Annex D

Possible minor amendments to the STCW Code

Existing mandatory minimum requirements for training and certification in the STCW Code, require candidates for certain certificates to have received training and met certain standards of competence related to “ballast operations”, but these competences are limited to *inter alia* those related to inspecting and assessing defects or damage to ballast tanks, controlling trim, stability and stress through ballasting, operating and maintaining ballast pumping systems etc. Therefore, responsibilities and requirements under the BWM Convention and the operation and maintenance of the ballast water treatment systems to be fitted on ships are not addressed by the STCW Code.

To ensure that such subjects are addressed during the initial maritime education and training of prospective seafarers in a manner appropriate to their capacity on board ship, minor amendments to the STCW Code as well as associated amendments to the relevant IMO model courses may be necessary.

Some draft minor amendments to the STCW Code could be as follows:

Masters & Chief Mates
(*on ships of 500 gross tonnage or more*)

Section A-II/2
Mandatory minimum requirements for certification of masters and chief mates on ships of 500 gross tonnage or more

Table A-II/2
Specification of minimum standard of competence for masters and chief mates on ships of 500 gross tonnage or more

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
…	…	…	…
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the	… .4*bis* responsibilities under the International Convention for the Control and Management of Ships' Ballast Water and	…	…

protection of the marine environment	Sediments (BWM)[, as amended] …		
…	…	…	…

Explanation: To address the "responsibilities under the BWM Convention" aspect for Masters and chief mates.

Note: List and content in the associated IMO Model Course and all curricula would need to be updated to ensure the BWM Convention is included and covered, as appropriate.

Officers in charge of a navigational watch
(*on ships of 500 gross tonnage or more*)

Section A-II/1
Mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of 500 gross tonnage or more

Table A-II/1
Specification of minimum standard of competence for officers in charge of a navigational watch on ships of 500 gross tonnage or more

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
…	…	…	…
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified
…	…	…	…

Explanation: To address the "responsibilities under the BWM Convention" aspect for Officers in charge of a navigational watch.

Note: No amendment is required to this competence in the table, however any lists and content in the associated IMO Model Course and all curricula would need to be updated to ensure the BWM Convention is included and covered, as appropriate.

Masters & Officers in charge of a navigational watch
(*on ships of less than 500 gross tonnage, engaged on near-coastal voyages*)

Section A-II/3
Mandatory minimum requirements for certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage, engaged on near-coastal voyages

Table A-II/3
Specification of minimum standard of competence for officers in charge of a navigational watch and for masters on ships of less than 500 gross tonnage engaged on near-coastal voyages

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
…	…	…	…
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified
…	…	…	…

Explanation: To address the “responsibilities under the BWM Convention” aspect for Masters and Officers in charge of a navigational watch on ships of less than 500 gross tonnage, engaged on near-coastal voyages.

Note: No amendment is required to this competence in the table, however any lists and content in the associated IMO Model Course and all curricula would need to be updated to ensure the BWM Convention is included and covered, as appropriate.

Chief Engineers & Second Engineers
(*on ships powered by main propulsion machinery of 3,000 kW propulsion power or more*)

Section A-III/2
Mandatory minimum requirements for certification of chief engineer officers and second engineer officers on ships powered by main propulsion machinery of 3,000 kW propulsion power or more

Table A-III/2
Specification of minimum standard of competence for chief engineer officers and second engineer officers on ships powered by main propulsion machinery of 3,000 kW propulsion power or more

Function: Marine engineering at the management level

Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
…	…	…	…
Manage fuel, lubrication and ballast operations	Operation and maintenance of machinery, including pumps, ~~and~~ piping and treatment systems	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate	Fuel and ballast operations meet operational requirements and are carried out so as to prevent pollution of the marine environment

Explanation: To address the “operation and maintenance” aspect for chief engineers and second engineers.

As this is the competence for engineer officers at the management level that relates to ballast operations and the KUP concerns “operation and maintenance”, it is considered the appropriate place to include the “treatment” aspect of ballast water management

systems because they consist of more than just “pumps” and “piping”. The proposal relies on managing ballast water management being understood as being within a evolved meaning of the term “ballast operations”, which was in use prior to the adoption and entry into force of the BWM Convention.

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
…	…	…	…
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and protection of the marine environment	… .4*bis* responsibilities under the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM)[, as amended] …	…	…
…	…	…	…

Explanantion: To address the “responsibilities under the BWM Convention” aspect for chief engineers and second engineers.

Note: List and content in the associated IMO Model Course and all curricula would need to be updated to ensure the BWM Convention is included and covered, as appropriate.

Officers in charge of an engineering watch

(*in a manned engine-room or as designated duty engineers in a periodically unmanned engine-room*)

Section A-III/1
Mandatory minimum requirements for certification of officers in charge of an engineering watch in a manned engine-room or as designated duty engineers in a periodically unmanned engine-room

Table A-III/1
Specification of minimum standard of competence for officers in charge of an engineering watch in a manned engine-room or designated duty engineers in a periodically unmanned engine-room

Function: Marine engineering at the operational level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
…	…	…	…
Operate fuel, lubrication, ballast and other pumping systems and associated control systems	Operational characteristics of pumps, ~~and~~ piping and treatment systems, including control systems Operation of pumping systems: .1 routine pumping operations .2 operation of bilge, ballast and cargo pumping systems Oily-water separators (or similar equipment) requirements and operation Ballast water management system requirements and operation	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved laboratory equipment training	Operations are planned and carried out in accordance with operating manuals, established rules and procedures to ensure safety of operations and ~~avoid pollution~~ protection of the marine environment Deviations from the norm are promptly identified and appropriate action is taken
…	…	…	…

Explanation: To address the “operation” aspect for officers in charge of an engineering watch.

In addition to being the most appropriate competence to include an additional KUP, since ballast water management systems are arguably more complex that oily-water separators (which have their own KUP provision), it would be appropriate for a similar provision to be included for ballast water management systems.

Since implementing ballast water management could more accurately described as “protecting” the marine environment, it is considered that it would be more appropriate to refer to “protection” rather than “avoid[ing] pollution” of the marine environment.

Function: Maintenance and repair at the operational level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
…	…	…	…
Maintenance and repair of shipboard machinery and equipment	Safety measures to be taken for repair and maintenance, including the safe isolation of shipboard machinery and equipment required before personnel are permitted to work on such machinery or equipment Appropriate basic mechanical knowledge and skills Maintenance and repair, such as dismantling, adjustment and reassembling of machinery and equipment The use of appropriate specialized tools and measuring instruments Design characteristics and selection of materials in construction of equipment Interpretation of machinery drawings and handbooks The interpretation of	Examination and assessment of evidence obtained from one or more of the following: .1 approved workshop skills training .2 approved practical experience and tests .3 approved in-service experience .4 approved training ship experience	Safety procedures followed are appropriate Selection of tools and spare gear is appropriate Dismantling, inspecting, repairing and reassembling equipment is in accordance with manuals and good practice Re-commissioning and performance testing is in accordance with manuals and good practice Selection of materials and parts is appropriate

	piping, hydraulic and pneumatic diagrams		

Explanation: To address the “maintenance” aspect for officers in charge of an engineering watch.

Note: No amendment is required to this competence in the table, however any lists and content in the associated IMO Model Course and all curricula would need to be updated to ensure ballast water management systems amongst the shipboard equipment and systems.

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
…	…	…	…
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified
…	…	…	…

Explanation: To address the “responsibilities under the BWM Convention” aspect for officers in charge of an engineering watch.

Note: No amendment is required to this competence in the table, however any lists of ship equipment and content in the associated IMO Model Course and all curricula would need to be updated to ensure ballast water management systems are included and covered, as appropriate.