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| IALA Manual Annex a |

Use of the Ports and Waterways Safety Assessment (PAWSA) MkII Tool - Forms

PAWSA location:

Team number:

Edition 1.0

November 2022

Revisions to this document are to be noted in the table prior to the issue of a revised document.

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| --- | --- |
| Date | Details |
| November 2022 | First edition.  The PAWSA manual was created from the separation of the annex from Guideline *G1124 Use of the Ports and Waterways Safety Assessment (PAWSA) MK II Tool*, Edition 2.0, which was separately approved by IALA Council June 2022.  This document is Annex X of the manual and contains the set of forms that can be used when conducting a PAWSA. |
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1. Team Expertise (Book 1 Team Expertise)

PAWSA Location: Team Number:

*Compare each team’s knowledge (level of expertise)* about the factors that affect the probability and consequences of marine accidents with that of the other participant teams in this workshop. Please enter in each block the number which best describes each team, where:

1 = The team is probably in the UPPER THIRD of all the teams.

2 = The team is probably in the MIDDLE THIRD of all the teams.

3 = The team is probably in the LOWER THIRD of all the teams.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Team / Risk Category** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| Vessel Conditions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Conditions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Navigational Conditions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Waterway Conditions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Immediate Consequences |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subsequent Consequences |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Risk Descriptor Comparisons (Book 2 Risk Factor Rating Scales)

**PAWSA Location:** **Team Number:**

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Vessel Conditions:**  **Deep Draft Vessel Quality** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Nearly **100%** of deep draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **90%** of deep draft vessels using the waterway operate safely |
|  |  |  |
| **90%** of deep draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **80%** of deep draft vessels using the waterway operate safely |
|  |  |  |
| **80%** of deep draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **70%** of deep draft vessels using the waterway operate safely |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Vessel Conditions:**  **Shallow Draft Vessel Quality** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Nearly **100%** of shallow draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **90%** of shallow draft vessels using the waterway operate safely |
|  |  |  |
| **90%** of shallow draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **80%** of shallow draft vessels using the waterway operate safely |
|  |  |  |
| **80%** of shallow draft vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **70%** of shallow draft vessels using the waterway operate safely |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Vessel Conditions:**  **Commercial Fishing Vessel Quality** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Nearly **100%** of commercial fishing vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **90%** of commercial fishing vessels using the waterway operate safely |
|  |  |  |
| **90%** of commercial fishing vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **80%** of commercial fishing vessels using the waterway operate safely |
|  |  |  |
| **80%** of commercial fishing vessels using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **70%** of commercial fishing vessels using the waterway operate safely |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Vessel Conditions:**  **Small Craft Quality** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Nearly **100%** of small craft using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **90%** of small craft using the waterway operate safely |
|  |  |  |
| **90%** of small craft using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **80%** of small craft using the waterway operate safely |
|  |  |  |
| **80%** of small craft using the waterway operate safely | 1 2 3 4 5 6 7 8 9 | **70%** of small craft using the waterway operate safely |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Traffic Conditions:**  **Volume of Commercial Traffic** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Light commercial traffic (less than 10 vessel transits per day) | 1 2 3 4 5 6 7 8 9 | Moderate commercial traffic (10-50 vessel transits per day) |
|  |  |  |
| Moderate commercial traffic (10-50 vessel transits per day) | 1 2 3 4 5 6 7 8 9 | Heavy commercial traffic **BUT** waterway infrastructure handles load easily |
|  |  |  |
| Heavy commercial traffic **BUT** waterway infrastructure handles load easily | 1 2 3 4 5 6 7 8 9 | Heavy commercial traffic **AND** vessels regularly have to wait for berths |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Traffic Conditions:**  **Volume of Small Craft Traffic** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Light small craft use of the waterway | 1 2 3 4 5 6 7 8 9 | Moderate small craft use of the waterway |
|  |  |  |
| Moderate small craft use of the waterway | 1 2 3 4 5 6 7 8 9 | Heavy small craft use **BUT** seasonal |
|  |  |  |
| Heavy small craft use **BUT** seasonal | 1 2 3 4 5 6 7 8 9 | Heavy small craft use **YEAR ROUND** |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Traffic Conditions:**  **Traffic Mix** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Predominantly single use waterway serving one interest | 1 2 3 4 5 6 7 8 9 | Multiple use waterway **BUT** no conflicts occurring |
|  |  |  |
| Multiple use waterway **BUT** no conflicts occurring | 1 2 3 4 5 6 7 8 9 | Multiple use waterway **AND** some **MINOR** conflicts occurring |
|  |  |  |
| Multiple use waterway **AND** some **MINOR** conflicts occurring | 1 2 3 4 5 6 7 8 9 | Multiple use waterway **AND MAJOR** conflicts occurring |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Traffic Conditions:**  **Congestion** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** congestion ever occurs in the waterway | 1 2 3 4 5 6 7 8 9 | Congestion **ONLY** occurs in small areas for limited times |
|  |  |  |
| Congestion **ONLY** occurs in small areas for limited times | 1 2 3 4 5 6 7 8 9 | Congestion occurs regularly **BUT** flow of vessel traffic is **NOT** impeded |
|  |  |  |
| Congestion occurs regularly **BUT** flow of vessel traffic is **NOT** impeded | 1 2 3 4 5 6 7 8 9 | Congestion occurs regularly **AND** flow of vessel traffic **IS** impeded |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Navigational Conditions:**  **Winds** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Strong winds occur **LESS** than twice a month **AND** well forecast | 1 2 3 4 5 6 7 8 9 | Strong winds occur **MORE** than twice a month **BUT** well forecast |
|  |  |  |
| Strong winds occur **MORE** than twice a month **BUT** well forecast | 1 2 3 4 5 6 7 8 9 | Strong winds occur **LESS** than twice a month **BUT** without warning |
|  |  |  |
| Strong winds occur **LESS** than twice a month **BUT** without warning | 1 2 3 4 5 6 7 8 9 | Strong winds occur **MORE** than twice a month **AND** without warning |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Navigational Conditions:**  **Water Movement** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Fastest tidal and/or river currents are **WEAK** (less than 2 knots) | 1 2 3 4 5 6 7 8 9 | Fastest tidal and/or  river currents are **MODERATE** (2-5 knots) |
|  |  |  |
| Fastest tidal and/or  river currents are **MODERATE** (2-5 knots) | 1 2 3 4 5 6 7 8 9 | Fastest tidal and/or  river currents are **STRONG BUT** do **NOT** affect maneuverability |
|  |  |  |
| Fastest tidal and/or  river currents are **STRONG BUT** do **NOT** affect maneuverability | 1 2 3 4 5 6 7 8 9 | Fastest tidal and/or  river currents are **STRONG AND** affect maneuverability |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Navigational Conditions:**  **Visibility Restrictions** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Restricted visibility (1/2 mile or less) occurs **LESS** than 24 days a year | 1 2 3 4 5 6 7 8 9 | Restricted visibility **MORE** than 24 days a year **BUT** usually lasts **LESS** than **6** hours |
|  |  |  |
| Restricted visibility **MORE** than 24 days a year **BUT** usually lasts **LESS** than **6** hours | 1 2 3 4 5 6 7 8 9 | Restricted visibility **MORE** than 24 days a year **BUT** usually lasts **LESS** than 24 hours |
|  |  |  |
| Restricted visibility **MORE** than 24 days a year **BUT** usually lasts **LESS** than 24 hours | 1 2 3 4 5 6 7 8 9 | Restricted visibility **MORE** than 24 days a year **AND** usually lasts **MORE** than **24** hours |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Navigational Conditions:**  **Obstructions** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** obstructions (ice, floating snags, deadheads, dredging, or fixed fishing gear) | 1 2 3 4 5 6 7 8 9 | Some obstructions **BUT NOT** affecting navigation |
|  |  |  |
| Some obstructions **BUT NOT** affecting navigation | 1 2 3 4 5 6 7 8 9 | Obstructions affecting **SOME** navigation |
|  |  |  |
| Obstructions affecting **SOME** navigation | 1 2 3 4 5 6 7 8 9 | Obstructions affecting **ALL** navigation |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Waterway Conditions:**  **Visibility Impediments** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** visual impediments on the waterway | 1 2 3 4 5 6 7 8 9 | Areas of waterway where aids to navigation are obscured |
|  |  |  |
| Areas of waterway where aids to navigation are obscured | 1 2 3 4 5 6 7 8 9 | Areas of waterway where vessel movements are obscured |
|  |  |  |
| Areas of waterway where vessel movements are obscured | 1 2 3 4 5 6 7 8 9 | Areas of waterway where **BOTH** vessel movements **AND** aids to navigation are obscured |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Waterway Conditions:**  **Dimensions** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Open roadstead; no waterway constrictions | 1 2 3 4 5 6 7 8 9 | Constricted waterway where passing arrangements are routinely needed |
|  |  |  |
| Constricted waterway where passing arrangements are routinely needed | 1 2 3 4 5 6 7 8 9 | Constricted waterway with **SHORT** stretches where large vessels generally avoid passing |
|  |  |  |
| Constricted waterway with **SHORT** stretches where large vessels generally avoid passing | 1 2 3 4 5 6 7 8 9 | **LONG** stretches where passing can’t be avoided **AND** involves close quarters encounters |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Waterway Conditions:**  **Bottom Type** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Deep water throughout; vessel breakdown unlikely to result in grounding or allision | 1 2 3 4 5 6 7 8 9 | Soft bottom with **NO** hard obstructions outside channel |
|  |  |  |
| Soft bottom with **NO** hard obstructions outside channel | 1 2 3 4 5 6 7 8 9 | Sand, shale, or some hard obstructions outside of channel |
|  |  |  |
| Sand, shale, or some hard obstructions outside of channel | 1 2 3 4 5 6 7 8 9 | Hard or rocky bottom lines the channel edges |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Waterway Conditions:**  **Configuration** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| No turns over 45 degrees **AND** no convergences | 1 2 3 4 5 6 7 8 9 | One or more turns over 45 degrees **BUT** no convergences |
|  |  |  |
| One or more turns over 45 degrees **BUT** no convergences | 1 2 3 4 5 6 7 8 9 | No turns over 45 degrees **BUT** waterway has convergences |
|  |  |  |
| No turns over 45 degrees **BUT** waterway has convergences | 1 2 3 4 5 6 7 8 9 | One or more turns over 45 degrees **AND** waterway has convergences |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Immediate Consequences:**  **Personnel Injuries** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** passenger vessels (dinner cruises, charter fishing, ferries, cruise ships) using waterway | 1 2 3 4 5 6 7 8 9 | **ONLY** small passenger vessels (< 150 persons on board) using waterway |
|  |  |  |
| **ONLY** small passenger vessels (< 150 persons on board) using waterway | 1 2 3 4 5 6 7 8 9 | Large passenger vessels (> 150 persons on board) using waterway **OCCASIONALLY** |
|  |  |  |
| Large passenger vessels (> 150 persons on board) using waterway **OCCASIONALLY** | 1 2 3 4 5 6 7 8 9 | Large passenger vessels (> 150 persons on board) using waterway **DAILY** |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Immediate Consequences:**  **Petroleum Discharge** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** bulk petroleum cargo movements | 1 2 3 4 5 6 7 8 9 | Bulk petroleum cargo movements via tank barge **ONLY** |
|  |  |  |
| Bulk petroleum cargo movements via tank barge **ONLY** | 1 2 3 4 5 6 7 8 9 | Bulk petroleum cargo movements via tank ships **UNDER** 40,000 GRT |
|  |  |  |
| Bulk petroleum cargo movements via tank ships **UNDER** 40,000 GRT | 1 2 3 4 5 6 7 8 9 | Bulk petroleum cargo movements via tank ships **OVER** 40,000 GRT |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Immediate Consequences:**  **Hazardous Materials Release** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** bulk hazardous material cargo movements | 1 2 3 4 5 6 7 8 9 | Bulk hazardous material cargo movements via tank barge **ONLY** |
|  |  |  |
| Bulk hazardous material cargo movements via tank barge **ONLY** | 1 2 3 4 5 6 7 8 9 | Bulk hazardous material cargo movements via tank ships **UNDER** 40,000 GRT |
|  |  |  |
| Bulk hazardous material cargo movements via tank ships **UNDER** 40,000 GRT | 1 2 3 4 5 6 7 8 9 | Bulk hazardous material cargo movements via tank ships **OVER** 40,000 GRT |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Immediate Consequences:**  **Mobility** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Major marine casualty would **NOT** require waterway closure | 1 2 3 4 5 6 7 8 9 | Major marine casualty would result in waterway closure **BUT NOT** likely to disrupt shore MTS |
|  |  |  |
| Major marine casualty would result in waterway closure **BUT NOT** likely to disrupt shore MTS | 1 2 3 4 5 6 7 8 9 | Major marine casualty would result in w/w closure and **MINIMAL** disruption to shore MTS |
|  |  |  |
| Major marine casualty would result in w/w closure and **MINIMAL** disruption to shore MTS | 1 2 3 4 5 6 7 8 9 | Major marine casualty would result in w/w closure & **SIGNIFICANT** disruption to shore MTS |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Subsequent Consequences:**  **Health and Safety** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| **NO** bulk hazardous cargoes moving on waterway | 1 2 3 4 5 6 7 8 9 | Small population near waterway **WITH** bulk hazardous cargoes moving on waterway |
|  |  |  |
| Small population near waterway **WITH** bulk hazardous cargoes moving on waterway | 1 2 3 4 5 6 7 8 9 | Medium population near waterway **WITH** bulk hazardous cargoes moving on waterway |
|  |  |  |
| Medium population near waterway **WITH** bulk hazardous cargoes moving on waterway | 1 2 3 4 5 6 7 8 9 | Large population near waterway **WITH** bulk hazardous cargoes moving on waterway |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Subsequent Consequences:**  **Environmental** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Less than **10%** of waterway is environmentally sensitive | 1 2 3 4 5 6 7 8 9 | Between **10 – 50%** of waterway is environmentally sensitive |
|  |  |  |
| Between **10 – 50%** of waterway is environmentally sensitive | 1 2 3 4 5 6 7 8 9 | Between **50 – 90%** of waterway is environmentally sensitive |
|  |  |  |
| Between **50 – 90%** of waterway is environmentally sensitive | 1 2 3 4 5 6 7 8 9 | More than **90%** of waterway is environmentally sensitive |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Subsequent Consequences:**  **Aquatic Resources** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Very little harvesting of aquatic resources from a waterway | 1 2 3 4 5 6 7 8 9 | Moderate recreational fishing **BUT** little commercial harvesting of aquatic resources |
|  |  |  |
| Moderate recreational fishing **BUT** little commercial harvesting of aquatic resources | 1 2 3 4 5 6 7 8 9 | Heavy recreational fishing **OR** moderate commercial harvesting of aquatic resources |
|  |  |  |
| Heavy recreational fishing **OR** moderate commercial harvesting of aquatic resources | 1 2 3 4 5 6 7 8 9 | Heavy recreational fishing **AND** heavy commercial harvesting of aquatic resources |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

***Book 2: Risk Factor Rating Scales***

**How much riskier is the condition on the right than the condition on the left?**

|  |
| --- |
| **Subsequent Consequences:**  **Economic** |

(Circle one number on each line)

|  |  |  |
| --- | --- | --- |
| Economic impact of waterway closure affects **ONLY** port area | 1 2 3 4 5 6 7 8 9 | Economic impact of waterway closure affects metropolitan area |
|  |  |  |
| Economic impact of waterway closure affects metropolitan area | 1 2 3 4 5 6 7 8 9 | Economic impact of waterway closure affects wide region |
|  |  |  |
| Economic impact of waterway closure affects wide region | 1 2 3 4 5 6 7 8 9 | Economic impact of waterway closure affects entire nation |
|  | Equally **→** Somewhat **→** Much More **→** Extremely Risky More Risky Risky More Risky |  |

1. Baseline Risk Levels (Book 3 Baseline Risk)

**PAWSA Location:** **Team Number:**

*Check the block that best describes the condition in this waterway*

**Vessel Conditions**

**Deep Draft Vessel Quality**

* Nearly 100% of deep draft vessels operate safely
* 90% of deep draft vessels operate safely
* 80% of deep draft vessels operate safely
* 70% or fewer of deep draft vessels operate safely

**Shallow Draft Vessel Quality**

* Nearly 100% of shallow draft vessels operate safely
* 90% of shallow draft vessels operate safely
* 80% of shallow draft vessels operate safely
* 70% or fewer of shallow draft vessels operate safely

**Commercial Fishing Vessel Quality**

* Nearly 100% of commercial fishing vessels operate safely
* 90% commercial fishing vessels operate safely
* 80% of commercial fishing vessels operate safely
* 70% or fewer of commercial fishing vessels operate safely

**Small Craft Quality**

* Nearly 100% of small craft operate safely
* 90% of small craft operate safely
* 80% of small craft operate safely
* 70% or fewer of small craft operate safely

**Traffic Conditions**

**Volume of Commercial Traffic**

* Light commercial traffic (less than 10 vessel transits per day)
* Moderate commercial traffic (10-50 vessel transits per day)
* Heavy commercial traffic (more than 50 vessel transits per day) BUT waterway infrastructure handles load easily
* Heavy commercial traffic (more than 50 vessel transits per day) AND vessels regularly have to wait for berths

**Volume of Small Craft Traffic**

* Light small craft traffic
* Moderate small craft traffic
* Heavy small craft traffic BUT seasonal
* Heavy small craft traffic YEAR ROUND

**Traffic Mix**

* Predominantly a single use waterway serving one interest   
  (i.e., government, commerce, or recreation)
* Multiple use waterway (government, commerce, and / or recreation) BUT no conflicts occurring
* Multiple use waterway (government, commerce, and / or recreation) AND some MINOR conflicts occurring
* Multiple use waterway (government, commerce, and / or recreation) AND MAJOR conflicts occurring

**Congestion**

* NO congestion ever occurs in the waterway
* Congestion ONLY occurs in small areas for limited times
* Congestion occurs regularly BUT flow of commercial vessel traffic is NOT impeded
* Congestion occurs regularly AND flow of commercial vessel traffic IS impeded

**Navigational Conditions**

**Winds**

* Strong winds (20 knots sustained) occur LESS than twice a month AND well forecast
* Strong winds (20 knots sustained) occur MORE than twice a month BUT well forecast
* Strong winds (20 knots sustained) occur LESS than twice a month BUT without warning
* Strong winds (20 knots sustained) occur MORE than twice a month AND without warning

**Water Movement**

* Fastest tidal and / or river currents are WEAK (less than 2 knots)
* Fastest tidal and / or river currents are MODERATE (2 – 5 knots)
* Fastest tidal and / or river currents are STRONG (over 5 knots) BUT do NOT affect manoeuvrability
* Fastest tidal and / or river currents are STRONG (over 5 knots) AND affect manoeuvrability

**Visibility Restrictions**

* Restricted visibility (1/2 mile or less) occurs LESS than 24 days a year
* Restricted visibility (1/2 mile or less) occurs MORE than 24 days a year BUT usually persists LESS than 6 hours
* Restricted visibility (1/2 mile or less) occurs MORE than 24 days a year BUT usually persists LESS than 24 hours
* Restricted visibility (1/2 mile or less) occurs MORE than 24 days a year AND usually persists MORE than 24 hours

**Obstructions**

* NO obstructions, that is: ice never forms, no floating snags / deadheads, no dredging, and no fixed fishing gear
* Some obstructions BUT NOT affecting navigation
* Obstructions affecting SOME navigation
* Obstructions affecting ALL navigation

**Waterway Conditions**

**Visibility Impediments**

* NO visual impediments on the waterway
* Areas of the waterway where aids to navigation are obscured
* Areas of the waterway where vessel movements are obscured
* Areas of the waterway where BOTH vessel movements AND aids to navigation are obscured

**Dimensions**

* Open roadstead; no waterway constrictions
* Constricted waterway where passing arrangements are routinely needed
* Constricted waterway with some SHORT stretches where large vessels generally avoid passing each other
* Constricted waterway with LONG stretches where some large vessel passing can’t be avoided AND involves close quarters encounters

**Bottom Type**

* Deep water throughout the waterway; no channel is needed; vessel breakdown unlikely to result in grounding or allision
* Soft bottom with NO hard obstructions outside channel
* Sand, shale, or some hard obstructions outside of channel
* Hard or rocky bottom lines the channel edges

**Configuration**

* No turns over 45 degrees AND no convergences
* One or more turns over 45 degrees BUT no convergences
* No turns over 45 degrees BUT waterway has convergences
* One or more turns over 45 degrees AND waterway has convergences

**Immediate Consequences**

**Personnel Injuries**

* NO passenger vessels (i.e., dinner cruises, charter fishing, passenger ferries, cruise ships) using the waterway
* ONLY small passenger vessels (less than 150 persons on board) using the waterway
* Large passenger vessels (more than 150 persons on board) using the waterway OCCASIONALLY
* Large passenger vessels (more than 150 persons on board) using the waterway DAILY

**Petroleum Discharge**

* NO bulk petroleum cargo movements
* Bulk petroleum cargo movements via tank barge ONLY
* Bulk petroleum cargo movements via tank ships UNDER 40,000 GRT
* Bulk petroleum cargo movements via tank ships OVER 40,000 GRT

**Hazardous Materials Release**

* NO bulk hazardous material cargo movements
* Bulk hazardous material cargo movements via tank barge ONLY
* Bulk hazardous material cargo movements via tank ships UNDER 40,000 GRT
* Bulk hazardous material cargo movements via tank ships OVER 40,000 GRT

**Mobility**

* Major marine casualty would NOT require a waterway closure
* Major marine casualty would result in a waterway closure BUT NOT likely to disrupt the shoreside marine transportation system
* Major marine casualty would result in waterway closure BUT would cause MINIMAL disruption to the shoreside marine transportation system
* Major marine casualty would result in waterway closure AND would cause SIGNIFICANT disruption to the shoreside marine transportation system

**Subsequent Consequences**

**Health and Safety**

* NO bulk hazardous cargoes moving on the waterway
* Small population (under 50,000 people) near the waterway WITH bulk hazardous cargoes moving on the waterway
* Medium population (50,000 to 100,000 people) near the waterway WITH bulk hazardous materials cargoes moving on the waterway
* Large population (over 100,000 people) near the waterway WITH bulk hazardous materials cargoes moving on the waterway

**Environmental**

* Less than 10% of the waterway is environmentally sensitive
* Between 10 – 50% of the waterway is environmentally sensitive
* Between 50 – 90% of the waterway is environmentally sensitive
* More than 90% of the waterway is environmentally sensitive

**Aquatic Resources**

* Very little harvesting of aquatic resources from this waterway
* Moderate recreational fishing BUT little commercial or subsistence harvesting of aquatic resources from this waterway
* Heavy recreational fishing OR moderate commercial or subsistence harvesting of aquatic resources from this waterway
* Heavy recreational fishing AND heavy commercial or subsistence harvesting of aquatic resources from this waterway

**Economic**

* Economic impact of waterway closure affects ONLY port area
* Economic impact of waterway closure affects metropolitan area
* Economic impact of waterway closure affects wide region
* Economic impact of waterway closure affect entire nation

1. Mitigation Effectiveness (Book 4 Mitigation Effectiveness)

**PAWSA Location:** **Team Number:**

Referring to the results from Book 3 (orange marks which denote the baseline levels of risk in this waterway), circle the number on each risk factor scale which *best describes the present level of risk for that factor, taking into consideration existing risk mitigation strategies*.

For each risk factor:

* if you think the risk mitigation strategies already in place adequately balance the present level of risk, circle *Yes*: or*.*
* If you are NOT comfortable with the present level of risk and think something significant needs to be done to further reduce that risk, circle *No*.

**VESSEL CONDITIONS**

Deep Draft Vessel Quality 1 2 3 4 5 6 7 8 9 Yes No

Shallow Draft Vessel Quality 1 2 3 4 5 6 7 8 9 Yes No

Commercial Fishing Vessel Quality 1 2 3 4 5 6 7 8 9 Yes No

Small Craft Quality 1 2 3 4 5 6 7 8 9 Yes No

**TRAFFIC CONDITIONS**

Volume of Commercial Traffic 1 2 3 4 5 6 7 8 9 Yes No

Volume of Small Craft Traffic 1 2 3 4 5 6 7 8 9 Yes No

Traffic Mix 1 2 3 4 5 6 7 8 9 Yes No

Congestion 1 2 3 4 5 6 7 8 9 Yes No

**NAVIGATIONAL CONDITIONS**

Winds 1 2 3 4 5 6 7 8 9 Yes No

Water Movement 1 2 3 4 5 6 7 8 9 Yes No

Visibility Restrictions 1 2 3 4 5 6 7 8 9 Yes No

Obstructions 1 2 3 4 5 6 7 8 9 Yes No

**WATERWAY CONDITIONS**

Visibility Impediments 1 2 3 4 5 6 7 8 9 Yes No

Dimensions 1 2 3 4 5 6 7 8 9 Yes No

Bottom Type 1 2 3 4 5 6 7 8 9 Yes No

Configuration 1 2 3 4 5 6 7 8 9 Yes No

**IMMEDIATE CONSEQUENCES**

Personnel Injuries 1 2 3 4 5 6 7 8 9 Yes No

Petroleum Discharge 1 2 3 4 5 6 7 8 9 Yes No

Hazardous Materials Release 1 2 3 4 5 6 7 8 9 Yes No

Mobility 1 2 3 4 5 6 7 8 9 Yes No

**SUBSEQUENT CONSEQUENCES**

Health and Safety 1 2 3 4 5 6 7 8 9 Yes No

Environmental 1 2 3 4 5 6 7 8 9 Yes No

Aquatic Resources 1 2 3 4 5 6 7 8 9 Yes No

Economic 1 2 3 4 5 6 7 8 9 Yes No

1. Additional Mitigations (Book 5 Additional Mitgations)

**PAWSA Location:** **Team Number:**

Evaluate **ONLY** those risk factors with orange highlighting. That highlighting shows the present level of risk (taking into account existing mitigations) from the group’s earlier assessment (*Book 4: Existing Mitigation Effectiveness*) for those risk factors where risk was judged NOT to be at an acceptable level already.

Under each risk factor are abbreviations for categories of possible risk mitigation measures. The definitions for each of those abbreviations are given below.

Think about what should be done to further reduce the risks associated with each of the risk factors marked in orange. In the space provided next to the appropriate mitigation intervention category, write a brief phrase (3 to 5 words) to indicate what specific action should be taken. [Legibility would be MOST appreciated!]

For each intervention category where you think action should be taken, circle the number on the adjacent 1 to 9 scale which indicates where you think the risk level would be if that mitigation intervention were implemented.

|  |  |
| --- | --- |
| **Terminology** | **Examples** |
| **Co-ordination/ Planning** | Improve long-range and/or contingency planning and better co-ordinate activities / improve dialogue between port stakeholders |
| **Voluntary Training** | Establish / use voluntary programs to educate mariners / boaters in topics related to waterway safety (Rules of the Road, ship/boat handling, etc.) |
| **Rules and Procedures** | Establish / refine rules, regulations, policies, or procedures (nav rules, pilot rules, standard operating procedures, licensing, require training and education, etc.) |
| **Enforcement** | More actively enforce existing rules / policies (navigation rules, vessel inspection regulations, standards of care, etc.) |
| **Nav/Hydro Info** | Improve navigation and hydrographic information (PORTS, BTM/BRM, charts, coast pilots, AIS, tides & current tables, etc.) |
| **Radio Communications** | Improve the ability to communicate bridge-to-bridge or ship-to-shore (radio reception coverage, signal strength, reduce interference & congestion, etc.) |
| **Active Traffic Mgmt** | Establish/improve a Vessel Traffic Service (info, advice & control) or Vessel Traffic Information Service (information & advice only) |
| **Waterway Changes** | Widen / deepen / straighten the channel and/or improve the aids to navigation (buoys, ranges, lights, LORAN C, DGPS, etc.) |
| **Other Actions** | Risk mitigation measures needed do NOT fall under any of the above strategy categories |

VESSEL CONDITIONS

**Deep Draft Vessel Quality**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Shallow Draft Vessel Quality**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Commercial Fishing Vessel Quality**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Small Craft Quality**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

TRAFFIC CONDITIONS

**Volume of Commercial Traffic**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Volume of Small Craft Traffic**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Traffic Mix**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Congestion**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

NAVIGATIONAL CONDITIONS

**Winds**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Water Movement**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Visibility Restrictions**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Obstructions**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

WATERWAY CONDITIONS

**Visibility Impediments**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Dimensions**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Bottom Type**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Configuration**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

IMMEDIATE CONSEQUENCES

**Personnel Injuries**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Petroleum Discharge**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Hazardous Materials Release**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Mobility**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

SUBSEQUENT CONSEQUENCES

**Health and Safety**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Environmental**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Aquatic Resources**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

**Economic**

Co-ordination / Planning \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Voluntary Training \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Rules & Procedures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Enforcement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Nav / Hydro Info \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Radio Communications \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Active Traffic Mgmt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Waterway Changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9

Other Actions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 2 3 4 5 6 7 8 9