QMS INTRODUCTION PROCESS STANDARD – EXECUTIVE SUMMARY

Introduction

1. The Quota Management System (QMS) introduction process standard sets out an annual process for the Ministry of Fisheries (MFish) to identify stocks or species to be considered for QMS introduction.

2. This process standard has been developed taking into account relevant obligations, including the provisions of section 17B of the Fisheries Act 1996 (the Act), and will contribute to the development of objectives-based fisheries management as described in the MFish Statement of Intent 2006-2011.

3. Application of the QMS introduction process standard will result in the annual production of a three year QMS introduction schedule.

Process

4. The process for the annual identification of stocks or species to be considered for QMS introduction is a five-step, risk-based process. Completion of each step will result in the production of specific outputs.

5. The steps and their outputs are summarised as follows -

1. Identification of stocks or species that are candidates for QMS introduction

6. Six criteria will be used to identify stocks or species that are candidates for inclusion on the QMS introduction schedule. These are -

    i) Inclusion on schedule 4C of the Act;

    ii) Inclusion on schedule 4D of the Act;

    iii) Change in catch;

    iv) Anecdotal information;

    v) International obligations; and

    vi) Adverse environmental effect.

7. Information briefs collating known biological, social, economic, cultural and fisheries management data will be produced for all candidate stocks or species identified by the above criteria.

Outputs

- The candidate stock or species list; and

- Information briefs for all candidate stocks or species.

2. Analysis of the candidate stocks or species

8. An analysis of the risk to achieving three generic objectives by retention of the existing management regime is undertaken. The generic objectives are derived from the legislative criteria for QMS introduction. They are;

   - To maintain the potential of the stock or species to meet the reasonably foreseeable needs of future generations.
   - To avoid, remedy or mitigate any adverse effects of fishing on the aquatic environment.
   - To provide access that enables social, cultural and economic well-being.

9. On the basis of the risk analysis, candidate stocks or species are classified as facing a high, medium or low risk of achieving these objectives.

10. Additional information relating to immediacy, uncertainty and management efficiency is collated for medium risk stocks or species to enable more detailed analysis.

Outputs

- Risk scores for all candidate stocks or species; and
- Collation of additional information for medium risk candidate stocks or species.

3. Grouping of candidate stocks or species

11. Candidate stocks or species will be assigned to one of three groups based on the results of the risk analysis. Decisions on which candidate stocks or species will be considered for QMS introduction will be based on the groupings.

12. The groups and supporting information are released for external consultation.

Outputs

- Grouping of candidate stocks or species; and
- Grouped candidate stocks or species list and their information briefs are released for external consultation.

4. Creation of QMS introduction schedule

13. A QMS introduction schedule is produced for three years.

14. Stocks or species on the first year of the introduction schedule will be considered for QMS introduction in the first available QMS introduction round. The second and third years will indicate stocks or species that are likely to be considered in the following two QMS introduction rounds.

Output

- A three year QMS introduction schedule.

5. Monitoring and Review

15. A review of the risk assessment criteria and process will be undertaken annually following release of the QMS introduction schedule. This review will take the following form-

    - Consideration of any stakeholder feedback on the process;
    - Consideration of any MFish business group feedback on the process;
    - Consideration of Ministerial decisions on QMS introductions; and
    - Consideration of any relevant legislative or policy change.

Output

- Following the annual review, MFish will determine what changes (if any) should be made to the process.

QMS INTRODUCTION PROCESS STANDARD

Purpose

16. This paper proposes a process standard for assessing non-QMS stocks or species to determine whether they should be considered for introduction into the QMS. It is a risk-based process which conforms to the Australian/New Zealand Risk Management Standard[1].

17. The QMS introduction process standard will –

    a) Set out the annual process for MFish to identify stocks or species to be considered for QMS introduction on 1 October each year;

    b) Establish outputs for each step in the process; and

    c) Ensure that this annual process is consistent and transparent.

Contents

18. The QMS introduction process standard includes the following –

    - A suite of criteria for identifying a list of non-QMS stocks or species that are potential candidates for QMS introduction;
    - A risk based process for establishing a QMS introduction schedule; and
    - Monitoring and review of the process standard.

Scope

19. The QMS introduction process standard has been designed to address obligations under the Act for the introduction of stocks or species to the QMS. The standard does not address other aspects of the management of non-QMS stocks or species.

20. The standard will form an important component in the development of management strategies for non-QMS bycatch and target species under the objectives-based fisheries management framework.

21. Application of the standard will not determine whether a stock meets the legislative criteria for QMS introduction. That is for the Minister to determine, based on advice from the Ministry and consultation with stakeholders, and will occur subsequent to the process outlined in the standard.

Obligations to introduce stocks or species to the QMS

[1] AS/NZS 4360:2004

Fisheries Act

22. Section 17B of the Act requires the Minister of Fisheries to introduce a stock or species to the QMS if the existing management framework is not ensuring sustainability or is not providing for utilisation, unless the purpose of the Act would be better met by setting one or more section 11 sustainability measures.

23. The terms 'ensuring sustainability' and 'utilisation' are defined in section 8 of the Act. Ensuring sustainability means both maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations and avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment. Utilisation means conserving, using, enhancing and developing a fisheries resource to enable people to provide for their social, economic, and cultural wellbeing.

24. The statutory considerations as to whether a stock or species may be introduced to the QMS may therefore be summarised as;

- Whether existing management is maintaining the potential of the stock to meet the reasonably foreseeable needs of future generations.
- Whether existing management avoids, remedies or mitigates any adverse effects of fishing on the aquatic environment.
- Whether existing management provides access that enables social, cultural and economic well-being.

25. The Act does not impose any hierarchy on these considerations.

Statement of Intent 2006-2011

26. MFish's Statement of Intent 2006-2011 reiterated the Government's intention to maximise the value New Zealanders gain from fisheries resources through objectives-based fisheries management. Objectives-based fisheries management will be delivered through the development of fisheries plans.

27. All fisheries plans will need to consider the management of non-QMS target and bycatch species that are taken in the fishery, or fisheries, to which they relate. There are currently over 370 non-QMS species that are exploited (commercially and/or non-commercially).

28. The QMS introduction standard will be applicable across all management frameworks, including fisheries plans.

Process steps

29. The process is designed to produce an annual QMS introduction schedule. The schedule will be produced by generically examining stocks or species currently managed outside the QMS against the legislative criteria contained in the Act.

30. The introduction schedule will be in the form of a three year rolling list. The introduction schedule for the first year will reflect the stocks or species that will be considered in the first available QMS introduction round. The two 'out' years will be indicative of the likely stocks or species that will be considered in the subsequent two rounds.

31. Stocks or species included on the introduction schedule will be identified by a risk assessment process. The criteria to be used in the risk assessment in the first instance are described in this paper. The process will, however, be ongoing and is to be revisited annually. It is anticipated that the risk assessment criteria may evolve over time.

32. All non-QMS stocks or species will be maintained under their existing management regimes until any changes are implemented following the review process.

33. The priority setting process conforms to AS/NZS 4360:2004. It consists of the five steps discussed below and shown diagrammatically in Appendix 1.

Step 1 – Identification of stocks or species that are candidates for QMS introduction (Risk Identification)

34. This step identifies the risks to be managed by defining which stocks or species currently managed outside the QMS exhibit potential sustainability and/or utilisation concerns. This is an inclusive process that uses a set of broad criteria derived from the Act. The criteria are discussed below and will be used to create a list of stocks or species that are candidates for QMS introduction. This list will be known as the candidate stock or species list.

Criteria used to identify candidate stocks or species

Criteria 1: Schedule 4C species

35. In October 2004 the permit moratorium on non-QMS stocks or species was lifted. A number of non-QMS stocks or species were identified as having potential sustainability or utilisation concerns (including impact on Treaty settlements) under an open access regime, but for a variety of reasons were not introduced into the QMS at that time. To restrict access to these stocks or species, they were placed on a separate schedule of the Act, Schedule 4C, where a section 93 permit moratorium was applied. By definition the moratorium restricts access, creating a utilisation concern in addition to the issues that lead to a stock's introduction to this schedule.

36. Schedule 4C was not intended to be a permanent management solution for these stocks or species, but there is no timeframe specified for the application of management options which better meet the Act's requirements. However, section 29A(2)(a) of the Act states that if a stock on Schedule 4C is introduced into the QMS on or before 1 October 2009, quota must be allocated on the basis of provisional catch history. Consequently, MFish believes it should consider those Schedule 4C stocks or species with provisional catch history implications for introduction into the QMS by 1 October 2009. Stocks or species listed on Schedule 4C, and an indication of those with provisional catch history implications, are shown in Appendix 2.

37. All stocks or species on schedule 4C will be included on the candidate stock or species list.

Criteria 2: Schedule 4D species

38. Schedule 4D was also created in 2004 and contains an additional group of non-QMS species. These species are maintained in an open access permitting environment but have been placed on this schedule to ensure that, if they are introduced into the QMS, quota allocation will be undertaken on the basis of provisional catch history. Provisional catch history exists for all species on schedule 4D. This requirement expires after 1 October 2009 and after this date schedule 4D will cease to exist. Species listed on Schedule 4D are shown in Appendix 3.

39. While appearing on this schedule does not in itself denote a sustainability or utilisation issue, and notwithstanding whether such issues exist for these species, MFish believes it should assess these species for introduction into the QMS prior to the extinguishment of provisional catch history. MFish consider that inclusion on the candidate stock or species list will satisfy its obligations to consider Schedule 4D species for QMS introduction prior to the extinguishment of provisional catch history. A species on schedule 4D will only progress further in the process if a sustainability or utilisation issue is identified in the risk analysis step.

40. All species on schedule 4D will be included on the candidate stock or species list.

Criteria 3: Variation in catch

41. Stocks or species will also be assessed based on evidence of a significant change in reported catch over time. This change may be positive, denoting fishery development as either a target or bycatch species, or negative, indicating a possible sustainability concern.

42. Due to the lack of quantitative non-commercial harvest data, this process will be restricted to analysis of commercial catch. Anecdotal recreational catch information, such as feedback from compliance staff or fishery interests, is catered for in criteria 4.

43. Change in commercial catch will be assessed over the three years preceding each annual review. The analysis will be undertaken on catches for all non-QMS stocks or species, totaled for each 6 month period within this timeframe. Non-reporting of catch may affect some of the observed changes.

44. Two values will be used to define a significant change for a given stock:

- Catch exceeding 20 tonnes for any of the 6 month periods **and** the difference in catch between the minimum and maximum 6 monthly totals exceeding fifty percent of the minimum 6 monthly total;

- Catch exceeding 100 tonnes for any of the 6 month periods.

45. The fifty percent figure is considered to capture variation in catch levels denoting possible sustainability or utilisation concerns, while excluding that produced by normal environmental variation. This figure will also capture commercial fisheries that may have developed since the lifting of the permit moratorium on 1 October 2004. The 20 tonne catch level requirement eliminates stocks or species unlikely to be exploited at levels that could produce sustainability concerns. Six monthly catches exceeding 100 tonnes are considered to warrant further investigation.

46. A draft assessment of catch variation has been undertaken and the results are shown in Appendix 4.

Criteria 4: Anecdotal information

47. Anecdotal information that is suggestive of a sustainability or utilisation may identify an additional group of stocks or species. Examples of relevant information may include recreational fishers concerns about declining recreational catch or anecdotal information suggesting possible reporting issues in a commercial fishery.

Criteria 5: International obligations

48. Stock management issues may arise through international obligations, for example to give effect to a national allocation of a highly migratory species.

Criteria 6: Adverse environmental effect

49. Fishing practices may cause an adverse effect on the aquatic environment. Species where adverse effects of fishing may be addressed by QMS introduction will be included on the candidate stock or species list.

Information Briefs

50. To inform the subsequent risk analysis, an information brief will be compiled for each stock on the candidate stock or species list. Information briefs will collate known information from all available data sources. Data reliability may vary depending on the source of information, and how and when it was derived. The information brief will include the source and date of all information it contains.

51. The collation of an information brief is not intended to be an onerous task and will focus on providing the information necessary for the risk analysis. An information brief will only include information relevant to assessing a stock's or species' sustainability, utilisation and associated environmental effects. With this in mind, content may include (where available) the following information:

- **Biological information**
  Growth, reproduction and recruitment
  Spatial and temporal distribution and key areas (feeding, spawning, migration)
  Habitat interactions
  Associated species (bycatch and target)
  Environmental range
  Protected species interactions
  Stock Assessment
  Environmental effects of fishing

- **Social, Economic, Cultural**
  Commercial fishery characteristics
  Recreational fishery characteristics
  Customary fishery characteristics

- **Management**

  Existing management information
  International obligations
  Treaty settlement obligations

52. The candidate stock or species list and information briefs will be consulted on internally.

Step 2 – Analysis of the candidate stock or species list (Risk analysis)

53. Risk analysis is a systematic process to understand the nature of, and to assess the level of, risk. It provides an input to decisions on whether risks need to be addressed. The process has been designed to describe the risks to sustainability and/or utilisation that stocks or species are exposed to. The analysis occurs in two stages, referred to as steps 2a and 2b, and will be undertaken by MFish analysts.

54. In the first instance (step 2a) the risk analysis will focus on just two attributes – severity and likelihood – on the grounds that for many of the risks this relatively simple characterization will be sufficient to determine whether or not the stock is a strong candidate for QMS introduction. However, for those risks for which the severity/likelihood characterization is inconclusive, a second, more detailed characterization of the risk will be developed (step 2b). This will focus on immediacy of impact and uncertainty in information.

55. The risk analysis process compares the information contained in the information brief, against a set of generic management objectives to determine the risk a given stock faces to achieving these objectives. The set of generic objectives has been derived from the legislative criteria for QMS introduction as discussed above. The three generic management objectives are;

Generic objective 1 To maintain the potential of the stock to meet the reasonably foreseeable needs of future generations.

Generic objective 2 To avoid remedy or mitigate any adverse effects of fishing on the aquatic environment.

Generic objective 3 To provide access that enables social, cultural and economic well-being.

56. The two stage risk analysis process is detailed below;

Step 2a risk analysis

57. The first step is based on the severity of the possible impact on each objective, and the likelihood of this impact taking place.

58. 'Severity' is defined as the level of unwanted consequence related to an event. The level of unwanted consequence in this context is the degree that each of the generic management objectives is compromised. The event is maintaining an open access management regime.

59. 'Likelihood' is a qualitative description of the probability of an unwanted consequence occurring. The timeframe for assessing the likelihood of unwanted consequences occurring will be the period between risk assessments which is a single fishing year. Likelihood in this context is therefore defined as the probability of an unwanted consequence of

maintaining an open access management regime taking place within a single fishing year. Where the information brief identifies unwanted consequences that have already occurred, these should be included and will return the highest level of likelihood.

60. The levels of severity and likelihood to be used are defined below.

Severity

High	The impact of maintaining the existing management regime is likely to be total failure of the associated objective – e.g. stock collapse, serious and irreparable harm to habitat, exclusion of access to one or more sectors
Medium	The impact of maintaining the existing management regime is likely to significantly compromise the associated objective – e.g. significant stock decline, considerable and long-term harm to habitat, barriers exist to optimising economic return
Low	The impact of maintaining the existing management regime is likely to be minor – e.g. stocks or species temporarily decline, habitat temporarily disrupted, economic return temporarily reduced

Likelihood

High	Harm has already occurred; or will occur inevitably, or is highly likely to occur, within the period of a single fishing year.
Medium	Harm is likely to occur within the period of a single fishing year.
Low	Harm is unlikely to occur within the period of a single fishing year.

61. The levels of severity and likelihood will be derived from the information brief. It is likely that, in many instances, the amount of data available will be minimal and consequently there will be an element of subjectivity to this assessment. The influence of this subjectivity will be minimised by evaluating the two risk components independently and grouping each component into three broad categories (low, medium and high). These will then be united in the matrix shown below to determine an overall risk score for each objective ranging from 1 for minimum risk to 9 for maximum risk.

Severity	**High**	6	8	9
	Medium	3	4	7
	Low	1	2	5
		Low	**Medium**	**High**
		Likelihood		

Key	
	= High risk
	= Medium risk
	= low risk

62. The design of this matrix weights severity over likelihood with, for example, a low severity of high likelihood ranking a 5 whereas a high severity, even with a low likelihood, ranks as a 6. This approach enforces caution by promoting stocks or species facing severe risks even if the related likelihood is low and is consistent with the information principles contained in section 10 of the Act.

63. As the Act provides no guidance as to a hierarchy of the three generic objectives each will

be treated equally. Each stock will be accorded a score for each of the three generic management objectives. For each stock, the objective returning the highest score will be used as the basis for the subsequent assessment. Where two or more objectives return an equal highest score, they will all be used as the basis for the subsequent assessment.

64. The highest scores returned for each stock will be used to characterize candidate stocks or species as facing high, medium and low risk based on severity and likelihood. Those stocks or species whose highest score is 7 or over will be considered high risk, those scoring 3 or below will be considered low risk. The remaining stocks or species face a medium level of risk and consequently decision-making on whether or not to introduce these stocks or species to the QMS is likely to be particularly problematic. These stocks or species will be further analysed in the second step of the risk analysis.

Step 2b risk analysis

65. Step 2b risk analysis will rely on the experience and judgment of MFish analysts.

66. Candidate stocks or species at a medium level of risk based on the severity/likelihood analysis will be examined using additional criteria to provide a finer scale analysis of the risks to achieving the generic objectives. This analysis will only apply to the generic objective(s) returning the highest scores from the initial risk analysis. Step 2b risk analysis examines immediacy and uncertainty and essentially qualifies the results of the stage 1 analysis.

Immediacy

67. Immediacy is defined as the timeframe within which an impact will occur, assuming that the impact does occur. This is not to be confused with likelihood, which is the probability that the impact will occur within any given fishing year. If the best available information suggests that an impact will occur in the next year it will return a high immediacy, impacts occurring in two or three years have moderate immediacy, and low immediacy will reflect impacts that will occur in over three years.

Uncertainty

68. The information principles contained in section 10 of the Act provide guidance as to how uncertainty in information should be taken into account by decision makers. It states that decision makers should be cautious when information is uncertain, unreliable or inadequate. The use of uncertainty as a criterion ensures that the information principles are applied. Where there is high uncertainty surrounding information used in the analysis of the severity and likelihood of an impact, they may be under or over estimated. A cautious approach where information is uncertain, as required by the application of section 10, would result in management decisions based on an over-estimation of these risk criteria.

69. Overall uncertainty of information will be rated as high, medium or low for each stock at a medium level of risk.

Additional information on management considerations

70. Additional information relating to management considerations will be collated by MFish analysts for those stocks or species that remain at medium risk following the risk analysis process. While these considerations have no legislative weight they are relevant to the

efficient deployment of MFish resources and an equitable assessment of provisional catch history implications. Information identified here will be considered in the risk treatment stage. Attributes to be considered are:

- Ease of implementation;
- Relationship with other QMS stocks or species;
- Deployment of MFish resources; and
- Provisional catch history implications.

71. Ease of implementation will identify stocks or species that are likely to require limited MFish resources for their introduction to the QMS. Efficiency gains may be realized by including several stocks or species requiring few resources for their introduction into any given round, rather than a single stock requiring significant resources. Stocks or species likely to require few MFish resources for introduction to the QMS will return high ease of implementation scores.

72. Relationship with other QMS stocks or species considers the synergies and efficiencies of introducing multiple stocks of a species, or stocks of associated or dependent species, in the same introduction round. It also considers the benefits of introducing a stock where other stocks of the same species, or stocks of associated and dependent species, are already in the QMS. Stocks or species where QMS introduction is likely to lead to such management benefits will return high relationship with other QMS stocks or species scores.

73. MFish resources available to perform the risk analyses are deployed across five fisheries management teams which have expertise and experience in specific fisheries groups. These groups are pelagic fisheries, northern inshore fisheries, central inshore fisheries, southern inshore fisheries and deep and middle depth fisheries. An equitable distribution of stocks or species across these groups will ensure the most efficient use of MFish resources.

74. Provisional Catch History implications exist for some stocks or species listed on schedule 4C and all stocks or species listed on schedule 4D of the Act. If any of these stocks or species are introduced to the QMS on or before 1 October 2009, quota must be allocated on the basis of provisional catch history. This provision is extinguished after this date. Consequently MFish believes it should consider those stocks or species with provisional catch history implications for introduction into the QMS by 1 October 2009. Stocks or species with provisional catch history implications will be noted.

Output of risk analysis

75. Each stock on the candidate stock or species list will be ascribed a risk level of high, medium or low based on severity and likelihood. Stocks or species with a medium risk level will also be ascribed immediacy and uncertainty scores, and additional information on a suite of management considerations will be collated for them.

Step 3 - Grouping of candidate stocks or species (Risk evaluation)

76. The risk evaluation stage assigns candidate stocks or species to one of three groups based on the results of the risk analysis process. These groups are;

Group 1 stocks or species are those at high risk of not meeting one or more of the generic objectives based on the severity/likelihood analysis. For these stocks or species the consideration of management intervention is important in the short term.

Group 2 stocks or species are those that have a medium risk of not meeting one or more of the generic objectives based on the severity/likelihood analysis, and have medium or high immediacy and/or uncertainty scores. For these stocks or species the consideration of management intervention is important in the medium term.

Group 3 stocks or species are those that have a low risk of not meeting one or more of the generic objectives based on the severity/likelihood analysis; or those that have a medium risk of not meeting one or more of the generic objectives based on the severity/likelihood analysis and have low immediacy and uncertainty scores. For these stocks or species the consideration of management intervention is not necessary at this time

External consultation

77. A list of the three groups will be released for external consultation. The Initial Position Paper will include the information briefs and will detail the results of the risk analysis process.

78. Stakeholder submissions will be considered prior to the risk treatment stage. Where additional information is provided by stakeholders during consultation, the risk analysis step will be reevaluated to ensure that grouping of candidate stocks or species reflects the best available information.

Step 4 – Creation of a QMS introduction schedule (Risk treatment)

79. Risk treatment is the process of selection and implementation of measures to modify risk. Group 1 and 2 stocks or species are those the analysis identifies as requiring consideration for QMS introduction within the short to medium term. These stocks or species will be matched to available resources to create a plan of introductions for the next three fishing years. Group 3 stocks or species will not be proposed for introduction at this time and will continue to be monitored along with other non-QMS stocks or species.

80. The plan of introductions will be referred to as the introduction schedule. It will be in the form of a three year rolling list. The introduction schedule for the first year of the three year period will reflect the stocks or species that will be considered in the next round. The two ‘out’ years will be indicative of the likely stocks or species that will be considered in the subsequent two rounds.

81. All stocks or species in group 1 will be included in the first year of the introduction schedule. The timing for consideration of stocks or species below this level on the list will depend on the availability of MFish resources. Decisions on the order in which group 2 stocks or species are considered will be made by MFish analysts. Analysts will take into account the results of the risk analysis (severity/likelihood, immediacy and uncertainty) and the additional information on management considerations in making these decisions.

Step 5 - Monitoring and review process

82. A review of the risk assessment criteria and process will be undertaken annually following release of the QMS introduction schedule. This review will take the following form-

- Consideration of any stakeholder feedback on the process;
- Consideration of any MFish business group feedback on the process;
- Consideration of Ministerial decisions on QMS introductions; and
- Consideration of any relevant legislative or policy change.

83. Following the annual review MFish will determine what changes (if any) should be made to the process, and it will be updated accordingly.

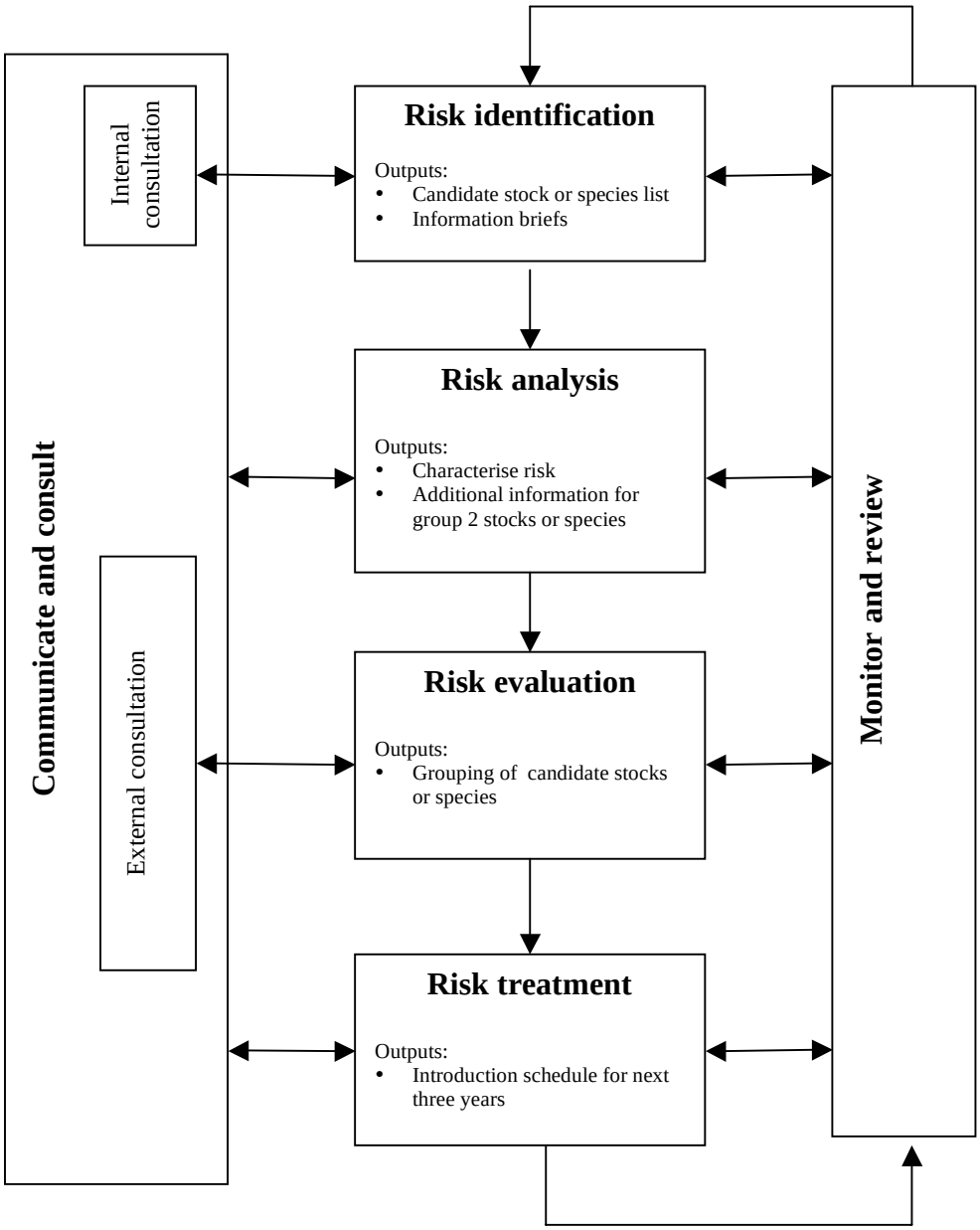
Additional considerations

Annual process

84. The QMS introduction schedule will be reconsidered annually. This will consist of a reanalysis of the candidate selection data including updated catch information for the three fishing years preceding the review period. Should this process highlight additional stocks or species, new information briefs will be produced. Stocks or species that the Minister has decided to introduce to the QMS will be removed from the introduction schedule. Existing information briefs for stocks or species remaining on the schedule will be updated. The risk analysis process will be re-run producing an updated grouping of the candidate stocks or species list. The results of the re-analysis will be released for external consultation.

APPENDIX 1.

Framework for assessing non-QMS stocks or species to determine whether they should be considered for introduction into the QMS



APPENDIX 2.

The following table[2] shows species listed on schedule 4C and identifies those landed during the provisional catch history (PCH) qualifying period 1 October 1990 to 30 September 1992. Note that knobbed whelk was introduced to the QMS on 1 October, 2006. It is likely that landings recorded under the generic whelk code WHE are predominantly knobbed whelk.

Species	PCH implications
Basking shark	•
Hammerhead shark	•
Lamprey	•
Seahorse	•
Sharpnose sevengill shark	
Whale shark	
Black mussel	
Blue mussel	
Catseye	
Common rock crab	
Hairy-handed crab	
Northern smooth shore crab	
Purple rock crab	
Red rock crab	
Smooth shore crab	
Tunneling mud crab	
Freshwater mussel	
Koura	
Limpets	•
Mudsnail	
Sea anemone	
Sponges	
Topshells	
Whelks	•
Bladder kelp	•
Gracilaria weed	•
Pterocladia	•
Lessonia	•
Bull kelp	•
Ecklonia	
Porphyra	•
Sea lettuce	

[2] Data obtained from the report titled 'Validation and Eligibility Catch Dataset Extraction Rules for Schedule 4C and 4D Stocks or species', FishServe, 2005

APPENDIX 3.

The following table shows the species listed on schedule 4D. Note that prawn killer will be introduced into the QMS on 1 October 2007.

Species on 4D
Javelinfish
Octopus
Orange perch
Prawn killer
Rattails
Redbait
Seal shark
Silver dory

APPENDIX 4.

The following table shows the stocks or species identified by a draft analysis of catch variation between 1 October 2002 and 30 March 2005.

Species meeting catch criterion 1 have a commercial catch exceeding 20 tonnes for any of the 6 month periods and the difference in catch between the minimum and maximum 6 monthly totals exceeding fifty percent of the minimum 6 monthly total.

Species meeting catch criterion 2 have a catch exceeding 100 tonnes for any of the 6 month periods.

Species	**Code**	**Satisfies catch criterion 1**	**Satisfies catch criterion 2**	**Notes**
Banded bellowfish	BBE	●	●	
Scabbardfish	BEN	●	●	
Black seal shark	BSH	●	●	
Basking shark	BSK	●	●	Schedule 4C
Crab	CRB	●	●	Combined code A number of species are on Schedule 4C
Javelin fish	JAV	●	●	Schedule 4D
Other sharks and dogfish	OSD	●	●	Combined code
Rattails	RAT	●	●	Schedule 4D
Redbait	RBT	●	●	Schedule 4D
Silver dory	SDO	●	●	Schedule 4D
Seaweed	SEO	●	●	Combined code A number of species are on Schedule 4C
Skate	SKA	●	●	
Skipjack	SKJ	●	●	
Shovelnose spiny dogfish	SND	●	●	
Slender tuna	STU	●	●	
Octopus	OCT	●		Schedule 4D
Black cod	BCD	●		
Bellowfish	BEL	●		Combined code
Carpet shark	CAR	●		
Catfish (freshwater)	CAT	●		
Crested bellowfish	CBE	●		
Capro dory	CDO	●		
Conger eel	CON	●		
Dealfish	DEA	●		

Deepwater dogfish	DWD	●		Combined code
Japanese gurnard	JGU	●		
Koheru	KOH	●		
Long nosed chimaera	LCH	●		
Mirror dory	MDO	●		
Morids	MOD	●		
Hairy red swimming crab	NCA	●		
Northern spiny dogfish	NSD	●		
Orange perch	OPE	●		Schedule 4D
Prawn killer	PRK	●		Schedule 4D To be introduced to the QMS on 1 October 2007
Common roughy	RHY	●		
Red scorpion fish	RRC	●		
Southern boarfish	SBO	●		
Starfish	SFI	●		Combined code
Slickhead	SLK	●		
Spider crab	SPI	●		
Silverside	SSI	●		
Witch	WIT	●		
Warty squid	WSQ	●		