Justification:</u> Condition 1 relates to the definition of a well-defined harvest control rule (HCR) under PI 1.2.2. The condition and milestones are appropriately written to meet the need for a specific management target, required to achieve the SG80 outcome over three years, but is not sufficient for the HCR to take account of uncertainties relating to productivity of the target species, specifically the possibility of local depletion given limited mobility at the adult stage and lack of a larval dispersal stage in whelks. Condition 1 should address this uncertainty, which could at least partly be achieved by reference to analysis of monitoring data required in Condition 2, specifying that spatial patterns of CPUE should be examined. This could usefully be added to Condition 2, which is otherwise appropriate for achieving the SG80 outcome for collection of relevant information to support the harvest strategy (PI 1.2.3).</p> <p>Condition 3 is written appropriately to achieve the SG80 outcome on fishery-specific objectives (PI 3.2.1), setting milestones to accomplish this in stages over three years, from agreeing a management target in year 1, agreeing objectives in year 2 and integrating these into management measures in year 3. Condition 4 provides a straightforward route for preparing and adopting a research plan, and is appropriately written to achieve the SG80 outcome for PI 3.2.4 over two years.</p>		<p><u>The team reviewed conditions 1 and 2 further to this comment. The issue has been included in the wording of both conditions. Under Condition 1, an additional milestone has been added to keep targets under review further to the analysis carried out under Condition 2 – on the basis that it will require a longer data series than presently exists to draw any conclusions on a finer spatial scale.</u></p> <p><u>The team reviewed the client action plan for both conditions, and concluded that since it covers a longer timeframe than the milestones, and foresees an ongoing process of data analysis and adaptive management, it was sufficient to meet the revised conditions without any amendment.</u></p> <p><u>Since P1 has been rescored, the condition which was formerly Condition 1 no longer applies.</u></p>
<p>Do you think the client action plan is sufficient to close the conditions raised?</p>	<p>Yes</p>	<p>Conformity Assessment Body Response</p>
<p><u>Justification:</u> The Client Action Plan shows detailed actions at a quarterly or semi-annual basis over five years. Although quite general, the activities within the plan are sufficient to accommodate all the requirements under Conditions 1 to 4, with follow-up activities continuing beyond the 2-3 year timescale specified in the milestones.</p>		<p><u>The team reviewed the action plan and agreed that it covers the revised conditions.</u></p> <p><u>Likewise for the revised version.</u></p>

General Comments on the Assessment Report (optional)

The report is comprehensive and well-balanced, and I believe that the assessment does full justice to the Granville Bay whelk fishery. I have one caveat relating to whelk productivity, which is relevant principally to the condition for defining an effective harvest control rule (see ‘any other comments’, below). Under Principle 3, the assessment makes an excellent job of making the fine distinctions between the different levels at

which objectives have and have not been set; I believe that the assessment team is correct in locating the need for objectives at the fishery-specific level, and that the specified condition is appropriate for this need.

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	Yes	Yes	NA	In the absence of a formal stock assessment, this PI was scored using the RBF. I am happy that the score should be at least 80 for this PI (see below).	
1.1.2	NA	NA	NA	Default score of 80 given use of RBF for PI 1.1.1	Not any more – the score given was 75
1.1.3	NA	NA	NA	Stock rebuilding not relevant given score ≥80 for PI 1.1.1.	
1.2.1	Yes	Yes	NA	This PI is scored as 95 on the basis that there has been management to reduce fishing effort, responsive to stock status as measured by a number of indicators in relation to de facto reference points, and that together this represents an effective harvest strategy. SG100 is not met on the basis that	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				<p>this harvest strategy is strictly empirical and has not been fully evaluated. I agree with this rationale, noting that it separates issues relating specifically to the harvest strategy from those considered in relation to the harvest control rules in the next PI (1.2.2).</p>	
1.2.2	Yes	No	No	<p>The fishery management response to indicators of stock status is taken as evidence of generally understood harvest rules (HCR), but SG80 is not attained given that these are not well-defined. I agree with this assessment. I also agree that there is evidence that this approach is being effective, given that target CPUE has been achieved for Basse-Normandie.</p> <p>I am not convinced, however, that the HCR takes account of the main uncertainties. The policy of continuing reductions in fishing effort is precautionary at the largest spatial scale, but does not address the issue of local depletion which potentially is significant given the limited movement range of adults and the lack of a larval dispersal stage. The rationale for Guidepost b does identify the risk of local depletion as an uncertainty, and I would</p>	<p>The team noted that stakeholders (fishermen) do not report any evidence of local depletion, in that they do not report having to fish further away from port as time goes on – on the contrary, they report being able to fish closer to home as stock status improves. Nevertheless, the team agrees that it is a potential risk.</p> <p>As the reviewer notes, this does not affect the scoring of 1.2.2. Conditions 1 and 2 have been adapted as described above to take account of this issue. The action plan was reviewed and considered to be sufficient to meet the revised conditions.</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				<p>consider this to be a 'main' uncertainty. Although a reduction in the score to reflect this issue would not change the outcome, given that SG80 is already not met, the conditions for meeting SG80 should take account of uncertainty relating to local depletion, e.g. by linking Condition 1 with Condition 2 requirements on analysis of CPUE data, explicitly requiring analysis of monitoring data to examine spatially-specific trends.</p> <p>The Client Action Plan looks effective in relation to Condition 1 as it stands, and is probably sufficiently general to accommodate any modification of the condition in relation to the risk of local depletion.</p>	<p>Since Principle 1 has been rescored, Condition 1 no longer applies, although Condition 2, once implemented, should result in spatial considerations being taken into account in the CPUE analysis. The HCR has been much better defined since the initial assessment, and although spatial patterns are not explicitly taken into account, the team was satisfied that given the range of analyses undertaken every year, changes in the spatial pattern of fishing would not go unnoticed.</p>
1.2.3	Yes	Yes	Yes	<p>I agree with the team's assessment that data on CPUE, reproductive characteristics (but note my caveat in relation to PI 1.2.2) and from the permitting system together constitute sufficient information to support the current empirical harvest strategy. The successful application of monitoring data in fishery management is also evidence that these data are collected with sufficient</p>	<p>As already noted, Condition 2 has been amended to note the issue of spatial variability in depletion patterns.</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				<p>frequency. I also agree that uncertainties about the level of accuracy in the data mean that the information falls short of the full requirements for SG80. The condition for meeting these requirements is a data review coupled with statistical analysis accounting for uncertainties. This seems entirely appropriate and could encompass analysis of spatial patterns in CPUE to assess the risk of local depletion. The time series may be too short to attempt a full standardisation of CPUE at this time, but the outcome of any analysis could be informative about how this could be achieved in the future and whether data are collected at sufficient resolution to support inferences about spatial patterns. The Client Action Plan, being very general, looks sufficient to address Condition 2.</p>	
1.2.4	NA	NA	NA	Default score of 80 given use of RBF for PI 1.1.1	Not any more; the score given was 75
2.1.1	Yes	Yes	NA	Selection of small-spotted catshark as the only main retained species is appropriate,	A note has been added about green crab in Section 3.4.1 – it is rarely

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				<p>given that it is the dominant bait species, other main bait species are crustaceans rejected from other markets owing to mortality or poor quality, and no other species are deliberately retained by the whelk fishery. The statement that catshark constitute one third of the bait volume and that the remaining two thirds tend to be crustaceans excludes pouting/bib from further consideration. Presumably green crab make up a very minor component of the volume of crustacean bait. Given that these green crabs appear not to be market rejects, and therefore use as bait contributes to their fishing mortality, it would be useful to add a comment about their presumably negligible contribution to bait volume in the whelk fishery.</p> <p>The ICES assessment of small-spotted catshark (WGEF, 2014) provides clear evidence that the species is highly likely to be within biologically based limits. I also agree with the team that, given the data-limited nature of this assessment, there is not sufficient certainty to meet the requirements of SG100.</p>	used as bait in this fishery.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.1.2	Yes	Yes	NA	ICES consider that their approach to data-limited stocks is sufficiently precautionary for small-spotted catshark at this time. I agree with the team's assessment that this constitutes a partial strategy for maintaining this species within biologically based limits, thus meeting the requirements of SG80, and that the absence of such a strategy for all bait species means that SG100 is not met.	
2.1.3	Yes	Yes	NA	Calculations by the team of the quantity of small-spotted catshark used as bait (22% of French landings of all Scyliorhinidae) are approximate, but are corroborated by figures given by whelk fishermen. Set in the context of the ICES assessment for this species, it is clear that sufficient information is available to support a partial management strategy and to detect any changes in risk level. SG80 requirements on the availability of information, on sufficiency of information and on the adequacy to detect increases in risk are thus clearly met for small-spotted catshark. As for PI 2.1.2, the fact that these statements are not true for all bait species means that SG100 is not met for any of the	

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				three Guideposts for PI 2.1.3.	
2.2.1	Yes	Yes	NA	This PI was scored using the RBF. The outcome of the SICA clearly supports a score of 100 for this PI (see below).	
2.2.2	Yes	Yes	NA	I agree that the catch sorting methods and the design of pots provide a strategy for managing and minimizing bycatch, and that data collected by the SMEL and fishermen's self-sampling provide an objective basis for confidence that the strategy will work, that it has been implemented successfully and evidence that it is in fact working. Arguably, it could be said that this also constitutes testing of the strategy, thus meeting SG100 for Guidepost c, but I am nevertheless content with the conservative approach taken by the team for this Guidepost.	The score was left as it was
2.2.3	Yes	Yes	NA	It is clear that the fishermen's self-sampling programme and the biennial SMEL programme provide qualitative and	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				<p>quantitative formation on the amount of netted dog whelk bycatch in the fishery (Guidepost a). I also agree with the team's assessment that the management actions to reduce the retention of undersized whelks in the catch provides evidence that a partial strategy is in place which would be effective in detecting and responding to trends in bycatch abundance (Guideposts c and d). The conclusion that SG100 is not met is appropriate, given that the sampling programmes cannot provide the same standard of information for all bycatch species.</p>	
2.3.1	Yes	Yes	NA	<p>The team collated comprehensive information on protected areas and their qualifying species and habitats within Granville Bay, noting species of conservation concern including birds, fish and marine mammals. On the basis of an evaluation of potential interactions of pot fisheries with qualifying species and habitats (Le Fur, 2010), it seems clear that the effects of the fishery on ETP species are known with a high degree of certainty to be within limits relevant to the EC Birds and Habitats</p>	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				Directive (Guidepost a), and that there is a high degree of confidence that neither direct nor indirect impacts will occur as a result of the fishery (Guideposts b and c). These conclusions were backed up by a SICA workshop. Entanglement of cetaceans with ropes would be a potential issue, but on the basis that no interactions are reported and the team's assessment that the tautness of the ropes between pots reduces any risk of entanglement to low levels, I am satisfied that SG100 is met for this PI.	
2.3.2	Yes	Yes	NA	I agree with the team's conclusion that the requirement for appropriate assessment for projects taking place within sites designated under the EC Birds and Habitats Directives, taken together with the AAMP assessment that interactions with pot fisheries are unlikely, constitutes a comprehensive strategy for managing impacts on ETP species (Guidepost a). This is backed up by the SICA workshop and biennial SMEL observer trips, providing a high degree of confidence that no interactions with ETP species occur (Guidepost b). I am satisfied that all requirements under SG100 are thus	

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				met.	
2.3.3	Yes	Yes	NA	As noted above, information from the SICA workshop, biennial SMEL observer trips and the AAMP assessment provide a high degree of certainty that there are no impacts on ETP species, meeting the requirements for SG100 for all Guideposts for this PI.	
2.4.1	Yes	Yes	NA	As noted under PI 2.3.1, the team collated comprehensive information on designated sites and their qualifying features, including habitats, within Granville Bay. This shows that sensitive habitats are in inshore areas, largely outside the whelk fishery which operates in deeper waters. Further, the AAMP assessment, backed up by earlier research findings on the general impacts of pot fisheries (Eno et al., 2001), is that physical impacts on benthic features encountered by the gear are likely to be low. The team also reviewed the potential for ghost fishing by lost gear to occur, concluding that degradation of bait, pots on	

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				<p>the seabed filling up with sand and easy detachment of the plastic top from the concrete base of the pots means that lost gear exerts very little fishing power. I am satisfied that the requirements of SG80 are met with regards to the likelihood of effects on habitat structure and function, and that the lack of direct evidence about these effects means that SG100 is not met.</p>	
2.4.2	Yes	Yes	NA	<p>The team took the view that a partial strategy to ensure that fishing does not pose a risk of harm to habitat types is provided by the framework of the EC Habitats Directive, thus meeting SG80 for Guidepost a, and that SG80 is also met for Guideposts b and c given that published studies on benthic interactions of pot fisheries provide an objective basis for confidence that any impacts are low (thus the partial strategy is effective) together with evidence that this is so. They also assessed that SG100 is not met under any of these Guideposts (plus Guidepost d) because the strategy is only partial and has not been tested. I agree with these conclusions.</p>	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.4.3	Yes	Yes	NA	<p>Maps (presumably predictive) of the distribution in Granville Bay of marine habitats classified under EUNIS and of sensitive biotopes (<i>Zostera</i> beds, maerl beds, <i>Lanice</i> banks and <i>Sabellaria</i> reefs) are provided in the report, sourced from AAMP, clearly demonstrating that the requirements of SG100 are met under Guidepost a for this PI. The team also considered that monitoring of marine biotopes under the EC Habitats Directive provides measurement of changes in habitat distributions over time, allowing detection if any increases in risk, thus fulfilling SG100 for Guidepost c. Given the minimal spatial overlap with sensitive habitats under any likely scenario of change, I believe this score is justified on pragmatic grounds, although it would be good to see some presentation of evidence that ongoing monitoring of the distribution of habitats is in fact occurring. The team considered that knowledge of the overlap of the fishery with sensitive habitats and published information on the habitat interactions of pot fisheries are sufficient for SG80 to be met under Guidepost b, but the lack of information specific to the fishery and on gear loss precludes meeting SG100. I concur with this</p>	<p>The team is not certain of the details of habitat monitoring in the area (who, when and where) – it is complicated to find this information because there are multiple jurisdictions; however, several monitoring activities are taking place as coordinated by the AAMP and implemented for example by IFREMER (Département DYNamiques de l'Environnement Côtier).</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				assessment.	
2.5.1	Yes	Yes	NA	Without detailed ecological modelling, and better understanding of the role of whelks in marine ecosystem structure and function, it is difficult to judge the likely effects of fishery removals at a systemic level. Even if whelks were purely necrophagous, it would not necessarily follow that their removal would not impact upon the ecosystem. As noted in the report, whelks are predators as well as scavengers, and are themselves likely to be predated upon by other species (little information is available on this). I do accept, however, the team's judgement that the current healthy state of the stock means that it is highly unlikely that the fishery at its current levels would impact seriously upon ecosystem structure and function, thus meeting the requirements of SG80. The conclusion that further research into the ecological role of whelks in Granville Bay would be needed to meet SG100 is also appropriate.	Point taken. We found that even where detailed ecological modelling is available, whelks are not usually (ever?!) included explicitly.

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2.5.2	Yes	Yes	NA	<p>I agree with the team's assessment that management of the whelk fishery relevant to Principle 1, together with activities under the Marine Strategy Framework Directive, constitutes a partial strategy to ensure that the fishery does not post a risk to ecosystem structure and function (Guidepost a), taking into account available information through the biennial SMEL observer trips (Guidepost b), and that the success of management in maintaining a healthy whelk stock is some evidence that the partial strategy is likely to work and is being implemented successfully (Guideposts c and d). This justifies SG80 for all Guideposts; I also agree that SG100 is not met because the partial strategy does not constitute an actual plan in relation to ecosystem structure and function and there is no direct evidence at an ecosystem level.</p>	
2.5.3	Yes	Yes	NA	<p>I agree that information collected in relation to EC directives, as well as by the biennial SMEL observer programme, is sufficient to broadly understand the key elements of the ecosystem, that fishery impacts on whelk and bycatch are investigated by the SMEL and that impacts on other ecosystem</p>	<p>In relation to Guidepost c, it is true that there remain things to find out about the ecology of all the main P1 and P2 species in this assessment – a problem of working with humble invertebrates. Nevertheless, it is known, more or less, what they eat</p>

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				<p>components can be inferred from published information on other fisheries. This means that SG80 is met for Guideposts a and b, but the lack of fishery-specific investigation of some potential ecological interactions means that SG100 is not met for Guidepost b. Guidepost c is more problematic, given that the main ecological functions of whelk (target), netted dog whelk (bycatch) and small-spotted catshark (retained) cannot all said to be known (SG80). However, given that the impacts of the fishery on target, bycatch, retained and ETP species are known, thus meeting SG100, and that these impacts are low, it does seem appropriate to score 100 for this Guidepost. Guideposts d and e ask for sufficient information on impacts on target, bycatch, retained and ETP species to be available and for sufficient data to be collected on an ongoing basis to detect changes in risk and to support the development of strategies to manage ecosystem impacts. I agree with the team's view that these requirements are met by knowledge of these impacts (see above) together with data collected in relation to EC directives and by the SMEL, meeting SG80</p>	<p>and what eats them, and since none of them play other ecological roles such as burrowing or building structures ('ecosystem engineering'), then the team considered that the main ecological roles could be inferred from this trophic information, to the extent required to evaluate this relatively low-impact fishery.</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				for Guidepost d and SG100 for Guidepost e.	
3.1.1	Yes	Yes	NA	Effective national legal systems for delivering management outcomes consistent with MSC Principles 1 and 2 are provided through central and devolved administrations and Comités des Pêches, and the Granville Bay Treaty provides binding procedures for cooperation, thus the requirements of Guidepost a are met at SG100. Guidepost b refers to transparent mechanisms for resolution of disputes, and this requirement is clearly met at the SG100 level by the legal and non-legal mechanisms identified by the assessment team. Recognition of legal and customary rights consistent with Principles 1 and 2 under French and Jersey policy and through the Bay of Granville Treaty clearly meets the requirements of Guidepost d at SG100.	
3.1.2	Yes	Yes	NA	The information in the report supports the team's conclusion that functions, roles and responsibilities are well understood within the	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				French and Jersey systems and through the Bay of Granville Treaty, but not in all aspects (notably data management), thus meeting requirements of Guidepost a at SG80 but not SG100. Guidepost b refers to consultation processes and use of information from these processes; I agree with the team's view that the management processes for all parties in the Granville Bay treaty are fully inclusive, meeting the SG100 for this Guidepost, and also SG100 for Guidepost c which relates to engagement of stakeholders.	
3.1.3	Yes	Yes	NA	The team took the view that the Granville Bay Treaty sets out explicit objectives to guide decision-making consistent with MSC Principle 1, meeting SG100 in this respect, and that decision-making consistent with Principle 2 is set out in national level objectives, meeting SG80 in this respect. This view is consistent with the rationale set out in relation to PIs for Principles 1 and 2.	
3.1.4	Yes	Yes	NA	The Guidepost for this PI relates to incentives consistent with Principles 1 and 2. I agree that positive incentives are provided	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				within the management system through security of tenure in the fishery and through inclusive co-management arrangements, and evidence shows that there is an effective procedure to avoid perverse incentives arising in projects supported through the EMFF. All requirements of SG80 are thus met. I also agree that the lack of regular review of management policy in this respect means that SG100 is not met.	
3.2.1	Yes	Yes	Yes	It is clear that the whelk fishery lacks a set of explicitly defined short and long-term objectives, thus SG80 for this PI is not met. The condition for meeting SG80 or greater is that explicit objectives need to be defined at the level of the Bass-Normandie fishery or Granville Bay, consistent with keeping the stock at a high level of productivity. This is appropriate, and consistent with both Principle 1 and Principle 2 outcomes, and the milestones appear clear and achievable over a three year time span. The Client Action Plan is not strongly aligned with the	The Client Action Plan has been written to address all the conditions in the most efficient way. The conditions are obviously interlinked – defining objectives for the fishery is the condition here, and is effectively also the first requirement for dealing with Condition1 on PI 1.2.2 – the issue there being that management measures are in place without much sense of an objective or end point (target reference point). Hence the wording of the Client Action Plan

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				milestones, but appears effectively to address all required aspects of the condition over the required time scale, with follow-up activities in years 4 and 5 to review the objectives and make presentations to the Commission Bulot and JAC.	may not align with the wording of individual conditions – nevertheless, the team were happy that overall, the Client Action Plan is consistent with the conditions and milestones, and is auditable.
3.2.2	Yes	Yes	NA	Decision-making processes are clearly established in the CRPM-BN management system and in the JMC within the Granville Bay Treaty process, thus meeting SG80 of Guidepost a. Guidepost b requires that these processes respond to all issues that arise. The team point to the effective and timely management response to decreasing catches as evidence that this occurs, meeting SG100. It is clear from the description of decision-making processes that a precautionary approach is embodied with the management systems, meeting all requirements of Guidepost c. There is also clear evidence that the requirements of both Guideposts d (availability of information on fishery performance) and e (compliance with judicial decisions) are all met in full, and an overall score of 100 for this PI is justified.	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.2.3	Yes	Yes	NA	<p>The report notes that monitoring, control and surveillance (MCS) comes under a number of different agencies, and that these are demonstrably effective in both Jersey and French systems, meeting SG80 for Guidepost a. Arguably, this evidence could support SG100 being met, but I am content with the view taken by the team that shortcomings in the data management system could hinder a timely response, presumably failing the criterion of comprehensiveness in the MCS system. Full coverage of all fishermen under this system meets SG100 for Guidepost b. I am also content with the view taken by the team that, even though the pot limit per vessel is not enforceable, practical limits on the numbers of pots that can be hauled mean that there is effective compliance on this measure alongside other elements of the management system, such that SG80 is met for Guidepost c. Guidepost d asks that there is no evidence of systematic non-compliance; comprehensive consultation by the team yielded no such evidence.</p>	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.2.4	Yes	Yes	Yes	<p>The report gives details of the research being undertaken by the SMEL and by Jersey to support management of the whelk fishery, and this was considered to be conducted and disseminated to interested parties in a timely fashion, thus meeting part of the requirements of Guidepost a at SG80 and all of the requirements of Guidepost b at SG80. I agree with the team's assessment that a strategic approach is lacking, thus SG80 of Guidepost a is not met in full. Condition 4 specifies that a formal research plan should be drafted in year 1 and adopted after consultation with stakeholders in year 2. The condition is appropriate, and should be easily achievable, largely by making clear the flow of information between research activities and objectives relating to MSC Principles 1 and 2. The Client Action Plan is closely aligned with the milestones of Condition 4 and should be effective in meeting the necessary requirements.</p>	<p>We agree – actually, overall, the team felt that this fishery has an excellent record of conducting research on what is a rather poorly-known species, from the population dynamics point of view. Nevertheless, MSC requires a 'plan' and hopefully it will be a useful exercise.</p>
3.2.5	Yes	Yes	NA	<p>This PI relates to evaluation of the management system against performance objectives. The report shows that the Commission Bulot and the JAC both review</p>	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				the management system, meeting the requirements of SG80 of Guidepost a. I agree with the view taken by the team that SG100 of this Guidepost, requiring evaluation of all parts of the management system, is not met because the impact on overall management of differences between the French and Jersey systems is not reviewed. I also agree with the team's assessment that participation in Commission Bulot and JAC review of management amounts to occasional external review, meeting the requirements of Guidepost b at SG80, but not at SG100 which requires regular external review.	

Any Other Comments

Comments	Conformity Assessment Body Response
My one caveat on the assessment relates to whelk productivity. At several points in the report it is highlighted that limited mobility of adults coupled with lack of a larval dispersal stage means that whelk are vulnerable to both growth and recruitment overfishing, but this conclusion does not appear fully to be taken on board in the scoring of Performance Indicators under Principle 1. The criteria in the productivity table used as part of the RBF for PI 1.1.1 do not lend themselves particularly well to	PSA for 1.1.1 The other reviewer made the same point, and the score for fecundity has been changed as suggested by both. 1.2.2 and 1.2.3

<p>incorporating the specific life-history characteristics of whelk, such that the overall score may overestimate the productivity of whelks, which is perhaps better described as closer to medium than high productivity. I have suggested a more conservative approach to scoring, which reduces the overall score for the PSA from 88 to 80. Given that the overall outcome is unchanged (i.e. SG80 is met), this suggested change is perhaps only of academic interest. However, of greater importance, I believe, is for the harvest control rules to take full account of uncertainties relating to whelk life-history characteristics (PI 1.2.2). As noted in the report, limited mobility and dispersal is relevant to the fishery because it creates a risk of local depletion. This raises two important issues: firstly, in order fully to account for risks to stock productivity, a better understanding is needed of how productivity at a local scale (with risks of local depletion) relates to productivity at a stock scale; secondly, if we need to interpret CPUE data in terms of overall stock trends, it is essential to take account of where catches are taken, otherwise there is a risk of declines being masked by shifts of fishing effort from depleted locations to areas of higher stock density – the problem of ‘hyperstability’. These two issues are relevant to management because (a) the harvest control rule needs to be responsive to an index of stock abundance that is unbiased with respect to spatial targeting behaviour in the fishery, and (b) some response to local depletion may be required if this has more than local consequences. The appropriate approach to (b) is unclear without detailed spatial management, and points to the need for further research into the population-level consequences of local depletion. An appropriate approach to (a) would be to require consideration of spatial pattern in analysing trends in CPUE, linking Conditions 1 and 2. This might also allow assessment of whether in practice local depletion occurs. Any such analyses would, of course, depend on monitoring data being qualified by accurate recording of fishing locations.</p>	<p>The conditions have been adapted to require that data analysis and the HCR take account of spatial variability in exploitation patterns and hence (possibly) depletion. Note, however, that we cannot be too explicit in setting out exactly how data should be analysed – this is up to the client to establish. Nevertheless, the team is satisfied that the expertise exists within CRPM, SMEL and if necessary Ifremer to undertake the required analyses and incorporate the results into management.</p> <p>Data on fishing locations exist from the reference fleet.</p>
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For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process used to determine risk using the RBF led	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response:
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	to the stated outcome? Yes/No			
1.1.1	Yes	No	<p>The RBF and the rationale for using it are clearly explained, and the conclusions are sound. Heude-Berthelin et al. (2011) provide most, but not all of the information used in the PSA tables – as a very minor point, it would be useful to add references for fecundity and trophic level.</p> <p>I was concerned that the productivity table might be over-optimistic. For example, a more conservative score for fecundity might be 2 (medium productivity) rather than 1 (high productivity), since only the larger females will produce in excess of 20,000 eggs. Similarly, literal interpretation of maximum size and size at maturity might be misleading for a mollusc species, and arguably these criteria should be scored for medium rather than high productivity. However, age at maturity is convincingly scored for high productivity, and even if all other attributes are scored for medium productivity, when combined with the susceptibility scores the overall PSA score is 80, thus the outcome of the RBF is unchanged.</p> <p>The scores in the susceptibility table are all well justified. I am also happy with the rationale set out in the SICA table, and with the precautionary approach taken by the team in setting the consequence score to 2.</p>	<p>In relation to fecundity, the other peer reviewer made the same point, and in fact a more appropriate score might be 3 (low productivity). This has been changed, reducing the score for 1.1.1 from 88 to 83.</p> <p>In relation to the other criteria, there were originally designed for fish, but have been widely used in MSC for other invertebrate species. Conversely, it is not clear to us what other aspects of whelk biology (other than the reproductive system) lead to significantly lower productivity than for other invertebrates – they are not particularly long lived nor late maturing, relative to, say, crustaceans. In the absence of specific tables for invertebrates, the team felt that we were obliged to use the criteria as specified by MSC.</p> <p>References have been added – see other peer review</p>
2.1.1	NA			
2.2.1	Yes	Yes	<p>Selection of netted dog whelk to take forward into the RBF for discard species is well justified in the text of the report. The outcome of the SICA is unequivocal and well justified in the table, thus the score of 100 for PI 2.2.1 is sound and it is appropriate not to undertake a PSA analysis.</p>	
2.4.1	NA			

2.5.1	NA			
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Peer Review 2

Overall Opinion

<i>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</i>	Yes/No	Conformity Assessment Body Response
<p><i>Justification:</i> This is the first whelk fishery to be assessed for the MSC certification and, as with many shellfisheries, it is not always easy to apply the standard. In this fishery there is also a rather complicated management system, with a whole string of organisations involved and part of the fishery under a shared jurisdiction with the State of Jersey.</p> <p>Despite the difficulties, I think the team have done a good job clarifying the issues: the report is generally well written, the information is comprehensive and the scores are well justified, though I will express below a few queries and differences of opinions about some of the scoring.</p>	<p>YES</p>	<p><u><i>Indeed, the management arrangements in this area are complicated!</i></u></p>

<i>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?</i>	Yes/No	Conformity Assessment Body Response
<p><i>Justification:</i> All four conditions are justified and necessary, and the first two are appropriately written to achieve the SG80 outcome in the required timeframe. I feel that Condition 3 & 4 could be expressed more explicitly to give better guidance to what is required</p>	<p>YES</p>	<p><u><i>We are always divided between trying to make conditions helpful to the client (i.e. explicit) and the MSC requirement that they should not be prescriptive – their ideal is that we simply quote back the wording of the relevant SG80 guideposts. We try to find a middle way where both parties are more or less (un)happy.</i></u></p>

If included:

<i>Do you think the client action plan is sufficient to close the conditions raised?</i>	Yes/No Yes	Conformity Assessment Body Response
<p><u>Justification:</u></p> <p>The client action plan for Conditions 1,2 & 3 provide a suitable framework that should allow the conditions to be closed. That for Condition 4 is very brief and makes no mention of who will fund any research and if they have the approval of the funder.</p>		<p><u>Point taken. However, the requirement is not to fund research here; only to develop a plan to direct research priorities. We agree that this is a little strange, and note that in the next version of the MSC standard, this PI has been removed.</u></p> <p><u>It is perhaps more relevant to note that the scientific stakeholders in the fishery (SMEL, CRPM, Caen University) have an excellent track record in research of very direct relevance to the fishery, the results of which are quoted extensively in the report.</u></p>

General Comments on the Assessment Report (optional)

The introductory sections are well written, well illustrated and comprehensive, as are the justifications in the scoring tables. I think the team has done well to clarify the complex management structure of this fishery.

Two editorial comments:

Page 4 line 3 says that Dr Sophie des Clers was in charge of Principal 2 but Page 6 says P3 – which is presumably correct.

P18 line 8 Spelling – close not closed

Thanks! Corrected

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	NA	NA	NA	RBF score	
1.1.2	Yes	Yes	NA	RBF default score	
1.1.3	NA	NA	NA		
1.2.1	Yes	Maybe	NA	I can follow the teams argument regarding the scoring of SI a but am not convinced that the harvest strategy can be said to be 'designed' – it seems more likely to be 'elements working together'.	The team felt that the harvest strategy deserved credit for the way it has been subject to continual review and adjustment – arguably, this is a better path to an effective 'design' than starting from scratch with some theoretical template in mind.
1.2.2	Yes	Yes	Yes	I agree that the harvest control rule needs to be better defined. This is important because the current differences in trends between the Jersey and Basse-Normandie CPUE makes the state of the fishery unclear, and whelk stocks are vulnerable to local depletion and	Note that this condition has been slightly adjusted (strengthened) further to comments from Peer Reviewer 1. This does not affect these comments.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				take a long time to recover. The condition will encourage management to be more clear sighted.	Condition 1 no longer applies since the HCR has been much more clearly defined. See also comments under Peer Review 1.
1.2.3	Yes	Yes	Yes	I agree with the scoring and the rationale. The condition could perhaps be worded more clearly to emphasise that both the quantity and the quality of the data needs to be improved in order to provide data amenable for statistical analysis	<p>The team felt that the effort going in to data collection is appropriate (significant) for a fishery of this size – there are few other whelk fisheries in Europe getting such scientific attention. What is envisaged is more than integrating statistical analysis into the system will hopefully allow data collection effort to be adjusted if necessary, to obtain the best results and biggest benefit from the effort put in.</p> <p>The wording of the condition has been adjusted to reflect this a little better (but since we have to keep conditions general, we have not entered into much detail). (It has also been adjusted to reflect concerns raised by the other peer reviewer.)</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.2.4	NA	NA	NA	RBF default score	
2.1.1	Yes	Yes	NA	The score is appropriate. It is not clear to me how much of the dogfish retained in this fishery is used as bait and how much comes from elsewhere.	No dogfish are caught in the pots – all the dogfish used as bait is bought in from other fisheries. A note has been added in Section 3.4.1 to make this completely clear.
2.1.2	Yes	Yes	NA	The score is appropriate and well justified	
2.1.3	Yes	Yes	NA	The score is appropriate and well justified.	
2.2.1	NA	NA	NA	RBF used	
2.2.2	Yes	Yes	NA	I agree with the score and the justification. As a pot fishery there is, in any case, only a limited number of bycatch species that enter the traps	Exactly

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.2.3	Yes	Yes	NA	I agree with the score and the justification. The information collected is sufficient to detect trends but not to determine impacts with a high degree of certainty. However, if analysis of the SMEL data over a number of years shows little variation over time then this may be sufficient to support SG100 scores.	Indeed – the team concluded, however, that there is not yet enough of a time series.
2.3.1	Yes	Yes	NA	I agree the scores. This pot fishery has little potential to impact ETP species	
2.3.2	Yes	Yes	NA	The score is appropriate	
2.3.3	Yes	Yes	NA	The score is appropriate	
2.4.1	Yes	Yes	NA	The score is appropriate. How long would it take for a lost pot to open?	There does not seem to be quantitative data on this point
2.4.2	Yes	Yes	NA	SI a. Apart from the SACs what happens in the rest of the area?	Peer Reviewer 1 made the same point. To be honest, we have not delved in detail into the various

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				I agree with the score and the justification	means by which habitats are surveyed in Granville Bay, except to the extent needed to respond to the scoring guideposts. It is complicated by the multiple jurisdictions in the area.
2.4.3	Yes	Yes	NA	I agree with the score and the justification	
2.5.1	Yes	Yes	NA	I agree with the score and the justification	
2.5.2	Yes	Yes	NA	I agree with the score and the justification	
2.5.3	Yes	Yes	NA	Good justification	
3.1.1	Yes	Yes	NA	A complex legal framework but apparently comprehensive.	Indeed so

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.1.2	Yes	Yes	NA	<p>SI a</p> <p>With so many organisations involved there is substantial scope for confusion/disagreement over roles. The data collection system is a shambles. Could the system not be simplified?</p> <p>SI c</p> <p>The fishery management system may facilitate the effective engagement of interested parties but does it encourage them?</p>	<p>We did not talk to any stakeholders who would disagree with you. Conversely, the various organisations have developed over many years the capacity to adjust to the (usually ill-thought-out) re-organisations handed down from Paris which have resulted in the present system, and to find a way to make it work. In this regard, it may be rather similar to how the UK manages the National Health Service.</p> <p>In relation to c) the team discussed this extensively. In relation to fisheries and scientific stakeholders, it is clear that they are encouraged, both in Normandy, in Jersey and in the JAC/JMC. The question arose as to whether this was the case for NGOs – the problem being that the question is hypothetical because no NGOs have ever expressed an interest in the fishery directly. Nevertheless, there is active conservation in the area (e.g. for</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
					cetaceans and birds) and there appear to be friendly personal relationships on both sides (Normandy and Jersey). On that basis, the team concluded that should NGOs express an interest, they would be encouraged.
3.1.3	Yes	Yes	NA	I agree with the score and the justification	
3.1.4	Yes	Yes	NA	I agree with the score and the justification	
3.2.1	Yes	Yes	Yes	I agree that the setting of management objectives is an important requirement for this fishery	
3.2.2	Yes	Yes	NA	I agree with the score and the justification	
3.2.3	Yes	Yes	NA	How does the pot limit per vessel relate to the daily catch quota per vessel? i.e how many pots does a boat really need to land its daily catch quota, five days a week? And	The answer to this (like most questions in fisheries) is that it depends. Catch rates are variable by season; specifically, there is a dip in

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				<p>what is the management argument for maintaining the pot limit if they are not going to enforce it</p>	<p>catch rates in the summer because whelks in this area are at the southern end of their range, and it is believed burrow to escape high water temperatures. Most fishermen stop working in July and August for this reason, but either side of this period will need to pull more pots for the same catch than they will in winter.</p> <p>Other than that, the reason to have more pots is more that it makes the fishing easier – if you take your quota and have only lifted half your pots, you can lift the other half the following day and if they have been fishing for two days they will contain more whelks. This is possible, unlike a finfish fishery, because whelks survive in good condition in pots for several days (essentially until the bait runs out). So in other words, fishermen can take their quota with a variable number of pots – but more pots = less work.</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
					<p>In relation to the pot limit, we also put this question. There was a feeling (among the fishermen we talked to as well as the scientists and managers) that it does constrain the number of pots to some extent, even if it is not enforced, by sending a message that it is not appropriate for fishermen to have too many pots – or at least, conversely, if it were repealed, it would send a message that it is fine to go all out and put as many pots as you like, which no-one thinks is desirable.</p>
3.2.4	Yes	Yes	Maybe	<p>A appropriate research plan will raise the fishery's performance to the SG80 level.</p> <p>However, a reseach plan requires cooperation between the people commisioning the research and those carrying it out – and it has cost implications</p>	<p>True enough, but the requirement is not to find research funding (although the fishery has a good track record of this) but just to make a plan in order to set out priorities.</p> <p>In addition, there is not quite such a</p>

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				regarding how it will be funded. From the wording of the condition none of this is explicit.	distinction between those commissioning the research and those carrying it out as there is in most fisheries, because the main management body for the fishery (CRPM) has its own research capacity, and the other key research body (SMEL) is intimately involved in the management of the fishery as well.
3.2.5	Yes	Yes	NA	I agree with the score and the justification	

For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process used to determine risk using the RBF led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response:
1.1.1	Yes	No	Very few references are given. PSA Productivity Table	Re fecundity – the other peer reviewer made the same point. This score has been changed

		<p>The fecundity score is incorrect. Although each capsule may contain 100-1,000 eggs (or more), most of these are nurse eggs used as food by the developing larvae. Only some 1% of the eggs develop into larvae so the fecundity estimate is grossly overestimated. I agree with the other scores See: Smith, K.E. and Thatje, S., 2013. Nurse egg consumption and intracapsular development in the common whelk <i>Buccinum undatum</i> (Linnaeus 1758). <i>Helgoland Marine Research</i> 67, 109-120.</p> <p>Nasution, S., Roberts, D., Farnsworth, K., Parker, G.A. and Elwood, R.W., 2010. Maternal effects on offspring size and packaging constraints in the whelk. <i>Journal of Zoology</i> 281, 112-117.</p> <p>PSA Susceptibility Table I question your interpretation of 'vertical overlap'. As interpreted here it is essentially another estimate of areal overlap. My interpretation (which may not be correct) is that the gear is on the seabed and so are the whelks so that the vertical overlap is 100%.</p> <p><u>Quotes from Certification Requirements v1.3</u></p> <p>'Vertical Overlap The position of the stock/species within the water column relative to the fishing gear '.</p> <p>'The susceptibility of a species is determined by attributes such as the degree of overlap between the distribution of the fishery and the distribution of</p>	<p>from high productivity (1) to low (3), with the score for 1.1.1 reduced from 88 to 83.</p> <p>The references have been added.</p> <p>The reviewer makes an excellent point here, which has highlighted some sloppy drafting in our PSA rationales.</p> <p>The team conceptualised areal vs vertical overlap as corresponding to i) % of area refuge from fishing within the fishable area; and ii) % of depth refuge from fishing (i.e. areas which are outside the fishable area because too deep). These are more or less independent, but we agree that it was not explained very clearly, and a comment relating to vertical overlap had crept into the rationale for areal overlap, which has been removed.</p> <p>The definition of vertical overlap given left is clearly set out with pelagic gear in mind, and the team considers that in relation to demersal</p>
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			<p>the species; and whether the species occurs at the same depth in the water column as the fishing gear.'</p>	<p>gear is not completely clear. The interpretation could be as the reviewer suggests, but it could also be interpreted differently: if the demersal gear is deployed down to ~40m and the species occurs down to 200m, then there is a 20% overlap (if the species is evenly distributed through this range, which whelks are not). If this were the case for a pelagic species, then vertical overlap would be interpreted as such, and it is reasonable to argue that the fact that the bottom intervenes is not part of the definition and therefore irrelevant. This corresponds to our definition as used to score the PSA.</p> <p>Obviously, in order to be independent of areal overlap, it means that the areal overlap has to be scored for the fishable area only (i.e. <40m) – otherwise the area from 40-200m is scored twice as both an area refuge and a depth refuge, as the reviewer correctly notes.</p> <p>Conversely, if vertical overlap is scored as suggested by the reviewer, then the area from 40-200m, is credited as an areal rather than a depth overlap.</p> <p>It is not clear whether these two interpretations will result in the same scoring in every case, but in this case, they appear to (scores of 2 and 2 vs 1 and 3). The scoring has therefore not been changed, since i) we were comfortable with our interpretation of MSC's instructions; ii) we are happy that areal and vertical overlap have been scored independently, and ii) it makes no difference.</p>
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				Note: In the revised PCDR the RBF was not used for P1, so this no longer applies.
2.1.1	Yes	Yes	I agree with the values chosen for the SICA table	
2.2.1	NA	NA		
2.4.1	NA	NA		
2.5.1	NA	NA		

Appendix 4. Stakeholder submissions

Appendix 4.1 Prior to publication initial PCDR

One written stakeholder comment was received prior to publication of the initial PCDR. The comment was submitted by Greg Morel of the Jersey Marine Resources Section, as shown below.

Department of the Environment

Fisheries and Marine Resources

Howard Davis Farm, Route de la Trinite

Trinity, Jersey, JE3 5JP

Tel: +44 (0)1534 441600

Fax: +44 (0)1534 441601



Ms C Sieben
MacAlister Elliott & Partners Ltd

08 July 2014

Basse-Normandie Granville Bay Whelks

Dear Chrissie,

Thank you for the opportunity to comment on the assessment of the above fishery. Unfortunately due to existing commitments it is not possible for us to attend the stakeholder meeting in Granville on the 8th and 9th July 2014.

As managers of the marine resources within Jersey's Territorial Waters, we are committed to ensuring the sustainability of exploited stocks in our and jointly managed seas.

The whelk fishery covers Jersey and French Waters in the Bay of Granville and we welcome any development to secure the long term sustainability of this stock, working in partnership with French fishers, scientists and managers.

There are, however, some issues which we feel require resolution:

It will be necessary to establish the nature of the relationships between those applying for the certification, those that fish the joint stock and those that are responsible for the management of the area but are not applying for MSC certification.

The central ethos of the Granville Bay Treaty in setting out the management of fishing in the area is to try, wherever possible through discussion in the Joint Advisory Committee (JAC), to harmonise management measures to facilitate and ensure the sustainable nature of common fisheries, both in ecological and socio-economic terms. Whilst we fully accept the right for all parties to manage fisheries in their own waters and ongoing marketing and

promotion, it is important that any measures for stocks in jointly managed waters is done through the mechanisms set out in the Granville Bay Treaty.

To monitor this important fishery, the States of Jersey has completed an assessment of the whelk stock in the Jersey Territorial Sea on an annual basis since 1996. Research is conducted in both Jersey exclusive waters and those jointly fished by Jersey and French whelk fishermen. All data from the programme has been presented to various meetings of the JAC and we would be happy to share it with those assessing this application. Part of this data set has been published, with more recent data in preparation. The references are below:-

Morel, G. M., Bossy, S. F., 2004, Assessment of the whelk (*Buccinum undatum L.*) population around the Island of Jersey, Channel Isles. Fisheries Research. 68: (1-3) 283-291 DOI: 10.1016/j.fishres.2003.11.010

Shrives, J. P., Pickup, S.E., Morel, G.M. 2014, Whelk (*Buccinum undatum L.*) stocks around the Island of Jersey, Channel Islands: Reassessment and Implications for sustainable management. In prep.

We wish to reiterate that we fully support our colleagues in Normandy in their aspiration to obtain MSC status for the whelk fishery, but feel that it is important these issues are clarified prior to the completion of the assessment process.

We welcome the opportunity to input into the process and look forward to future discussions with you concerning the sustainability of this stock.

Please do not hesitate to get in contact should you wish to discuss this further.

Yours sincerely



Greg Morel

Marine and Coastal Manager – Fisheries and Marine Resources

A telephone conference was subsequently held between the MEC team leader and Greg Morel and Jonathan Shrives on the 16th July 2014. The points discussed during this meeting have been presented in detail in Section 4.4.2.

Appendix 4.2 Prior to publication revised PCDR

A stakeholder comment was received from Don Thompson on the 29th November 2016 on behalf of the Jersey Fishermen's Association in response to the Invitation for new Stakeholder information and revised timeline (posted on the 22nd November 2016):

Gavin,

Many thanks for the inclusion in the notice on recommence of assessment of the Granville Bay whelk fishery. I am responding from the email of Jersey Fishermens Association, rather than my personal email. If you could note that this is the contact rather than (...), that would be appreciated.

*Initial response MEC (29/11/2016): Dear Don, Thank you for your comments. I have passed them on to our assessment team and you can look forward to receiving a response from them shortly but in the meantime, if you have any other comments or questions, please do not hesitate to contact us. I have also revised your contact email address on our system as requested. Kind regards,
Gavin.*

I cannot recall if we responded directly on the previous occasion, or whether there was a single response from Jersey, by our Environment Dept/Fisheries team, however we will wish to take the opportunity to comment this time.

Follow-up response MEC (15/12/2016): Indeed, we got very extensive comments from Greg and Jon. The draft report is in about its 200th version, so we are not there yet (and there is still plenty of time for more comment!). (As you can tell, this assessment has not gone smoothly ...)

I will take my time and submit a more in depth response, but for the moment the following points are pertinent.

1) The fishery to be certified is carried out to a large degree within the Granville Bay "Mer Commune" zone, which is cover by an agreement for shared access and a management regime. Whilst the lines of communication are in place and we are aware of ongoing efforts by the CRPBN to have the fishery assessed for MSC accreditation, there is no formal arrangement in place with Jersey, to provide either for management measures, or for data collection to be introduced, for the purpose of MSC accreditation.

This is true, although we did receive some data from Greg - logbook data I think (or perhaps it came from the annual report). It is a slightly strange situation, I agree, but in practice the fishery on the BN side is quite considerably larger, such that it is reasonable to assume (in our view) that in practice they have control over the whole fishery in management terms. The assessment is not assuming, for example, that the Jersey whelk survey will continue / restart.

2) While it is true to state that there has been considerable effort in recent times, aimed at harmonising management measures covering the primary species and stocks within the Granville Bay Zone, it is unlikely for various practical reasons, that all our measures will ever align. The whelk fishery is an example of where fishing and marketing practices, necessarily differ between Jersey and Normandy, hence measures taken by Jersey and Normandy are a direct reflection of those constraints. Whether or not that fact creates a barrier to the assume that process, I do not know. It is simply to note that the different measures currently in place, are unlikely to change purely for the purpose of MSC assessment.

Yes - but in practice I don't think this matters. The BN fishery covers ~90% of the total (taking Jersey and Brittany into account) and it's not as if it is a free-for-all in the Jersey zone - not at all.

That's not to say that I don't agree that it would be better if whelks could be managed along the same cooperative lines as lobster, but given the practical issues you point out, plus the greater mismatch between the size of the fishery on each side, I feel as if the system there is can be made to work OK, now that BN has got a grip on the management on their side. I guess fisheries management systems don't have to be pretty, as long as they work.

3) it may be a superfluous point, however it has to be clarified, that Jersey (certainly on behalf of the fishing industry) have not offered to participate in the project to have the Granville Bay Whelk fishery assessed for MSC accreditation.

That should be clear in our report - I'll try and make sure it is.

Kind regards Don Thompson

*Don Thompson
jersey fishermen's association ltd*

Appendix 4.3 After publication initial PCDR

Following publication of the initial PCDR, comments were received from the Jersey Marine Resources Section, as well as from the MSC (as Technical Oversight). Both sets of comments are given below.

Comments submitted by Jersey Marine Resources Department

Comments and associated responses were made in the PCDR document directly. A separate copy has been posted on the MSC website.

Technical Oversight comments submitted MSC

www.msc.org



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Date: 11/06/2015
SUBJECT: MSC Review and Report on Compliance with the scheme requirements
Dear Jo Gascoigne

Please find below the results of our partial review of compliance with scheme requirements.

CAB	ME Certification Limited
Lead Auditor	Jo Gascoigne
Fishery Name	Basse Normandy Granville Bay whelk
Document Reviewed	Public Comment Draft Report

Ref	Type	Page	Requirement	Reference	Details	PI
14291	Major	105-106	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	PI 3.1.1 - Scoring issue (a) refers to a need for there to be a framework for cooperation (SG60) or an organised and effective cooperation (SG80) with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2. The stock as defined is shared between multiple parties (Normandie, Brittany, Jersey and England) so would be subject to international cooperation for management of the stock (CBA4.2.1.2). However, there is no indication at SG60 or 80 that there is a framework or other cooperation between England and the other parties (who are subject to the Granville Bay treaty) that delivers the intent of UNFSA Article 10 (see CBA4.2.1.2-3, CBB4.2.1.2).	3.1.1, 3.2.3

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This comment is no longer relevant following the revision of UoC (see Section 3.1).

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					<p>PI 3.2.3 - SI a, SG80. The MCS system is described in the main text of the report but there is no information there or in the rationale on how the MCS system has demonstrated an ability to enforce relevant management, measures, strategies or rules given the information provided in SI c that the pot limit per vessel is not really enforceable.</p> <p>SI b, SG60/80 - Further information should be provided on what the sanctions are and how they demonstrably provide effective deterrence.</p>

The rationales for PI 3.2.3 SI a and b have been complemented.

Wording for SIc has been amended. The section regarding the total number of pots has been reworded and some text moved to the main section of the report. This is to reflect that one of the management measures - the pot limit - is not easy to enforce in a precise cost-effective manner, even though it does not decrease the effectiveness of other measures or the system as a whole.

15302	Minor	59, 60	CR-27.12.2.1 v.1.3	<p>27.12.2 If the CAB determines the systems are sufficient, fish and fish products from the fishery may enter into further certified chains of custody and be eligible to carry the MSC ecolabel. The CAB shall determine:</p> <p>27.12.2.1 The scope of the fishery certificate, including the parties and categories of parties eligible to use the certificate and the point (s) at which chain of custody is needed. a. Chain of custody certification shall always be required following a change of ownership of the product to any party not covered by the fishery certificate. b. Chain of custody certification may be required at an earlier stage than change of ownership if the team determines that the systems within the fishery are not sufficient to make sure all fish and fish products identified as such by the fishery originate from the certified fishery. c. If the point where chain of custody certification is required is covered by the fishery certificate, the team shall determine the parties or category of parties covered by the fishery certificate that require chain of custody certification.</p>	<p>Granted that CoC must begin at point of landing - is the assessment team proposing that all auction markets (criees) will require CoC? It seems appropriate to require all fish merchants (mareyeurs) to obtain CoC - as this is the first change in ownership. It therefore seems contradictory not to include traceability at the criees as part of the assessment, especially given the use of codes and tickets.</p>
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No, this was unclear in the report and has been clarified: there are two scenarios: 1) for whelks sold through the auctions (criees), Chain of Custody starts from the 1st change of ownership; 2) for whelks sold outside the auction system, i.e. to mareyeurs directly, these mareyeurs will need separate chain of custody. In this case Chain of Custody starts at the point of landing.

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15309	Major	70-75	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	<p>PI 1.2.1 Harvest Strategy.</p> <p>The team argues that the evaluation of this PI has focused on the harvest strategy in relation to the Granville Bay fishery, but has also considered the whole population and all fisheries in the Western Channel area. It must be noted that, to contribute to the scoring of any PI, the team shall verify that each scoring issue is fully and unambiguously met.</p> <p>The Granville Bay area is shared between Normandy, Brittany and Jersey, with a system of co-management in place for shared areas based on the Granville Bay Treaty. However, the team recognizes (a) that there is no explicit harvest strategy for the whole Granville Bay fishery (including Jersey and Brittany); (b) there has never been any success at agreeing formal joint management measures between the three parties, and management measures have therefore been put in place on a unilateral basis; (c) the UK fisheries seems not to have an explicit harvest strategy either.</p> <p>The overall harvest strategy is summarized as: "Continue to reduce effort in the fishery for as long as benefits can be seen in terms of the stock status (as monitored by landings, CPUE and size structure) while remaining compatible with the maintenance of a robust fishery". However it is unclear whether the management objectives have been achieved as reflected in the TRP and LRP e.g. in Jersey (PI1.2.1a) and there not evidence that harvest strategy is achieving its objectives (e.g. Jersey or UK fisheries) (PI1.2.1b). Also, noting that there is not specific harvest strategy for some areas it is unclear how this can, for all fisheries, periodically reviewed and improved (PI1.2.1d).</p>	1.2.1, 1.2.2
					<p>To add clarity, the MSC suggest including in the report CPUE and landing tabular trends of all different management areas, including the explicit targets defined for all of them.</p> <p>Harvest Control rules (PI 1.2.2)</p> <p>In PI 1.2.2a (page 74) it remains unclear which are the HCRs associated with each of the different management areas. It is said that HCR tools have been adjusted based on monitoring data on the stock status, but is not explained how they act to reduce the exploitation rate for all areas.</p> <p>In PI 1.2.2b requires that the selection and design of harvest control rules takes into account the main / wide range of uncertainties. However, uncertainties relating to the stock structure (e.g. connectivity between the banks) is not specifically addressed by the assessment team.</p> <p>In PI 1.2.2c, noting comments above it is unclear how HCRs can be considered appropriate and effective in controlling exploitation and that evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules given the contradictory evidence from CPUEs in Jersey vs Granville Bay.</p>	
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Both PIs 1.2.1 and 1.2.2 have been re-evaluated and re-scored based on changes to the UoA and changes to the harvest strategy.

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15310	Major	123-127	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	<p>SICA Intensity (page 123). The team awarded a 3 score (moderate) for Intensity as the "Stakeholders considered that detection of the activity would be obvious but localised – given the localised distribution of the fishery". However, (a) being fishing "the only activity, which impacts in any significant way on whelk population", (b) noting that "the Granville Bay fishery accounts for about ¾ of the whelks production in the Western Channel" and, (c) being current (2013) CPUE and landings significantly lower than those found in the past (e.g. 2000), it seems that effects of fishing whelks is easily detectable and there is also widespread and frequent evidence of activity (as equivalent to Intensity score = 5 = severe).</p> <p>Consequence (pag 124). The team considers that the population is apparently recovering from a depleted situation due to past fishing pressure, and considered that the fishery at its previous level must have had an impact of 3 (full exploitation rate but long-term recruitment dynamics not, apparently, affected). The team eventually awarded a 2 score (medium risk) but no explicit rationale is given, based on the scale and intensity, supporting the score (2= Possible detectable change in size/growth rate (r) but minimal impact on population size and none on dynamics.). On the other hand, the perception of recovery is not shared by Jersey (page 32). Unless strong evidence is provided in absence of agreement or information, the highest risk score considered plausible should be normally be used.</p> <p>It must be noted that CPUE data sets seem not to be that reliable and comprehensive (covering the whole area and different fisheries), as noted in page 30: (a) the various datasets show conflicting pictures of the</p>

					<p>trends in CPUE; (b) "is not clear whether these differences are real (e.g. driven by different trends in different areas) or an artefact of sample size, sample technique or length of time series"; (c) "In relation to other areas of the Western Channel, no information could be found on stock status", etc.</p> <p>PSA (page 125)</p> <p>Areal Overlap. The team awarded a 2 score (medium risk) on the basis that Whelks are likely to be present throughout the Western Channel area (down to 200 m) and that fishing is occurring at depth up to 40m. The team evaluated the areal overlap of coastal whelk habitat and whelk fisheries at 10-30%. However no details/quantitative analysis are given on how these percentages were calculated as required in CC2.4.2.2.a (using detailed mapping analysis (i), or stakeholder generated maps (ii)).</p> <p>Vertical Overlap. The team assumes that "50% of the biomass occurs in the top 40m, and concludes that overlap with the fishery by depth should be 50%, i.e. medium". However, (a) it is unclear on which basis the assumption that 50% of the biomass occurs in the top 40m (e.g. why not 90%, according to PCDR "fishermen report that whelks are less abundant below this depth (40m)").</p>
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This comment is no longer relevant. The RBF was not used for Principle 1 in the revised PCDR.

Appendix 4.4 After publication revised PCDR

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Date 30/06/2017

SUBJECT: MSC Review and Report on Compliance with the scheme requirements

Dear Jo Gascoigne

Please find below the results of our partial review of compliance with scheme requirements.

CAB	ME Certification Limited
Lead Auditor	Jo Gascoigne
Fishery Name	Basse Normandy Granville Bay whelk
Document Reviewed	Public Comment Draft Report

Ref	Type	Page	Requirement	Reference	Details	PI
27039	Major	84	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	1.2.2(a). Score of SG80 determined. The rationale does not support the SG80 score specifically in regards to "well-defined". The rationale states there are no formal rules outlining that when the stock reaches a certain level certain actions will be taken. Instead, it mentions that there is an agreed list of actions that will be considered in each case, but not what these actions are, when they would be used and if they comprise of technical measures, nor how they would be expected to be revised in the future, consistent with the critical guidance outlining what constitutes 'well-defined' at SG80. Additional information on HCR's can also be found in the MSC interpretation: http://msc-info.accreditation-services.com/questions/what-are-the-msc-requirements-on-harvest-control-rules-hcrs-including-generally-understood-and-available-multiple-questions/	1.2.2

Team response: The agreed list of actions is provided in Section 3.3.5 of the report, which is referenced in the rationale - this has, however, been made more explicit. The management system in Basse Normandie is stakeholder-driven (as described in the report), and changes to management always require stakeholder approval (via the CRPM / Commission Bulot). They could be revised at any time by the Commission Bulot if they were not working to achieve explicit stock management objectives (target reference points). Since these targets are formally embedded in management, this provides a structure for the review and revision of management actions.

The managers and scientists take the view that this flexible approach is needed because they are monitoring a variety of different stock indicators, and different observations may require different management responses. For example, observations of local depletion require a different response to observations of a more generalised change in CPUE or size structure. Furthermore, the scientists at CRPM and SMEL are aware that this stock will be strongly affected by climate change because the species is right at the southern edge of the range; this again requires a different management response (e.g. review of management targets).

On this basis, the team concluded that the approach is appropriate for this stocks, and SG80 is met.

27100	Major	119	CR-27.10.6.1 v.1.3	Rationale shall be presented to support the team's conclusion	PI 3.1.2 Scoring Issue b (SG80, SG100) - The rationale presented does not provide evidence of the regularity of the consultation processes to seek relevant information. At the SG80 level, regularity of the consultation processes needs to be stated.	3.1.2
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Team response: this has now been corrected in the rationale.

27104	Guidance	67	CR-27.12.1.3 v.1.3	27.12.1 The CAB shall determine if the systems of tracking and tracing in the fishery are sufficient to make sure all fish and fish products identified and sold as certified by the fishery originate from the certified fishery. The CAB shall consider the following points and their associated risk for the integrity of certified products: 27.12.1.3 The opportunity of substitution of certified with non-certified fish prior to or at landing fraudulent claims from within and outside their certified fishery.	Could you please clarify whether non-certified whelks (for example those collected by on-foot professional fishermen mentioned on p23) are ever landed at the same sites as the certified whelks?	
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Team response: Non-certified product is indeed landed at the same sites as Granville Bay whelks; however those non-certified whelks will not have the label or ticket as described in Section 5.2, which shows the name and registration number of the vessel, the fishing zone, species and live weight and therefore ensures that any MSC product is identified as such through its designation as Granville Bay-caught and permits the product to be traced back to the vessel and catch area. Clarification has been added to the text.

Appendix 5. Surveillance Frequency

Pending the outcome of this evaluation, the surveillance level for this fishery is likely to be 6, requiring 4 on-site surveillance audits.

Fishery Surveillance Plan:

Year 1	Year 2	Year 3	Year 4
On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance and re-certification audit

Appendix 6. Client Agreement

Nous attestons que nous sommes d'accord avec les résultats de l'évaluation ainsi que le contenu du rapport Bulot.

*Bonne journée
Véronique*

Véronique LEGRAND
Chargée de mission Halieutique
34 rue de la Louverie
50560 BLAINVILLE/MER

Appendix 6.1 Objections Process

No objections were raised following publication of the Final Report.

Appendix 7. Client Action Plan

PECHERIE DE BULOT
-PLAN D'ACTION-
Réponses aux 5 conditions relevées / Evaluation MSC

Nous remercions l'équipe des experts de nous avoir fait parvenir les résultats de l'évaluation de la Pêcherie de Bulot de la Baie de Granville selon les critères MSC. Nous avons bien pris en compte les conditions énoncés pour lesquelles n'avons pas d'opposition majeure. Nous nous engageons à respecter le Plan d'Action suivant, en réponse aux 5 conditions relevées par l'équipe d'évaluation.

Condition 1 : IP 112- Définition point de référence limite (seuil d'alarme)
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Le score est de 75

Le rapport d'évaluation indique :

In the absence of a means to estimate of absolute stock status in a quantitative way, it is clearly challenging to set reference point levels, but nevertheless, the team considered that the selection of the reference point level was a bit arbitrary – in particular the application of a mean monthly value to a reference point measured as a mean annual level. It is not clear what stock status would be required to generalise a September level of LPUE across the whole year, bearing in mind that September is in the summer low season where whelks are less active and LPUE therefore always lower than earlier and later in the year. It is not clear that this stock level would be above the point at which reproductive capacity is impaired.

Condition:

By the end of Year 3, the limit reference point should be set above the level at which the reproductive capacity of the stock is impaired.

Avant la fin de l'Année 3, le point de référence limite (seuil d'alarme) devrait être défini comme étant au-dessus du seuil d'impact sur la capacité reproductive du stock.

Plan d'action:

Dans le cas du bulot l'analyse de la DPUE est pour le moment un indice qui représente l'évolution de l'état du stock. Dans le cadre des travaux du programme Bestclim une approche statistique très rigoureuse est prévue, qui va permettre de sélectionner de manière objective le niveau d'alerte ou le DTrigger et le niveau de danger ou DLim.

Les données utilisées sont celles de l'auto-échantillonnage mis en place depuis 2009. Dans le cadre d'une standardisation des DPUE, l'objectif principal est de quantifier l'effet année, utilisé pour représenter les abondances relatives annuelles, et utilisé comme indice relatif d'abondance en évaluation de stock. La variable année est incluse dans le modèle GLM comme variable facteur, et sans interaction avec une autre variable, au risque d'invalider l'interprétation de la propre contribution de la variable Année (Hinton and Maunder, 2003). Les covariables potentielles sont le mois, le semestre, le secteur et la classe de taille des navires. Les raisons qui impactent la proportionnalité des CPUE à l'abondance incluent la possible non linéarité entre l'indice CPUE et l'abondance, dû au caractère ciblé de la pêche (Harley et al, 2001); et l'amélioration de la technologie de pêche, l'accumulation d'information et de connaissances sur la distribution de l'espèce et la façon de la capturer ont pour résultat une hyperstabilité des CPUE (Bishop et al., 2014).

De plus, le bulot (*Buccinum undatum*), objet de l'étude est une espèce capturée majoritairement par casiers. Le traitement statistique de CPUE d'engins passifs comme le casier pose certains problèmes spécifiques. Ye and Dennis (2008) ont montré qu'il était nécessaire d'incorporer de manière explicite les variables responsables des changements de l'efficacité de pêche. Ici, une telle variable serait le

type d'appâts utilisé, si des évolutions ont eu lieu sur la période considérée (ce qui ne semble pas être le cas) et la capacité des bulots à accéder aux casiers en fonction de l'évolution de leurs paramètres physiologiques tout au long de l'année (travaux à développer) .

Aussi le niveau de la limite d'alerte ou Dtrigger peut être sélectionnée sur la base de ces résultats, avec une valeur de 110 kg pour 100 casiers correspondant à la valeur limite haute de l'intervalle de confiance à 95%. Le niveau de Dlim va également être soumis à une revue, basé sur cet index de DPUE standardisé. En attendant d'améliorer la méthode d'évaluation des DPUE en cherchant par exemple à définir un indice par semestre, ces 2 niveaux sont définis pour un premier temps.

Planning :

Voir Condition 2

Condition 2 : IP123- Suivi du stock (Information and monitoring)- Recueil et suivi des information

- Le score est de 75

Le rapport d'évaluation indique :

The most important index used for the monitoring of stock abundance is nominal CPUE. The team were concerned about the level of accuracy in this dataset – specifically that it is not standardised, despite some year-to-year differences, e.g. in fishing areas and periods. Because the data time series is short, at present, it may not be feasible to impose too much statistical analysis on it, but there needs to be an appropriate level of analysis, consistent with what the data will bear.

Condition:

By the end of Year 4 there should be a review of the data being used to monitor the fishery and stock status, with an appropriate statistical analysis carried out to try as far as possible to reduce uncertainties associated with external variability or spatial variability in stock structure and dynamics and fishing pressure. The analysis may be used to inform future data gathering, such that data is gathered following a suitable statistical methodology where possible.

Avant la fin de l'Année 4, il devrait y avoir un examen des données utilisées pour surveiller l'état de la pêche et des stocks, par une analyse statistique appropriée réalisée pour essayer autant que possible de réduire les incertitudes liées à la variabilité externe dans la structure et les dynamiques du stock et la mortalité par pêche. L'analyse peut être utilisée pour informer la collecte des données, afin que les données soient recueillies d'une façon statistique appropriée.

Plan d'Action :

Il convient de répertorier et de définir quelles informations sont les plus pertinentes pour le suivi de la pêcherie. Il conviendra, par les scientifiques du Smel et du CRPM, d'en effectuer une analyse statistique et de vérifier leur validité. L'assistance d'autres scientifiques pourrait être requise. Il faut également définir quelle est la périodicité de recueil de ces informations, leur traitement et leur présentation. Des bilans annuels permettront de présenter et de valider l'avancée des travaux et une information annuelle des parties prenantes sera réalisée.

Planning : le planning prévisionnel est décrit ci-dessous

Année 1	Action
Premier semestre	Recensement des différentes informations existantes (fiche de pêche, données criées, données SMEL, bateaux référents, Ifremer....) Fixer la périodicité de recueil des données

	<p>Review of the various existing information sources (logbook, auction data, SMEL data, reference fleet, Ifremer)</p> <p>Fix the periodicity of data collection</p>
En continu (selon périodicité définie)	<p>Suivi et recueil des données</p> <p>Monitoring and data collection</p>
Année 2	
Semestre 1	<p>Analyse statistique des données (2009- 2014) et recherche et validation des données les plus pertinentes pour un meilleur suivi de la pêche</p> <p>Tentative de définir un indice standardisé sur la base des données pleinement validées (Bestclim)</p> <p>Commencement de la revue des points de références avec l'indice 'Bestclim'</p> <p>Statistical analysis of data (2009- 2014) and research and validation of the most relevant data for better monitoring of the fishery</p> <p>Attempt to define a standardized index on the basis of fully validated data (Bestclim)</p>
En continu (selon périodicité définie)	<p>Suivi et recueil des données</p> <p>Monitoring and data collection</p>
Semestre 2	<p>Présentation des premiers résultats à la Commission Bulot y inclus la revue des niveaux des points de références. Si la revue montre que Dlim est au-delà du PRI, pas besoin de changer. Sinon, discussion sur nouvelle définition du Dlim.</p> <p>Presentation of the first results to the Commission Bulot</p>
Année 3	
Semestre 1	<p>Analyse statistique des données (de l'année 2) les plus pertinentes retenues en vue de pondérer l'indice d'abondance.</p> <p>Statistical analysis of data (year 2) retained as most relevant to inform on index of abundance.</p>
En continu (selon périodicité définie)	<p>Suivi et recueil des données pertinentes, notamment les données de 2000 à 2008 (récupérées auprès de l'Ifremer)</p> <p>Monitoring and collection of relevant data, including data from 2000 to 2008 (obtained from Ifremer)</p>
Trimestre 4	<p>Bilan. Présentation et validation à la Commission Bulot, puis information des parties prenantes au JAC. Decision sur nouveau Dlim, si besoin.</p> <p>Overview and validation at the Commission Bulot, then presentation to stakeholders at JAC</p>
Année 4	
Semestre 1	<p>Analyse statistique des données (de l'année 3 et historiques)</p> <p>Mise en place du suivi par le biais de l'indice d'abondance standardisé après avoir affiné cet indice d'abondance.</p> <p>Statistical analysis of data (year 3 and historical)</p> <p>Implementation of monitoring through standardized abundance index after having refined this index of abundance.</p>
En continu (selon périodicité définie)	<p>Suivi et recueil des données</p> <p>Monitoring and data collection</p>
Trimestre 4	<p>Bilan. Présentation et validation à la Commission Bulot, puis informations des parties prenantes au JAC</p> <p>Overview and validation at the Commission Bulot, then presentation to stakeholders at JAC</p>
Année 5	
Semestre 1	<p>Analyse statistique des données (de l'année 4)- suivi de l'indice</p> <p>Statistical data analysis (year 4) and monitoring of index</p>
En continu (selon périodicité définie)	<p>Suivi et recueil des données</p> <p>Monitoring and data collection</p>
Trimestre 4	<p>Bilan. Présentation et validation à la Commission Bulot, puis présentation aux parties prenantes lors du JAC</p>

	Overview and validation at the Commission Bulot, then presentation to stakeholders at JAC
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Condition 3 : IP 124- Evaluation du stock (revue externe)

Le score est de 75

Le rapport d'évaluation indique :

There has not so far been a peer review of the stock assessment approach.

Condition:

By the end of Year 3, the stock assessment approach should be peer-reviewed.

Avant la fin de l'Année 3, il faut une revue par un expert externe de l'approche pour l'évaluation du stock

Plan d'action:

Year 1 – Discussion on formation of new 'review group' for data limited species

Year 2 – Formation of group

Year 3 – First meeting of group; presentation of whelk assessment for review and comment

Condition 4 : IP 321- Objectifs spécifiques de la pêche (Fishery specific objectives)

Le score est de 60

Le rapport d'évaluation indique :

As already noted in the condition for PI 1.2.2 (Condition 1), there are no formal, explicit objectives for the target stock.

Condition:

There needs to be explicit management objectives for both Principle 1 (stock) and Principle 2 (ecosystem). They do not have to be expressed in terms of stock biomass, but should be consistent with keeping the stock at a level of high productivity. The objectives could be at the level of the Basse-Normandie fishery or at the Granville Bay level.

Il doit y avoir des objectifs explicites de gestion à la fois pour le Principe 1 (stock) et Principe 2 (écosystème). Ils ne doivent pas être exprimés en termes de biomasse du stock, mais devraient être compatibles avec le maintien du stock à un niveau de productivité élevée. Les objectifs pourraient être établis au niveau de la pêche Basse-Normandie ou au niveau de la baie de Granville.

Plan d'Action :

Des objectifs précis sur les bases définies dans l'IP 122, dans le respect du Principe 1 seront discutés, validés par la commission Bulot et présentés au JAC. De même, des objectifs spécifiques relatifs au Principe 2 seront discutés et déterminés, si besoin est.

Planning : le planning prévisionnel est décrit ci-dessous

Année 1	Action
	Recenser et lister les objectifs en termes de respect de la ressource et de l'environnement, y compris contrôles. Identify and list the objectives in terms of respect of the resource and the environment, including controls.
Année 2	
Semestre 1	Présentation des objectifs « ressource » et « environnement » à la Commission Bulot et validation

	Presentation of the "resource" and "environment" objectives to the Commission Bulot and validation
Trimestre 4	Présentation des objectifs aux parties prenantes lors du JAC Presentation of the objectives to stakeholders at JAC
Année 3	
Trimestre 1	Définition des points de référence (selon IP 122) et présentation à la commission Bulot pour approbation et validation Definition of reference points (according to IP 122) and presentation to the Commission Bulot for approval and validation
Semestre 2	Détermination et validation des mesures à envisager selon les points de référence pré définis et des objectifs en Commission Bulot Identification and validation in Commission Bulot of measures to be considered according to pre-defined reference points and objectives
En continu	Suivi des indicateurs et des objectifs – réflexion sur d'éventuels nouveaux objectifs Monitoring indicators and objectives - reflection on possible new objectives
Trimestre 4	Présentation des mesures au JAC Presentation of measures to JAC
Année 4 et 5	
En continu	Suivi des indicateurs et des objectifs- réflexion sur d'éventuels nouveaux objectifs Monitoring indicators and objectives - reflection on possible new objectives
Trimestre 4	Présentation et validation à la Commission Bulot, puis présentation au JAC Presentation and validation to the Bulot Commission and then presentation to the JAC

Condition 5 : IP 324- Plan de recherche (Research plan)

Le score est de 70

Le rapport d'évaluation indique :

Although considerable research has been carried out in the fishery, there is no formal research plan.

Condition:

A formal research plan as a framework for guiding research should be prepared and adopted

Un plan formel de recherche comme un cadre pour guider la recherche doit être préparé et adopté

Plan d'Action :

Le recensement des différentes recherches et études actuellement en cours sera rapidement effectué. Ces actions seront formalisées dans un document écrit (plan de recherche) visant au respect des Principes 1 et 2 du MSC. Les résultats de ces travaux seront diffusés annuellement lors de la Commission Bulot pour une information aux pêcheurs concernés. Si de nouvelles études sont élaborées, elles seront incorporées dans le plan de recherche au fur et à mesure de leur déclenchement. Le plan de recherche fera également l'objet d'une information annuelle lors des JAC.

Planning: le planning prévisionnel est décrit ci-dessous

Année 1	Action
1 ^{er} semestre	Recensement des différentes études en cours Review of different ongoing studies

2 ^{ème} semestre	Rédaction du plan de recherche Drafting of research plan
Année 2	
1 semestre	Validation du plan de recherche en Commission Bulot Validation research plan at Commission Bulot
4 ^{ème} trimestre	Présentation des résultats et nouvelles études éventuelles à la Commission Bulot et au JAC Mise à jour éventuelle du plan de recherche Presentation of results and possible new studies to Bulot Commission and the JAC Any updating of the research plan
Année 3, 4 et 5	
4 ^{ème} trimestre	Présentation des résultats et nouvelles études éventuelles en Commission Bulot et au JAC Mise à jour éventuelle du plan de recherche Presentation of results and possible new studies to Bulot Commission and the JAC Any updating of the research plan

Liste des mesures de restauration éventuelles List of potential restoration measures

Liste non exhaustive, non priorisée Non-exhaustive list, not in order of importance

- Augmentation de la taille minimale Increase minimum landing size
- Limitation nombre de casiers/ homme Limit number of whelk pots per person
- Augmentation de la durée de la fermeture biologique Increase in duration of closed season
- Zones de jachères No-take areas
- Diminution du nombre de licences Reduction in number of licenses
-

Appendix 8. Stakeholders

Organization	Contacts
Normandie Fraicheur Mer	Arnaud Manner Dominique Lamort
CRPM-BN	Beatrice Harmel Véronique Legrand
Seas at Risk	Bjorn Stockhausen
Comité des Pêcheurs Amateurs Granvillais	contact@cpagranville.net
CPML	cpml50pecheloisir@free.fr
CRPMEM Bretagne	crpmem-bretagne@bretagne-peches.org Jacques Doudet
Jersey Fishermen's Association	Don Thompson
DDTM	Régine Tavernier
DDTM Controle	Anne Le Vey
WWF France	Elise Petre
Greenpeace France	info.fr@greenpeace.org
Jersey Marine Resources Department	Greg Morel Jonathan Shrives
Ifremer	Marie Laure Cochard
SMEL	Sebastien Pien Laurence Mace
DIRM MEMN/MTBN Affaires Maritimes	David Sellam
AMP	Olivier Abellard
Association pour une Peche a Pied Responsable	Philippe Vigoureux mailto:app2r@orange.fr
CRP	Roland Quarante Didier Leguelinel

Appendix 9. Letter of support for Client Action Plan



Saint Lô, le 5 Mai 2015

Siège Social :

Conseil Départemental de la Manche
50050 SAINT LO CEDEX
Tél : 02 33 05 96 51
Fax : 02 33 05 95 86

Centre Expérimental :

Zone Conchylicole
Parcelle n°45
50560 BLAINVILLE SUR MER
Tél : 02 33 76 57 70
Fax : 02 33 76 57 79

Objet : Lettre d'engagement –
Ecolabel Pêcherie de Bulots

A l'attention de
Madame Jo Gascoigne

Mac Alister Elliott and Partners Ltd
56 High Street, Lymington
Hampshire SO41 9AH
United Kingdom

Madame,

La pêcherie de bulot de la Baie de Granville est encadrée depuis de nombreuses années par une réglementation élaborée par le CRPM (Comité Régional des Pêches Maritimes) de Basse Normandie.

Depuis plus de 10 ans, le SMEL s'investit dans un suivi halieutique destiné à fournir les tendances d'indicateurs indispensables à la définition du plan de gestion de cette pêcherie.

La démarche Ecolabel vise à faire valoir les bonnes pratiques de gestion de la pêche du bulot. Pour répondre à cet objectif, dans le cadre de son plan d'action 2014 – 2020 et selon celui du MSC, le SMEL s'engage à poursuivre ses investigations dans la production de données brutes (monitoring) et la fourniture d'indicateurs halieutiques (données plus élaborées) ainsi qu'à participer au plan de gestion de la pêcherie de bulot.

En vous rappelant que nos services se tiennent à votre disposition pour tout élément d'information complémentaire qui vous paraîtrait nécessaire, je vous prie d'agréer, Madame, l'expression de mes salutations les plus sincères.

Le Président du SMEL,

Bernard TREHET

