



Australian Government

Australian Maritime Safety Authority

Regulating Unmanned and Autonomous Vessels

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AMSA | PROFESSIONAL | ACCOUNTABLE
VALUES | COLLABORATIVE | DEDICATED





Scope

- What does AMSA do
- Autonomous and unmanned vessels
- The Law in Australia, and how it applies
- AMSAs regulatory approach
- Some take-away points



Australian Government

Australian Maritime Safety Authority

safe and clean seas, savings lives



OUR PLAN ON A PAGE

Everything we do must contribute to the achievement of our vision and mission. Our Plan on a Page helps us to align and identify the contribution our focus areas, core business and change program make towards achieving our strategic goals, meeting our strategic challenges, and ultimately, delivering our vision and mission.

Australian Government
Australian Maritime Safety Authority

PURPOSE

Who we serve: The Australian community.
Vision: Safe and clean seas, saving lives.
Mission: Ensuring safe vessel operations, combatting marine pollution, and rescuing people in distress.

VALUES

Professional – We act with integrity and are pragmatic in our approach.
Collaborative – We value and respect others and work together to achieve our objectives.
Dedicated – We are committed to AMSA's mission and responsive to the needs of our customers and stakeholders.
Accountable – We take responsibility for our decisions and actions.

1 STRATEGIC CHALLENGE 1 MANAGING RISKS TO SAFETY AND THE ENVIRONMENT

- 1.1 FOCUS AREA 1.1: ENSURING REGULATED VESSELS ARE OPERATED SAFELY AND MEET STANDARDS
- 1.2 FOCUS AREA 1.2: PREVENTING POLLUTION FROM SHIPPING
- 1.3 FOCUS AREA 1.3: SUPPORTING SAFE NAVIGATION
- 1.4 FOCUS AREA 1.4: CONTRIBUTING TO AND IMPLEMENTING INTERNATIONAL CONVENTIONS
- 1.5 FOCUS AREA 1.5: ENSURING SEAFARER COMPETENCY AND WELFARE

STRATEGIC GOALS

- 1.1 Ensure safe shipping in Australian waters
- 1.2 Minimise emissions and discharges from ships in the marine environment
- 1.3 Deregulate and streamline without impacting safety
- 1.4 Develop a contemporary regulatory and compliance model
- 1.5 Implement a modernised regulatory scheme for international trading and foreign vessels
- 1.6 Develop a predictive, integrated intervention capability to assure vessel safety
- 1.7 Compliance with international standards for training certification and watchkeeping
- 1.8 Promote a maritime safety culture that leads to positive behavioural change
- 1.9 Influence the standards of international conventions

STRATEGIC RISK

- SR2. Failure as a regulator – regulatory scheme or compliance and enforcement arrangements fail to prevent an incident with major or significant consequences

2 STRATEGIC CHALLENGE 2 BUILDING THE NATIONAL SYSTEM FOR DOMESTIC COMMERCIAL VESSEL SAFETY

- 2.1 FOCUS AREA 2.1: DESIGNING – OPERATING MODEL, WORKFORCE, TRANSITION
- 2.2 FOCUS AREA 2.2: BUILDING THE SERVICE DELIVERY FRAMEWORK
- 2.3 FOCUS AREA 2.3: BUILDING THE REGULATORY FRAMEWORK
- 2.4 FOCUS AREA 2.4: SUPPORTING THE SYSTEM – INFORMATION TECHNOLOGY AND FUNDING ARRANGEMENTS

STRATEGIC GOALS

- 2.1 Prepared to assume responsibility for service delivery as National Regulator by July 2018
- 2.2 Promote continuous improvement in marine safety
- 2.3 Promote public confidence in the safety of marine operators
- 2.4 Ensure the effective identification and management of safety risks
- 2.5 Reduce regulatory burden without compromising safety

STRATEGIC RISKS

- SR1. Failure to deliver a national system – that is financially sustainable and delivers the aims and objectives required by government
- SR2. Failure as a regulator – regulatory scheme or compliance and enforcement arrangements fail to prevent an incident with major or significant consequences

3 STRATEGIC CHALLENGE 3 PROVIDING INCIDENT PREPAREDNESS AND RESPONSE

- 3.1 FOCUS AREA 3.1: PRE-EMPTIVELY INTERVENING TO ASSURE VESSEL SAFETY
- 3.2 FOCUS AREA 3.2: SAVING LIVES DAILY THROUGH SEARCH AND RESCUE (SAR)
- 3.3 FOCUS AREA 3.3: DELIVERING AN EFFECTIVE MARITIME INCIDENT RESPONSE CAPABILITY
- 3.4 FOCUS AREA 3.4: DELIVERING AN EFFECTIVE MARINE POLLUTION RESPONSE CAPABILITY

STRATEGIC GOALS

- 3.1 Prevent incidents occurring through a predictive, integrated intervention capability
- 3.2 Save lives by coordinating aeronautical and maritime search and rescue
- 3.3 Respond efficiently and effectively to maritime casualties and marine pollution incidents

STRATEGIC RISK

- SR3. Failure as a response organisation – search and rescue or maritime environmental emergency response arrangements are inadequate

4 STRATEGIC CHALLENGE 4 ENSURING A VIBRANT AND PROGRESSIVE ORGANISATION

- 4.1 FOCUS AREA 4.1: WORKFORCE ENGAGEMENT, DEVELOPMENT AND SAFETY
- 4.2 FOCUS AREA 4.2: GOOD GOVERNANCE
- 4.3 FOCUS AREA 4.3: SOUND FINANCIAL MANAGEMENT
- 4.4 FOCUS AREA 4.4: RELIABLE AND RESPONSIVE INFORMATION TECHNOLOGY

STRATEGIC GOALS

- 4.1 Have a professional, flexible and engaged workforce that is change ready
- 4.2 Use technology to improve the services we deliver to do business anytime, anywhere
- 4.3 Ensure we can deliver our services with the available funding
- 4.4 Have effective and efficient processes and systems
- 4.5 Be a responsible corporate citizen
- 4.6 Apply the integrated management system across all of AMSA

STRATEGIC RISKS

- SR4. Failure to maintain financial viability
- SR5. Failure to maintain a safe working environment
- SR6. Failure to maintain systems of internal control
- SR7. Failure to maintain viable and reliable information technology infrastructure and systems

ENABLER GOALS

- EG.1 International standards reflect Australian expectations and international standards are reflected nationally
- EG.2 Improve and promote maritime safety and environmental protection in our region
- EG.3 Have a strong regional voice in international fora
- EG.4 Regional approaches align with agreed international priorities
- EG.5 Informed and engaged community on maritime issues, search and rescue issues, and our role
- EG.6 Effective engagement with communities to promote maritime safety
- EG.7 To be respected and trusted
- EG.8 Increase stakeholders' understanding of their responsibilities under the National System and during the transition to full service delivery
- EG.9 Create opportunities for people to provide relevant information and feedback to AMSA
- EG.10 Increase safety knowledge and practices amongst people that work with commercial vessels

STRATEGIC ENABLER (E)

COLLABORATING WITH OUR COMMUNITY

FOCUS AREA E1

WORKING WITH INTERNATIONAL ORGANISATIONS AND OTHER NATIONS

FOCUS AREA E2

WORKING WITH PARTNER ORGANISATIONS

FOCUS AREA E3

DEVELOPING STAKEHOLDER RELATIONSHIPS

FOCUS AREA E4

COMMUNITY SAFETY EDUCATION

DATA AND INFORMATION – HELPS US TO TARGET ALL THE SERVICES WE DELIVER

OUR PEOPLE – A PROFESSIONAL, FLEXIBLE AND ENGAGED WORKFORCE IS THE KEY TO SUCCESSFULLY

DELIVERING OUR VISION AND MISSION

Unmanned and Autonomous Vessels

DRAFT

Autonomous and
Unmanned vessels

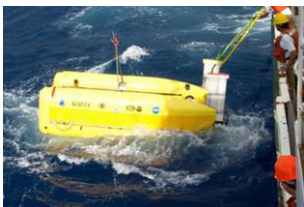
Unmanned

Always monitored and under positive control

Autonomous

*capable of independent decision making without
involvement of a human operator*

Unmanned
Underwater Vessel
(UUV)



Unmanned
Surface Vessel
(USV)



Autonomous
Underwater
Vessel (AUV)



Autonomous
Surface
Vessel (ASV)



Marine
Autonomous
Surface Ship
(MASS)



Regulated by Domestic and/ or International Law



Internationally

MSC 98- New Work Proposal (June 2017)

- Scoping exercise
- IMO Instruments
 - Preclude Autonomous Operations
 - Don't apply
 - What needs amendment
- 4 x sessions of MSC (approx. 3-4 years)
- Retained at MSC level, all encompassing





The National Law and Standards

Marine Safety (Domestic Commercial Vessel) National Law Act 2012 ('National Law Act')

National Law Regulations

Definitions
Meanings
Exclusions
etc

Marine Orders

MO501
Admin

MO502
Vessel ID

MO503
CoS

MO504
CoO

MO505
CoC

MO507
LoadLine

National Standard for the Admin of Marine Safety (NSAMS)
S4- Survey of Vessels

Part B
General

Part C
Design/Constrc

Part D
Crew Comp

Part E
Operation

Part F
Special Vessel
Fast Craft

Part G
Non-Surv

National Standards for Commercial Vessels (NSCV)



The National Law and Standards

The National Law, marine orders and exemptions:

<https://www.amsa.gov.au/domestic/national-law/>

National Standards for Commercial Vessels (NSCV):

<https://www.amsa.gov.au/domestic/standards/national-standards/>



Definitions

- **Vessel** - means a craft for use, or that is capable of being used, in navigation by water, however propelled or moved, and includes an air-cushion vehicle, a barge, a lighter, a submersible, a ferry in chains and a wing-in-ground effect craft.

(Marine Safety (Domestic Commercial Vessel) National Law Act 2012. Section 8)

- **Domestic Commercial Vessel** - [a vessel as above]
.....in conjunction with a commercial, research or government activity

(Marine Safety (Domestic Commercial Vessel) National Law Act 2012. Section 7)



Definitions

- **Owner**

- a person who has a legal or beneficial interest in the vessel, other than as a mortgagee; and
- a person with overall general control and management of the vessel *(but not the master or pilot)*

(Marine Safety (Domestic Commercial Vessel) National Law Act 2012. Part 1, Sect 6)

- **Master**

- the person who has command or charge of the vessel, but does not include a pilot.

(Marine Safety (Domestic Commercial Vessel) National Law Act 2012. Part 1, Sect 6)



Applying the Law

- unique identifier (UI) (MO 502)
- certificate of survey (MO 503)
- certificate of operation (MO 504)
- crewed by persons holding the required National Law certificate of competency (MO 505)
- General safety duties must be complied with (National Law)
- Safety Management System (SMS) (National Law)
 - Owner must implement and maintain an SMS
 - Master must maintain and comply with a SMS

*all a bit impractical for an
“AUV”*



Exemptions

- General Exemptions

- 39 of them
- Scenario based
- Initiated by AMSA
- Size, area, type, operation, etc

More Information

<http://www.amsa.gov.au/domestic/national-law/>

- Specific Exemptions

- By Application
- Specific requirements under the national law
- Specific requirements related to design, operation, competency, systems and equipment,
- Type and nature of operations.

AMSA cannot grant an exemption unless it is satisfied that doing so will not jeopardize the safety of a vessel or a person on board a vessel.

More information

<https://www.amsa.gov.au/forms-and-publications/Publications/AMSA655.pdf>



Specific Exemption Example

Exemption

- Required outcome:
 - Compliance with COLREGS
- Design and Construction standards
 - Fixed guardrails
 - Comms equipment
 - Alternate power source
 - Rudder construction
 - Anchoring system

Conditions

- Vessel is unmanned when underway
- Support vessel available, with anchoring system
- Under control of a master
- Automatic fire fighting system
- Non slip deck surfaces
- Proper lookout, using cameras, microphone and sensors



Short Term.....

- Case by Case
- Current regulatory framework works
- Exemption processes
 - Specific
 - General
- We can regulate unmanned and autonomous vessels under the National Law Act..... it's just a bit clunky.....

Safety of vessels and people, and protection of the environment is our priority



Australian Government

Australian Maritime Safety Authority

AMSA's Regulatory Working Group



What's AMSA doing?

- Autonomous Vessels Regulatory Working Group
- Education, monitoring, learning.....
- Benchmarking
- Contributing to IMO work
- Progressing towards a risk based, practical, regulatory solution



Our approach

Is a thing a vessel, and a DCV?



What are the risks?



Exemptions



Determine regulatory approach

- Legal checklist
- In progress

- Type of operation
- Nature of operation
- Area of operation
- Redundancies
- Communications
- Confidence
- Specifications
- Competencies
-

- General- can we use any existing exemptions?
- Do we need different ones?
- Are specific exemptions appropriate?

- Unique Identifier
- Cert of Survey
- Cert of Operation
- Crewing
- General Safety Duties
- Anything else?
- A better process?

Education and Information

Potential regulatory change



Takeaway points

- General Safety Duties and Responsibilities
 - (owner, master)
- Safety Management System
- As the operator and expert.....
- Consider the next steps.....
 - Unique Identifier
 - Cert of Survey
 - Cert of Operation
- AMSA Liaison Officers, and AMSA Connect



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Questions.....?



Links and further information

- Further information on the requirements for Domestic Commercial Vessels is available on the AMSA website, including here: <https://www.amsa.gov.au/domestic/index.asp>

You can find information on the following topics at the links provided below:

- Vessels, Operations and Surveys: <http://www.amsa.gov.au/domestic/vessels-operations-surveys/>
- Unique Identifiers are available from your local maritime safety agency: <https://www.amsa.gov.au/forms-and-publications/AMSA568.pdf>
- Certificates of Survey: <http://www.amsa.gov.au/domestic/vessels-operations-surveys/certificates-of-survey/>
- Certificates of Operation: <https://www.amsa.gov.au/domestic/vessels-operations-surveys/certificates-of-operation/>
- General Safety Duties: <https://www.amsa.gov.au/forms-and-publications/Fact-Sheets/AMSA678.pdf>
- Safety Management Systems: <https://www.amsa.gov.au/domestic/vessels-operations-surveys/certificates-of-operation/> and <https://www.amsa.gov.au/forms-and-publications/Fact-Sheets/AMSA590.pdf> and <https://www.amsa.gov.au/forms-and-publications/Fact-Sheets/AMSA675.pdf>
- General exemptions: <http://www.amsa.gov.au/domestic/national-law/>
- Specific exemption: <http://www.amsa.gov.au/forms-and-publications/AMSA547.pdf>

<http://www.amsa.gov.au/contact-us/>