Government of Western Australia
Department of Fisheries

Vessel Check

Biofouling Risk Assessment Tool

for

Commercial / Non-Trading / Petroleum / Commercial Fishing Vessel

for

International and Interstate Movements

USER GUIDE

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1 Introduction

This user guide is intended to provide guidance for the use of Vessel Check by commercial, non-trading, petroleum and commercial fishing vessels for international and interstate movements. It additionally contains background information regarding the ongoing development of the risk assessment as a decision support tool.

- Part 2 contains background information about the purpose and development of Vessel Check.
- Part 3 lists the assumptions that underpin Vessel Check.
- Part 4 provides guidance which may help in answering each question in Vessel Check related to the risk calculation, with further explanations of assumptions related to specific questions.
- Part 5 provides guidance which may help in answering other non-risk questions in Vessel Check.
- Part 6 outlines some example scenarios to show how different factors influence the final Vessel Check risk ratings.
- Appendix 1 and 2 of this guide provide information on the background to the development of the Vessel Check tool and information on biofouling.

2 Purpose and Application of Vessel Check

2.1 Purpose

The purpose of Vessel Check is to protect Western Australia's unique aquatic resources and biodiversity from the negative impacts of Invasive Marine Species (IMS).

The application of Vessel Check is based on Western Australia's key biosecurity principles of:

- **Focus on Prevention** – prevent introduction and establishment of aquatic pests and diseases
- **Least Restrictive Biosecurity Measures** – minimise cost and inconvenience to stakeholders
- **Risk-Based Resource Allocation** – cost-effective benefit and reduction of high priority risks
- **A Shared Responsibility** – work in partnership with stakeholders to manage biosecurity

Vessel Check is intended for use by vessel operators to improve their understanding of their vessel's biofouling risk, and to self-manage and minimise that risk.

Vessel Check is also designed to help the Western Australian Department of Fisheries (DoF) determine the theoretical probability that a vessel arriving from interstate or overseas may be carrying one or more IMS. The Department's biosecurity management and compliance officers can then engage where necessary to manage vessel biofouling risk and to minimise adverse impacts on vessel operations.

Vessel Check additionally will provide important data that will be used to refine the risk assessment tool over time.

2.2 Application

Vessel Check is designed to apply to all commercial, non-trading, petroleum and commercial fishing vessels, for movements to Western Australia from overseas or interstate locations.

Where a vessel has been found to have translocated live non-endemic fish[1] to Western Australia (WA) without permission, which is an offence under regulation 176 of the *Fish Resources Management Regulations 1995*, the Department will take into consideration whether the operator has used Vessel Check and taken any recommended management actions, such that they can demonstrate that they have:

- exercised all reasonable diligence to determine the level of biofouling on the vessel or equipment immediately before the vessel or equipment departed on a voyage to WA waters, and
- taken all reasonable measures to minimise the risk that the vessel or equipment was carrying any live non-endemic fish before it entered WA waters.

The Department also encourages the active use of a Biofouling Management Plan and Biofouling Record Book which meet all requirements under Appendix 2 of the Guidelines for the Control and Management of Ships' Biofouling to Minimise the Transfer of Invasive Aquatic Species (edition 12 or as amended) published by the International Maritime Organization (IMO), such that vessel operators can demonstrate the above.

For submersible equipment and structures that are wet towed behind a vessel such as pipelines or caissons, please contact the Department for advice.

3 Methodology and Assumptions

3.1 Methodology

Vessel Check uses a high-level, semi-quantitative approach based on a number of assumptions detailed in 3.2 below, to assign a vessel to one of three overall theoretical risk categories: Low / Acceptable, Uncertain and High. **It does not attempt to pinpoint whether or not a vessel is actually carrying an Invasive Marine Species**, but ranks vessels on a relative scale of 'more' or 'less' risk, in order to isolate which vessels may require further detailed investigation and/or management actions to reduce potential risk.

To this end, only the broad categories of the calculated risk are indicated in the tool results. This is because to include an exact score may imply greater precision than is valid, which could distract from the overall result.

3.2 Overall Assumptions and Background

The risk assessment calculation relies on a number of overall assumptions which provide a simplified version of the real world. These assumptions underpin the selection of questions in the assessments.

[1] For the purposes of this document, non-endemic fish are also referred to as Invasive Marine Species.

The purpose of the assumptions is to take a pragmatic approach which balances level of detail with practicality, and enables a versatile, high-level risk assessment for the application and purposes as outlined above.

The overall assumptions for the tool are:

1. Vessel-type risk is more accurately reflected in the complexity, and particular operating history of each vessel. These factors are used in the tool in preference to allocating risk simply by vessel type.
2. 'Complex' vessels which have pipework and a higher number of niche areas pose a greater risk than 'simple' vessels with minimal niche areas.
3. The effects of different vessel pathways and trade routes on biofouling survivorship or risk, are not included in the risk assessment (e.g. no influence of trans-equatorial transit), for reasons of practicality and in favour of a broad-based tool.
4. The DoF recommends that a vessel should depart within seven days of a thorough in-water clean with an IMS inspection, or dry docking for AFC application.

   While research demonstrates that attachment of biofouling can occur within as little as twenty-four hours, a period of one to two weeks of immersion can result in large numbers of biofouling groups on submerged surfaces (Floerl, Wilkens, & Woods, 2010). Seven days is a 'rule of thumb' used to provide a pragmatic balance between the logistical feasibility of vessels mobilising within this timeframe, versus the risk of vessels becoming contaminated with IMS, and is integrated throughout the tool as an underlying principle in combination with other factors.

Vessel Check covers all of WA, not just one location. Western Australia has an extensive range of habitats, temperatures, and other environmental factors. Therefore, WA is potentially at risk from IMS from any port in the world, including other Australian ports. Additionally, once vessels have arrived they may visit a variety of locations within WA.

The precise wording of questions is to maximise accurate question answering, and in some cases, to contribute to the DoF research.

3.3 Assumptions Related to Risk Factor Questions

Vessel Check assesses the overall risk of biofouling on vessels arriving from international or interstate locations based on questions related to the following risk factors:

1. Transport method dry verses wet haulage
2. Presence and age of antifouling coating (AFC)
3. Evidence of recent dry dock or in-water IMS inspections and in-water cleaning
4. Presence and operation of internal seawater treatment systems if applicable
5. Duration of stay in overseas or interstate coastal waters

Each of these specific risk factors is also associated with a number of assumptions, detailed below.

As outlined above, these assumptions are necessary to enable a practical tool which is sufficient to group vessels into one of three categories of risk. It is the DoF's position that an excessive level of detail which attempts to account for every

possible risk scenario may conversely result in an over-conservative assessment which would become impracticable, rather than achieving greater accuracy.

3.3.1 Transport via dry haulage

a. Q 4.2.1 assumes that any necessary cleaning/treatment in dry dock, removes all marine growth from the entire vessel, including the vessel's internal seawater systems (if applicable).

b. Q 4.2.4 assumes that there are no sheltered areas which remain damp.

3.3.2 Presence and age of antifouling coating (AFC)

a. The presence of an AFC reduces the accumulation of biofouling and potential IMS compared to a vessel with no AFC.

b. The AFC minimises biofouling and potential IMS accumulation for the duration of its lifespan but as the antifouling coating ages, it becomes less effective at doing so. Older AFCs are therefore more prone to biofouling and potential IMS than newer AFCs.

c. AFCs include both traditional AFCs (e.g. controlled depletion copolymer/ablative, long life/diffusion coatings, and self-polishing copolymer coatings) as well as fouling release coatings (e.g. silicone/fluoropolymers) but not hard inert coatings without biocides (e.g. epoxy, ceramic, epoxy/glass coatings).

d. The AFC is applied by, or AFC application is supervised by, a professional according to manufacturer's specifications. This includes adhering to the following; application method, number of coats, film thickness, application temperature, drying/curing times, over-coating time, and appropriate surface preparation (if the vessel is being re-coated).

e. The AFC is appropriate for the vessel's operational profile (i.e. dry dock cycle, vessel speed and activity, projected lay-up periods, areas of operations/lay-up, etc) and operating conditions (i.e. water temperature).

f. The AFC is not damaged and is maintained according to the paint manufacturer's specifications.

g. Different brands of antifouling coatings are considered equally effective at minimising biofouling.

h. All antifouling coating types (e.g. traditional antifouling coatings and fouling release coatings) are considered equally effective at minimising biofouling. There are several reasons for this: antifouling coating documents often only contain the product name not the product type; some vessels apply multiple products and types to their vessels; antifouling coatings have different service lives; and there is confusion about the classification types of certain antifouling coatings.

i. Effectiveness of the antifouling coating is the same across all areas of the vessel where the coating has been applied.

j. Australia is a signatory to the International Convention on the Control of Harmful Antifouling Systems on Ships, 2001 (AFS Convention) which prohibits the use of harmful organotins in antifouling paints used on ships. Access to

this risk assessment tool is provided on the assumption that vessels are compliant with the AFS convention.

3.3.3 Recent Inspection, Cleaning and Treatment for Invasive Marine Species

a. In-water IMS inspections are less reliable than out-of-water IMS inspections due to reduced access and visibility, variations in diver experience, competency and equipment, and general conditions.

b. IMS inspections are undertaken or supervised by a biofouling inspector considered suitably qualified by DoF. The inspector must be physically present, unless alternative arrangements are made with DoF beforehand. The inspection result was given with a high level of confidence (see Vessel Check User Help)

c. If the IMS inspection does not find any IMS of concern within high confidence limits, it is assumed that the vessel is free of detectable macroscopic IMS of concern.

d. Q 6.1 assumes that any necessary cleaning/treatment removes marine growth, and therefore IMS, from the entire vessel and the cleaning/treatment method used does not damage the coating and is in line with manufacturers' recommendations.

3.3.4 Seawater pipework treatment

a. Answering 'yes' to Q 7.1 assumes that the MGPS is functioning adequately, in terms of dosage rates and frequency, to prevent biofouling accumulation. Operators must have engineer logs or IMS inspection reports to confirm this.

b. Answering 'yes' to Q 7.1 or Q 7.2 or Q 7.3 assumes that ALL internal seawater systems/intakes are treated and that ALL marine growth in the seawater system is eliminated/prevented.

3.3.5 Duration of stay in interstate and overseas location

a. The potential for a marine organism to attach to the hull of a vessel increases as duration of time spent stationary or at low speeds, in an interstate or overseas port or other shallow water location increases.

b. It is assumed that all ports have similar conditions to allow marine organisms to attach to the hull of a vessel (e.g. water temperature, flow dynamics, salinity, pH).

4 Assessment Guidance - Risk Factor Sections

The following information provides guidance on interpreting and answering questions in the risk assessment.

4.1 Questionnaire Section 4: Vessel Movements

4.1.1 Effect on Risk Score

Vessels which do not have an AFC may utilise dry haulage to mitigate risk to an acceptable level.

The best practice approach to mitigate any risk of marine species surviving dry haul transport is to thoroughly clean topside immersible equipment, internal seawater systems

submerged hull, including all niches of any sediment and marine growth prior to transport and ensuring the vessel remains dry. Vessels that meet these criteria will be assigned a 'LOW / ACCEPTABLE' risk status and are not required to complete the remaining questionnaire.

If the vessel has NOT been cleaned for dry haul it will NOT be assigned an automatic 'LOW / ACCEPTABLE' risk. Conversely, the vessel risk may be mitigated based on the duration for which the vessel is out of water and dry.

The longer a vessel remains out of water and dry the lower its risk.

If the vessel will be exposed to sea spray, then the vessel is not considered to be completely dry and there is no risk reduction.

4.1.2 Question Guidance

Q 4.1 Will ANY of your vessel activity occur in Australian waters within the 12 nautical mile (M) limit off Western Australia (WA), or in WA Coastal Waters?

Answer:
- Yes
- No

- The 12 nautical mile (M) limit marking Australia's Territorial Sea, is the belt of water not exceeding 12M in width measured from the Territorial Sea Baseline (TSB).
- Vessel operators who answer 'No' are not required to complete the risk assessment and will be directed to an early exit.

Q 4.2 Will the vessel be, or has it been, transported to Western Australia via dry haulage?

Answer:
- Yes
- No

- This includes piggyback transport by heavy-lift vessels, barges etc., or as cargo. It does not include in-water or wet-towing.
- If answer is 'No' proceed to Section 5.
- If answer is 'Yes' Q 4.2.1 must be answered.

Q 4.2.1 Prior to dry haulage, were your vessel's internal seawater systems drained and cleaned, and the vessel hull cleaned of any marine growth?

Answer:
- Yes
- No

- This means all sediment and marine growth, which can occur on all submerged surfaces, is removed in dry dock .
- If answer is 'No' proceed to Q4.2.4
- If answer is 'Yes' the vessel is automatically assigned a 'LOW / ACCEPTABLE' risk status and will be directed to early exit after completing remaining mandatory questions in this section, and uploading any available documents.

- If answer is 'Yes' Q 4.2.2 and Q 4.2.3 must be answered.

Q 4.2.2 Can you provide a dry docking and / or inspection report?

Answer:
- Yes
- No

- This information is not mandatory and currently does not contribute to the risk assessment calculation. However, if the vessel is audited or inspected these documents will be requested. In future it may be mandatory to supply this information as part of Vessel Check.

Q 4.2.3 Does the Vessel have an AFC coating?

Answer:
- Yes
- No

- Only select 'Yes' if the AFC covers ALL wet sides and paintable niches.
- This question does not affect the vessel risk score and is for information purposes only.
- If a vessel has no AFC, transportation to Western Australia via dry haulage including draining the internal seawater systems if applicable, and cleaning the hull and seawater systems of any marine growth, will mitigate risk to a LOW / ACCEPTABLE risk status.
- NOTE: While vessels with no AFC are considered low risk when cleaned, inspected and transported via dry haulage, for future movements to Western Australia which are not via dry haul, no AFC will result in a higher risk being assigned to the vessel. In addition if vessel activities will include movements within Western Australia, the vessel may pose a higher risk of further spreading any existing IMS between intrastate locations including resource projects and environmentally sensitive areas.

Q 4.2.4 For what duration will the vessel remain completely dry of salt water?

Answer (Please select):
- Less than 7 days
- 7-14 days
- 15-28 days
- >28 days
- The vessel may not remain completely dry

- The risk of any IMS surviving dry haulage is reduced by increasing the time spent out of water. Complete removal (no contact with water) and exposure to direct sunlight, warm temperatures and low humidity will generally kill most marine species within seven days. However, any compromise on these conditions, such as exposure to sea spray, can enable some species to survive up to eight weeks or more.

Q 4.3 Date of Departure from Last Port of Call Prior to Arrival in Western Australia.

Answer:
- Please enter the date

- The date of departure from last port of call is used to calculate the days prior to departure of several management actions, and the current age of the AFC coating, which are used in the final risk calculation.
- It is important that this date is accurate, as variations may affect your risk assessment result. If your departure date is still uncertain, you should complete scenario testing.

Q 4.4 Select the country of the last port of call prior to arrival in Western Australia

Answer:
- Please select from menu

Q 4.4.1 Please enter port name of last port of call prior to arrival in Western Australia

Answer:
- Please enter text

- The DoF continues to research various indicators of risk for the introduction of IMS into WA waters. The non-identifiable data collected via this questionnaire will also assist in refining this research, in particular in the areas of vessel voyage history, including last port of call.

Q 4.5 Can you provide a summary of the vessel's voyage history back to last dry docking?

Answer:
- Yes
- No

- Upon submitting the assessment to the DoF, if your vessel is assessed as an 'UNCERTAIN' risk, this information may assist staff in further refining your risk assessment. It is intended that future versions of Vessel Check may require this information on a mandatory basis. The document should include ports or locations visited, country names, activity, arrival and departure dates, and duration of stationary periods or at speeds less than 5 knots.

Q 4.6 Destination port or non-port location within Western Australia - Next port of call

Answer:
- Please select from menu

Q 4.6.1 Other non-port location

Answer:
- Please enter text

Q 4.7 Expected Date of Arrival to destination port or location within Western Australia

Answer:
- Please enter the date

4.2 Questionnaire Section 5: Antifouling coatings: Presence and Age

4.2.1 Effect on Risk Score

It is not possible to achieve a Vessel Risk Status of LOW / ACCEPTABLE without an AFC, or with an AFC that is expired, unless the vessel has been cleaned and transported via dry haulage.

A vessel that has an AFC on the hull and all relevant submerged areas is assigned a lower risk compared to a vessel that has only partial AFC, either on its hull only, hull and some niche areas only, niches only, an expired AFC, or no AFC at all.

The date of last AFC application taken from re-splash, will be used with the date of departure to determine the age of the AFC on that date. The AFC service life answer is used with the AFC age, to determine the current age as a proportion of service life, of the AFC.

A vessel that has an AFC that is within the recommended service life is assigned a lower risk compared to a vessel with no or an outdated AFC. The level of risk increases with the antifouling age.

Vessels that have correct documentation to demonstrate they have an AFC are allocated a lower risk compared to vessels that do not have documentation.

4.2.2 Question Guidance

Q 5.1 Has an antifouling coating (AFC) been applied to the vessel's entire hull, including all wet sides and all relevant niches and submerged areas?

Answer (Please select):

- Yes - Antifouling coating applied to hull and ALL relevant submerged areas
- Antifouling coating applied to hull and SOME niche areas
- Antifouling coating applied to some/all NICHE AREAS ONLY
- Antifouling coating applied only to hull
- No coating applied
- Unknown

- If answer is ‘No coating applied’ or ‘unknown’ then proceed to Q 6.
- AFC is the paint, sometimes known as bottom paint or fouling control coating, and includes biocidal and fouling release coatings. An AFC inhibits the settlement and/or attachment strength of marine organisms.
- For the purposes of Question 5.1, relevant submerged areas include niche areas – see list below.
- If ANY of the dry docking support strips, sea chests, box coolers, intakes, propeller shafts, rope guards, etc. are NOT painted with AFC, then the answer should be ‘Antifouling coating applied only to hull’ or ‘Antifouling coating applied to hull and SOME niche areas’.
- There may be submerged areas on the vessel that are unpainted for operational reasons. The only unpainted niches that are considered NOT relevant for this question are those subject to regular cleaning, such as anodes and propellers. The National Biofouling Management Guidelines (for non-trading vessels, commercial vessels, commercial fishing vessels and the petroleum production and exploration industry) provide guidance on how to maintain these uncoated areas

and can be found via the DoF's Vessels and Ports web pages, along with other biofouling management advice.

- The following are not painted with an antifouling coating for operational reasons:
  - Cathodic protection anodes
  - Echo sounders
  - Velocity probes
  - Propellers
- The area behind anodes should be painted. Any other wetted part of the vessel that can be painted is also relevant. Antifouling coating should be applied up to the Plimsoll line. If a vessel is only antifouled up to its unloaded water limit, it could pose a marine growth risk when loaded as uncoated areas will be submerged and be vulnerable to settlement. AFCs are now available for draft markers (numbers and lines) and ladders.

Niche Areas

Niches are those areas which may be more likely to allow the settlement and survival of biofouling due to:

- Location - such as refuge areas sheltered from the forces of water flow during transit, and/or locations where AFC are absent, ineffective, or damaged; or
- The potential of being inadequately painted with AFC - such as dry dock support strips (block marks), backs of ladders, propeller shafts, inlet gratings, inner portions of the throats of inlet/outlet ports, etc.

Niche examples include, but not limited to:

- Thruster tunnels and gratings
- Cooling scoops
- Stabiliser fins
- Propulsion scoops
- Rudder hinges
- Dry docking support strips (docking block marks)
- Bilge keels
- Area behind anodes
- Ballast or bottom plugs
- Rope guards
- Stern rollers
- Moon pools
- Draft markers
- Hull markings
- Underwater compartments (e.g. sea chests and box coolers, and gratings)

Q 5.2 When was the last antifouling coating applied to the vessel? (Do not include touch-ups).

Answer:

- Please enter the date the vessel was re-floated (if known).

- This information can be found in:
  - Dry docking reports
  - International Antifouling System Certificates
  - Declaration on Antifouling Systems

- Statement of Compliance with the International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001

Q 5.3 What is the total service life of the current antifouling coating?

Answer (Please select):

- Unknown
- 12 Months
- 18 Months
- 24 Months
- 36 Months
- 48 Months
- 60 Months
- 72 Months
- 84 Months
- 90 Months

- "Service life" is the time until the next required coating of antifouling paint. It is the vessel manager's responsibility to know when the AFC requires renewal.
- For example, if a coating can last 10 years but requires re-coating/renewal after 5 years, then the "service life" of the paint is 5 years. This information can be found in a hull survey inspection report, in some biofouling inspection reports, or by contacting the paint manufacturer.
- Most manufacturers will state the "service life" of their coatings as part of their product specification and/or Material Safety Data Sheet. The company which applied the AFC should take into account vessel activity and operating conditions, and paint manufacturer recommendations when recommending product type, application and number of coatings to meet a recommended "service life".
- If the vessel uses more than one coating type, answer with the shortest recommended "service life".
- If unsure the user should select 'Unknown'.

Q 5.4 Do you know the main AFC Product that has been used?

Answer:

- Yes
- No

If answer is 'Yes' Q 5.4.1 and Q 5.4.2 must be answered

Q 5.4.1 Please select the paint company

Q 5.4.2 Please select the product name

- When completing Vessel Check, vessel operators are asked to provide information about the specific antifouling coating type for research purposes.

Q 5.5 Can you provide a Record of Antifouling Systems Certificate from the company which applied the AFC, or vessel classification society?

Answer:

- Yes
- No

- This should form part of the Statement of Compliance with the International Convention on the Control of Harmful Anti-Fouling Systems on Ships.

4.3 Questionnaire Section 6: Recent Inspection for Invasive Marine Species

4.3.1 Effect on Risk Score

Vessels that have had a recent IMS inspection (that included removal of any detected IMS), with an inspection report from an independent biofouling inspector considered suitably qualified by DoF, are assigned a lower risk compared to vessels that have had a recent hull survey or clean, but no IMS inspection.

There is a lower level of confidence associated with a vessel that has had an inspection that is not accompanied by an inspection report, and so such a vessel is allocated a higher risk than one with a report.

Vessels that have been cleaned and treated in dry dock without an inspection, and depart within seven days of being re-floated, are allocated a lower risk than vessels that have not been cleaned, or cleaned in-water without an inspection.

Vessels that have been inspected in a dry dock are assigned a lower risk than vessels which have been inspected in-water.

4.3.2 Question Guidance

Q 6.1 In the six months prior to mobilisation to Western Australia, has the entire vessel including niches, topside wet areas and submersible equipment, been inspected for invasive marine species (IMS) biofouling and if necessary cleaned and treated, and no species of concern were detected with an acceptable level of confidence, by an independent biofouling inspector?

Answer (Please select):

- Yes - Inspection concluded that no species of concern were detected with a reasonable level of confidence
- Unknown or no inspection, clean or treatment prior to mobilisation for Western Australia
- No inspection - Cleaned and treated in dry dock and re-floated within 7 days prior to mobilisation to Western Australia
- No inspection - Cleaned and treated in water within 7 days prior to mobilisation to Western Australia
- No inspection - Cleaned and treated in dry dock and re-floated within 6 months, but more than 7 days prior to mobilisation to Western Australia
- No inspection - Cleaned and treated in water within 6 months, but more than 7 days prior to mobilisation to Western Australia

- A vessel may be dry docked or have an in-water hull inspection for various reasons. During this survey, a vessel may also be inspected for IMS, which can then be cleaned/treated if found.
- An in-water clean and inspection can also be carried out when dry docking is not possible. However please note: in-water cleaning should only be undertaken when removal of biofouling and IMS does not harm the AFC and only when compliant with local regulations.
- If no inspection was carried out but an antifouling coating was applied before departing for WA, then use that date when selecting your answer. In order to paint

a vessel with an AFC the hull and relevant submerged areas should be free of biofouling.

Q 6.1.1 Please enter date of last inspection and clean

Answer:

- Enter the date

➢ For dry dock inspection use the date the vessel was re-floated (if known); for in-water inspection use the inspection date.

➢ This date must be the same as, or after the date provided in Q 5.2 “When was the last antifouling coating applied to the vessel?”

Q 6.2 What type of inspection and clean was carried out?

Answer:

- In water
- Dry dock or slipway

➢ An in-water inspection can also be carried out when dry docking is not possible. Please note: in-water cleaning should only be undertaken when removal of biofouling does not harm the AFC coating and only when compliant with local regulations.

Q 6.3 Can you provide any relevant, independent IMS biofouling inspection reports for verification?

Answer:

- Yes
- No

➢ You should only answer ‘Yes’ if the final inspection result in the report concluded that no IMS were detected, with a reasonable level of confidence and the inspection was carried out by a biofouling inspector who is considered suitably qualified by DoF.

➢ The purpose of the inspection is to detect IMS or identify a level of concern that IMS may be present. The level of confidence of the inspection is based on, but not limited to, factors such as:

- the level of biofouling which may make it more difficult to detect IMS,
- in the case of in-water inspection, the water clarity, and variations in diver experience, competency and equipment,
- availability of vessel history back to last complete application of AFC,
- ability to inspect all relevant niches and seawater systems

The Commonwealth Antifouling and In-water Cleaning Guidelines provide guidance on the application, maintenance and removal of AFCs and disposal of biological waste. These can be found via DoF’s Vessels and Ports web pages, along with other biofouling management advice.

4.4 Questionnaire Section 7: Seawater Pipework Treatment

Seawater pipes are an area of the vessel that can collect marine growth quite easily if not treated. It is also important to treat seawater intakes because sea chests and box coolers can collect marine growth if they are untreated.

More information for specific industries and vessel types can be found in the National Biofouling Management Guidelines via the Department's Vessels and Ports web pages.

4.4.1 Effect on Risk Score

A vessel with internal seawater systems that are treated regularly is assigned a lower risk than a vessel with internal seawater systems that are not treated as often, or not treated at all.

A vessel that has ANY seawater intakes and pipework that are not treated by either MGPS or manual treatment system is allocated a higher risk than a vessel where ALL internal seawater systems/intakes are treated.

A vessel with no seawater intakes or pipework is considered a lower risk due to reduced vessel complexity, and is assigned a risk reduction.

4.4.2 Question Guidance

Q 7.1 Does the vessel have functioning marine growth prevention systems (MGPS) in ALL seawater intakes and pipework, in regular operation in accordance with manufacturer's technical operating manual?

Answer (Please select):

- Yes on ALL
- No MGPS on any system
- MGPS on SOME systems only
- Not applicable, vessel has no seawater intakes or pipework

- This means the seawater piping systems and intakes for supply to fire suppression and cooling/heat exchangers. Marine growth prevention systems (MGPS) prevent fouling by operating within these internal seawater systems to deliver antifouling agents e.g. anodic copper dosing or chlorine-based systems.
- If answer is 'Yes on ALL', then proceed to Q 7.1.1
- If answer is 'MGPS on SOME systems only', then proceed to Q7.1.1
- If answer is 'No MGPS on any system', then proceed to Q7.2
- If answer is 'Not applicable, vessel has no seawater intakes or pipework', then proceed to Q 8.1
- Vessels that use ONLY closed systems (e.g. keel cooling systems), AND do not have additional equipment using seawater such as fire-fighting equipment, can answer n/a.
- Because different vessels have different pipework systems, it is important to determine whether the treatment system is capable of treating ALL seawater intakes and pipework on the vessel.

Q 7.1.1 Can you provide evidence for the MGPS, such as specifications, engineering and maintenance and log books?

Answer:

- Yes
- No

- It is not mandatory to provide this evidence and does not currently affect the risk score. However, operators should indicate if they have records to support the risk assessment answers such as engineer logs or biofouling inspection reports to show that treatment systems are functioning, and these documents should be available on board the vessel.

Q 7.2 Are ALL the vessel's seawater intakes, pipework, sea chests and sea strainers that are not covered by MGPS, chemically treated or manually cleaned to remove marine growth (remediation), using a suitable method on a regular basis?

Answer (Please select):

- No or unknown
- SOME systems only
- Yes - at least once per month
- Yes - at least once every 3 months
- Yes - at least once every 3-6 months
- Yes - at least once every 6-12 months
- Yes - at least once every 12 months

- Use this option if your MGPS are not in continuous use. For once-off treatments (e.g. Rydlyme) aimed at killing or removing fouling from internal seawater systems, select “Yes, at least once every 12 months”.
- Inspection alone does not constitute treatment. Any untreatable areas should be regularly inspected, cleaned and maintained.
- If the answer is ‘No or unknown’, or ‘SOME systems only’ then go to Q 7.3

Q 7.2.1 Can you provide evidence for the above manual treatment systems?

Answer:

- Yes
- No

- It is not mandatory to provide this evidence and currently will not affect the risk score. However, operators should indicate if they have evidence to support risk assessment answers, and these documents should be available on board the vessel in the case a DoF compliance officer requests access. The more information provided with the assessment, the less likely follow up contact will be required.

Q 7.3 Have <u>ALL</u> the vessel’s seawater intakes and pipework, sea chests and sea strainers, <u>recently</u> been treated to remove or kill all biofouling growth, using a suitable method?

Only answer yes if the treatment resulted in removal of the biofouling. This can include mechanical, physical, chemical or biological methods to remove all biofouling growth or render sterile.

Answer:

- Yes
- SOME systems only
- No, not treated or unknown

- Significant time (more than seven days) spent within a vessel maintenance facility which included draining the vessel's internal seawater systems, may be included as a physical method of treatment. In this case the date of re-splash should be used to answer Q 7.3.1 and the amount of time should be included in your answer for Q 7.3.2. The risk of any IMS surviving dry docking is reduced by increasing the time spent out of water.

Q 7.3.1 Please enter the last treatment date

Answer:
- Enter the date

Q 7.3.2 Please describe treatment method or list chemicals used

Answer:
- Enter free text description

Q 7.3.3 Can you provide evidence for the above manual treatment?

Answer:
- Yes
- No

Q 7.4 Can you provide a representative photograph of the contents of the main engine intake sea strainers prior to emptying or cleaning, if applicable?

This will not affect your risk assessment score. If your vessel is assessed as "UNCERTAIN" this may assist to further refine the risk level. Please ensure the photograph shows the inside of the strainer where debris collects.

Answer:
- Yes
- No

4.5 Questionnaire Section 8: Duration of Stays in Interstate and Overseas Locations

4.5.1 Effect on Risk Score

This section determines the infection risk of the vessel. The infection risk is the risk that a marine organism will attach to the hull or internals of a vessel (i.e. the risk of biofouling occurring). The assigned risk increases the longer a vessel stays in a port and this risk is cumulative.

4.5.2 Question Guidance

Q 8 At the time of mobilisation, what will have been the number of days spent in interstate and overseas locations, since the last antifouling coating application or verified inspection for invasive marine species (IMS)?
This means in ports, or at depths of less than 50m, stationary or at speeds of less than 5 knots. Your answers should be consistent with your vessel activity log and your answers to Q5.2 (last AFC application) and Q6.1 (IMS inspection)

Q 8.1 Consecutive days in a SINGLE location
Answer (Please select):

- Less than 7 days
- Less than 14 days
- Less than 21 days
- Less than 30 days
- Less than 60 days
- 60 days or greater
- Unknown

Q 8.2 Total days in ALL locations

Answer (Please select):

- Less than 7 days
- Less than 14 days
- Less than 21 days
- Less than 30 days
- Less than 60 days
- 60 days or greater
- Unknown

Q 8.3 Total number of visits to all locations (as defined above)

Answer (Please select):

- one visit
- less than 3 visits
- less than 7 visits
- less than 10 visits
- less than 20 visits
- less than 30 visits
- more than 30 visits

4.6 Questionnaire Section 9: Duration in Australian waters off Western Australia

4.6.1 Effect on Risk Score

This question is used to measure the inoculation risk presented by a particular vessel and is used as necessary for management purposes by DoF Biosecurity.

Inoculation risk is the chance of a marine organism moving from the vessel into the water and establishing in the surrounding marine environment. The risk of this happening increases the longer a vessel stays in a port or other shallow water location.

It is assumed that all WA ports have similar conditions that allow marine organisms to establish in that location (e.g. water temperature, flow dynamics, salinity, pH).

4.6.2 Question Guidance

Q 9.1 What is your total expected time in Australian waters within the 12M limit off Western Australia, during this visit?

Answer (Please select):

- More than 28 days
- 14-28 days
- 7-14 days

- 96 hours-7 days
- 72-96 hours
- 48-72 hours
- 24-48 hours
- Less than 24 hours

5 Assessment guidance: Non-risk factor sections

5.1 Section 1: Scenario Testing versus Actual Vessel Movements

Vessel Check Assessments may be completed as 'actual' movements for official submission to DoF, or as 'scenarios'.

5.1.1 Scenario Testing

Vessel Check may be used to test scenarios such as understanding which vessel may present the lowest risk for a particular mobilisation, the future risk status of a vessel, or the projected risk status after carrying out planned management options. A scenario report is for vessel operators' information and planning purposes and is considered to be hypothetical only, as detailed in the Terms and Conditions.

For scenarios, users do not need to upload documents even if they have answered 'yes' when asked for a document as evidence. The risk assessment will validate as if the documents have been supplied. If the question was answered 'No', the risk assessment will validate as per that answer.

If vessel operators wish to follow up with a real vessel movement similar to the scenario submitted, it is possible to change the selection to 'actual', complete the remaining mandatory information, and re-submit the assessment as certified information to a DoF fisheries officer.

5.1.2 Actual Vessel Movements

A risk assessment for an actual planned vessel movement is for submission to DoF as a declaration of the current risk profile of your vessel, as determined by Vessel Check.

Upon submitting the assessment to receive a Risk Assessment Report, the user must acknowledge that this information will be submitted to a fisheries officer, and declare that it is true and correct and supersedes any information submitted as a previous version of the same actual vessel movement.

Only a Vessel Check Risk Assessment Report submitted to a fisheries officer as an actual vessel movement and with a Vessel Risk Status of LOW / ACCEPTABLE, will be taken into account by the Department, when considering whether reasonable steps were taken to reduce the risk of an offence relating to translocation of an IMS.

5.1.3 Versioning

If there is a change in details relating to a particular vessel movement, for which an assessment was submitted to DoF as an actual planned movement, you should update the details by creating a new version, to ensure the vessel's current risk profile is accurately reported. You may do this by returning to the assessment link supplied by email and following the instructions to create a new version.

This may include updating recent management actions taken, supplying additional documents, or a change in departure date within 30 days either side of the original date.

You may not update vessel details such as vessel name, or the last port of call, since this will be considered a new vessel movement.

You may also create versions of scenarios to save time on data entry.

5.2 Section 2: Contact Details

The contact details section is required to enable the DoF to communicate with you regarding your risk assessment. It is important that a representative is available in Australia.

The contact details section also requires you to enter the email address of the user who is completing the questionnaire. This is the address to which the risk assessment report and assessment link will be sent.

Note: If the email address is entered incorrectly, you will not be able to receive this information.

5.3 Section 3: Vessel Details

This section requires details regarding the vessel identification including International Maritime Organisation (IMO) Number, Maritime Mobile Service Identity (MMSI), International Call Sign, Vessel Name and Flag State.

The section also requires the user to enter a Vessel Type and Vessel Size. For vessel type you should select the type which most closely represents your vessel. If there is no close match please select 'Miscellaneous'. Vessel Check uses a ‘simple’ versus ‘complex’ approach to vessel-type related risk, which is embedded elsewhere in the questionnaire.

The non-identifiable data collected on ‘vessel type’ will be utilised for research purposes and assist the DoF in continuous improvement of the tool.

6 Example Scenarios

Below are example scenarios to show how different factors and possible management actions influence a vessel's risk status.

6.1 Example Scenario 1

A barge has no pipework, but has had no recent IMS inspection and has unprotected niche areas

The vessel:

- has an AFC applied to the hull only, that has reached 33% of the recommended service life of three years, and has appropriate supporting documentation
- had an in-water clean and IMS inspection with a report, three months prior to departure
- has no pipework
- has spent consecutively the last three months in one overseas port,

The vessel's risk status is:

→ **HIGH**

The IMS inspection carried out three months ago is not recent enough to be relevant. The vessel has spent sixty days or greater in an overseas or interstate location since the last inspection or AFC application, and the niches areas which are prone to fouling, are not protected by AFC.

To reduce the risk the vessel has an in-water clean and IMS inspection immediately prior to departing for Western Australia, and provides a final inspection report by an independent biofouling inspector, stating that no IMS were detected with an acceptable level of confidence.

This reduces the risk status to LOW / ACCEPTABLE.

Note: In-water inspections carry greater risk of immediate re-infection and inaccuracy. The vessel should also have a follow-up inspection in WA, at around seventy-five days after the final pre-departure inspection.

6.2 Example Scenario 2

A generally well-managed rock-dumping vessel is to be mobilised from Singapore to Dampier and is operationally required to spend a certain amount of time in port after its recent re-splash, in order to load up with rocks.

The vessel:

- has AFC with three year service life that was applied two months ago
- received an IMS inspection in dry dock during AFC application
- does not have an MGPS treatment system for its pipework and seawater intakes, but has had regular monthly manual treatment and was cleaned and treated during its last dry docking
- has spent less than sixty consecutive days in an overseas or interstate location since last inspection or AFC application

The vessel's risk status is:

→ **UNCERTAIN**

The vessel is in the UNCERTAIN risk category, but due to its well-managed state could achieve a LOW / ACCEPTABLE risk status with minimal actions. If the vessel were to be mobilised earlier and its consecutive days in port after the recent inspection reduced to less than thirty days, then it would reduce the risk status. If this is not possible due to logistics, then an in-water IMS inspection and clean prior to mobilisation will also reduce the risk.

These mitigation strategies would reduce the risk status to LOW / ACCEPTABLE.

Vessel managers should note that in-water IMS inspections carry greater risk of re-infection and inaccuracy. In addition the Department's 7-day rule states that vessels should not have spent greater than seven days in a single overseas or interstate location since the last inspection or AFC application. In both the above cases therefore, the vessel should also have a follow-up inspection in WA, at around seventy-five days after the final pre-departure inspection.

6.3 Example Scenario 3

A bulk carrier with old antifouling coat, no pipework treatment systems and no IMS inspection ever

The vessel:

- has an old antifouling coating that has nearly expired, with appropriate supporting documentation
- has had no inspection for IMS of any kind ever
- does not have a treatment system for its pipework and seawater intakes
- has spent less than twenty-one consecutive days in any overseas or interstate location since the last inspection or AFC application

The vessel's risk status is:

→ **HIGH**

The AFC may have reduced effectiveness and the seawater systems are not sufficiently managed for biofouling.

To reduce the risk, the vessel has all of its pipework and seawater intakes manually treated and cleaned prior to departing for Western Australia. The vessel hull and niches are also cleaned and inspected in water. If no IMS are found and a report provided by a biofouling inspector recognised by DoF, the vessel risk would be LOW / ACCEPTABLE and the vessel could proceed to Western Australia. In this case, a follow-up in-water inspection should be conducted at around 75 days after the final pre-departure inspection.

However an Asian Green Mussel is found in a seachest. The vessel is dry docked, cleaned (where any and all marine growth is inspected and removed) and a new AFC is applied. A final report is provided by an independent biofouling inspector, considered

suitably qualified by DoF, concluding that there are no IMS of concern detected with an acceptable level of confidence.

This reduces the vessel risk status to LOW / ACCEPTABLE.

Vessel managers should note that once the AFC has expired, it will not be possible to achieve a LOW / ACCEPTABLE risk rating, and take this into consideration when weighing up management options.

6.4 Example Scenario 4

An anchor handling tug with a poorly applied antifouling coat and an in-water hull survey within twenty-one days, without an IMS inspection

The vessel:

- has an antifouling coating on hull and some niches that has reached 50% of service life, with appropriate supporting documentation
- has had no recent inspection for IMS
- has very good MGPS on all pipework
- has spent less than twenty-one consecutive days in any overseas or interstate location since the last inspection or AFC application

The vessel's risk status is:

→ HIGH

A hull survey is not designed to detect biofouling or IMS and is not sufficient for biosecurity purposes. In addition, some of the niches are not protected with AFC.

To reduce the risk, the vessel could have an in-water clean and inspection, prior to departure for Western Australia (where any and all marine growth is inspected and removed). A final report provided by an independent biofouling inspector, considered suitably qualified by DoF, should conclude with an acceptable level of confidence, that there are no IMS of concern detected.

If the vessel is intended to remain in Western Australia for more than 28 days, a follow-up in-water inspection should be conducted at around 75 days after the final pre-departure inspection.

This would reduce the risk status to LOW / ACCEPTABLE.

6.5 Example Scenario 5

Aluminium-hulled fishing vessel with expired AFC

The vessel:

- has AFC with two year service life and it was applied over 24 months ago
- has NOT undergone an IMS inspection prior to mobilisation
- does not have an MGPS treatment system for its pipework and seawater intakes but has had regular manual treatment

- has an operational profile with most time spent at sea, and has spent less than fourteen consecutive days in an overseas or interstate location since last inspection or AFC application

The vessel's risk status is:

→ **HIGH**

Without an AFC the vessel is more prone to biofouling. In addition the seawater systems are not managed for biofouling.

To reduce the risk, the vessel could have its pipework and seawater intakes manually treated and cleaned prior to departing to Western Australia. It may also undergo an in-water IMS inspection within seven days prior to mobilisation.

This would reduce the risk status to UNCERTAIN.

Without an AFC it is not possible to obtain a LOW / ACCEPTABLE risk level unless the vessel is completely cleaned and dry hauled and remains dry en-route. Alternatively, the vessel could be dry docked and painted with a biocide-free AFC for aluminium hulls before mobilising within seven days of re-floating.

This would reduce the risk status to LOW / ACCEPTABLE.

7 Appendix 1 – Vessel Check Background and Development

7.1 Development of Vessel Check

Vessel Check was developed by DoF in response to requests from industry stakeholders, for a risk assessment tool that could provide a consistent industry standard.

Since 2011, the DoF Biosecurity team had assessed over three hundred vessels using a draft biofouling risk assessment tool provided by the Commonwealth Department of Agriculture, which had been extensively tested on commercial and recreational vessels.

Building on this, DoF developed a new online application which was piloted in 2014 and tested on a range of real world vessel movements, before final launch in 2015.

This process involved reasoned consideration of all relevant factors and weighing up of a range of evidence including expert opinion, significant consultation with industry experts and researchers, and validating the tool against known cases in Western Australia.

Other significant improvements were made encompassing user-friendly and integrated help features, useful advice and recommended actions based on best practice, and clarity of language and concepts to minimise user error, resulting in improved consistency across different users.

The tool has also been integrated with the Department's electronic record keeping system.

Vessel Check and the underlying assumptions are therefore based on continuous development, ongoing practical application, testing and consultation with industry stakeholders. This has delivered a standalone tool for WA-specific needs, that is aligned with current international best-practice.

7.2 Online tool development

7.2.1 Pilot Process

A proof of concept, online version of the Department's vessel biofouling risk assessment tool Vessel Check, was developed in 2014. This pilot version of the tool was presented to key stakeholders at the 2014 Biosecurity workshop and made available for eight weeks, to trial and provide feedback. The feedback was used to further refine the final operational version of the tool.

7.2.2 Feedback methods

Pilot feedback was provided to the Department by these methods:

- An online, automated form filled in at the end of an assessment
- Email
- Telephone/meeting
- In person feedback at the marine biosecurity workshop 2014

7.2.3 Feedback Received

A total of 30 submissions were received either via the feedback form, email, in person or combination. The break down by stakeholder type is:

- Industry consultants and inspectors – nine submissions from eight organisations

- Industry users (shipping agents, contractors, resources companies, etc) – six submissions
- Government Agency and Port authority – seven submissions from four agencies
- WA Fisheries – four submissions
- Anonymous – four submissions

8 Appendix 2 - Information on Biofouling

8.1 Biofouling on vessels

Biofouling is the accumulation of marine organisms (micro-organisms, plants and animals) on surfaces immersed in or exposed to water. The growth and accumulation of marine organisms on vessels and other movable submerged structures affects their performance and can lead to the spread of invasive marine species.

Please refer to DoF's Vessels and Ports web pages for up to date policy and management advice.

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