**Decision criteria for screening vessels coming into TOS marinas**

**(Draft, 28/10/19, Barrie Forrest)**

**Background**

The attached decision tree is intended as a guide to be applied at a marina to screen vessels seeking berthage that are arriving from outside a council’s region. It should also be applied bot only to visitors, but also to returning berth holders that have been in territorial waters outside the region since last being antifouled.

The intent is to identify clear situations where boats should be hauled out and cleaned before being given marina berthage (i.e. Fail) vs given clearance to the marina based on acceptable risk (i.e. Pass). The “grey” area in the middle represents boats that should be either inspected (ideally in-water) or further evaluated by expert assessment. Note that while this approach is conceived for marinas, the risk factors and decision criteria could be applied generally.

Risk factors used for screening are as described in the Table below. The **origin of the vessel** domestically (e.g. Auckland vs Wellington) or internationally is not included as a risk factor in the decision tree, but may form part of the expert assessment. The rationale is that the risk profile of source regions will change over time, and the main decision criteria need to be durable.

To maintain consistency with existing or potential approaches, thresholds for risk factors relating to antifouling and cleaning build on:

* The “six or one” requirement increasingly being adopted by marinas in New Zealand. However, the decision tree recognises that boats antifouled 5-6 months previously can be high risk, especially due to niche area fouling. It would be preferable if such boats were inspected or further assessed, unless they had been cleaned within the previous month.
* The assumption that there is an “LOF>2” rule in place in TOS council plans; i.e. as per Marlborough RPMP rule 5.18.2.1 (requiring that hull fouling on boats entering the region does not exceed “light fouling”).

**Table of risk factors used in decision tree\***

|  |  |
| --- | --- |
| **Code** | **Risk factor** |
| Origin\* | Vessel home port and/or locations visited since last AF |
| Afoul | Months since last complete antifoul |
| Clean | Months since last lift and complete water blast |
| LOF | LOF visible from above-water inspection |
| Pest | Designated marine pest visible from above-water inspection |
| Stay | Duration of stay |

\* Note that vessel origin is not included as a risk factor in the decision tree, but may be part of an expert assessment

Further notes on these risk factors as they relate to the decision branches in the tree are provided below (see back page).

**Decision tree**

This tree could be use as is (e.g. transferred to laminated sheet) or developed into a tablet/smartphone app, in which the assessor would enter the answers to the five risk factors used for profiling. A potential benefit of the latter would be the potential to directly upload app data to a marina’s vessel database. The numbers next to each box relate to inout questions in the following Table.

**A close up of a map

Description automatically generated**

**Input questions for an app**

The app is designed to screen based on pass/fail criteria, but the questions asked of boaters should be formulated to obtain quantities or other values. The recorded information can be referred to in order to enable further risk profiling as necessary; e.g. rather that record whether the boat had been antifouled within 6 month, the actual months since last AF should be recorded. In this context, input questions should be as below. The first 3 questions are background. The app needs to preserve these responses somewhere as a summary table/output (e.g. as a row in a csv file) so that can be referred back to as necessary. Would be good for each record to be able to be edited within the app.

|  |  |
| --- | --- |
| **Question** | **Response field** |
| 1. Date | Automatically filled? |
| 2. Port of arrival | Text choice field (choices: Waikawa, Picton, Havelock, Nelson, Motueka, Tarakohe, Other) |
| 3. Assessor name | Text |
| 4. List any designated marine pests visible on hull | Text, multi-choice field (7 choices: Eudistoma, Pyura, Sabella, Styela, Undaria, Suspected New) |
| 5. How many months since last complete antifoul (6 rule) | Numeric, decimal |
| 6. How many months since last lift and complete water blast (1 rule) | Numeric, decimal |
| 7. Duration of stay (months) | Numeric, integer |
| 8. What is the LOF visible from the surface | Numeric, single choice field. 5 choices:  1 (no macrofouling); 2 (1-5% cover); 3 (6-15% cover); 4 (16-40% cover); 5 (>40% cover) |
| 9. What is your home port | Multi-choice field (choices: International; Northland, Auckland, Bay of Plenty, Wellington, etc) |
| 10. What regions visited since last AF | Multi-choice field (choices: International; Northland, Auckland, Bay of Plenty, Wellington, etc) |
| 11. Notes | Freeform text field |

**Further notes on decision tree**

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk (action)** | **If any of these criteria met** | **AND** | **Note** |
| High  (Haul &  water blast) | Pest = yes | No conditions | Could exclude certain pests, but this would miss the point of pathway management |
| Pest = no, AND  {Afoul >6mo OR Clean >1mo} | Stay >12mo OR LOF>2 | Equivalent to failing 6 or 1 rule, but recognising greater risk due to:  (i) Long duration stay (>12mo may enable microscopic pest stages to reproduce)  (ii) LOF >2 (consistent with regional rule as per MDC plan) |
| Uncertain  (Inspection  &/or advice) | Pest = no, AND  {Afoul >6mo OR Clean >1mo} | Stay <12mo OR LOF ≤2 | Recognises boats failing 6 or 1 may nonetheless be low risk, hence enables inspection to verify |
| Pest = no, AND  {Afoul <6mo} | Stay 1-12mo AND LOF ≤2 AND Clean >1mo | Recognises increased risk from boats not cleaned in <1mo despite Afoul <6mo, |
| especially with moderate length duration of stay |
| Low (Clearance  to berth) | Pest = no, AND  Afoul <6mo AND Clean <1mo | Stay <1mo AND LOF ≤2 | Vessel low risk as meets both Afoul and Clean rules, combined with low LOF and short-stay |
|  |

                        <Text>Date: {this.state.date}</Text>

                        <Text>Arrival Port: {this.state.arrivalPort}</Text>

                        <Text>Assessor: {this.state.assessorName}</Text>

                        <Text>Eudistoma: {this.state.eudistomaChecked.toString()}</Text>

                        <Text>Pyura: {this.state.pyuraChecked.toString()}</Text>

                        <Text>Sabella: {this.state.sabellaChecked.toString()}</Text>

                        <Text>Styela: {this.state.styelaChecked.toString()}</Text>

                        <Text>Undaria: {this.state.undariaChecked.toString()}</Text>

                        <Text>New pest: {this.state.newChecked.toString()}</Text>

                        <Text>Antifoul: {this.state.antifoul}</Text>

                        <Text>Waterblast: {this.state.waterblast}</Text>

                        <Text>Duration: {this.state.duration}</Text>

                        <Text>LOF: {this.state.lof}</Text>

                        <Text>Home port: {this.state.portHome}</Text>

                        <Text>International: {this.state.internationalVisited.toString()}</Text>

                        <Text>Auckland: {this.state.aucklandVisited.toString()}</Text>

                        <Text>Bay of Plenty: {this.state.bopVisited.toString()}</Text>

                        <Text>Wellington: {this.state.wellingtonVisited.toString()}</Text>

                        <Text>Tasman: {this.state.tasmanVisited.toString()}</Text>

                        <Text>Notes: {this.state.notes.toString()}</Text>