

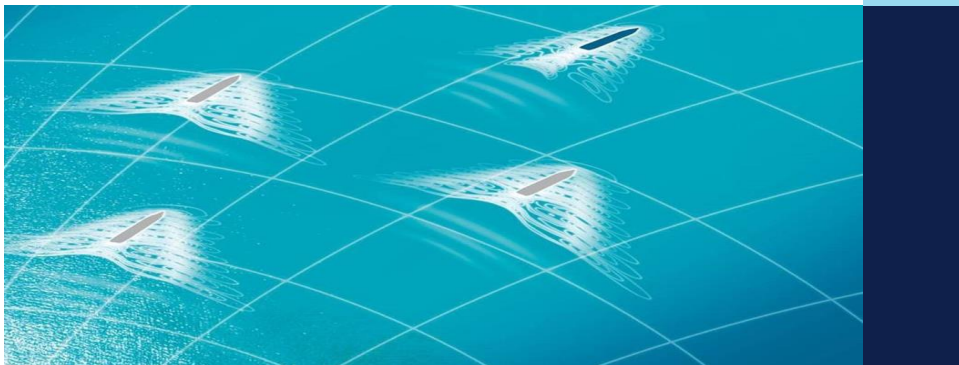


WHEN TRUST MATTERS

Maritime Academy

Training in Flag State Inspections on OSV and
MODU: SOLAS, Load Line, MARPOL

Survey Simulator Practice



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The Trainer

Name, position: Przemysław Feiner, Principal Surveyor, Trainer

Experience:

Shipyard: Inspector in shipyard Quality Control, Project manager

Owners: Shipowner's newbuilding inspector and site office manager,
Superintendent, ISM implementation, Coating inspector (FROSIO)

DNV: Ships in Operation and Newbuilding surveyor, ISM/ISPS Auditor,
Flying Squad surveyor and manager,
Technical Help Desk,
Software development,
IACS Survey Panel,
Trainer,
Advisory services

Contact: Phone: + 48 664 012 140

E-mail: przemyslaw.feiner@dnv.com
academy.nordic.baltic@dnv.com



Topics

- Welcome and Introduction to the course
- Background of Classification and Statutory Regulations
- SOLAS, Load Line, MARPOL – Structure, Scope and selected topics
- Engine Room Inspection in Survey Simulator
- Open Decks Inspection in Survey Simulator
- Accommodation Inspection in Survey Simulator
- Wheelhouse Inspection in Survey Simulator
- Emergency Fire Pump Room Inspection in Survey Simulator
- MODU Statutory Regimes
- MODU Inspection in Survey Simulator
- Summary and closing

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OSV Characteristics and Survey Specifics



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Background of Classification and Statutory Regulations

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Classification Societies – Background

- Increase in international **trade** in the middle of the 18th Century
- **Ship owners** needed insurance to reduce their economical risk
- **Insurers** needed someone to establish safety standards for ships and to verify that the standards were complied with
- Initially it was all about property



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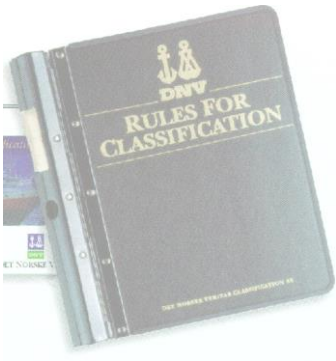
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Classification Societies

- The Rules are technical standards based upon research, risk analysis and practical experience.
- DNV verify that these Rules are satisfied during design, construction and installation.
- DNV verify that the standard of the ship and its equipment are acceptable and according to the Rules throughout its operational life through periodical surveys.



List of classification societies (pre-1900)

Name	Abbreviation	Date	Head office	IACS member?
<u>Lloyd's Register</u>	LR	1760 (1834 incorp.)	<u>London</u>	Yes
<u>Bureau Veritas</u>	BV	1828 (Antwerp)	<u>Paris (1832)</u>	Yes
<u>Registro Italiano Navale</u>	RINA	1861	<u>Genoa</u>	Yes
<u>American Bureau of Shipping</u>	ABS	1862	<u>Houston</u>	Yes
<u>Det Norske Veritas</u>	DNV	1864	<u>Oslo</u>	Yes
<u>Germanischer Lloyd</u>	GL	1867	<u>Hamburg</u>	Yes
<u>Nippon Kaiji Kyokai (ClassNK)</u>	NK	1899	<u>Tokyo</u>	Yes

IACS Members

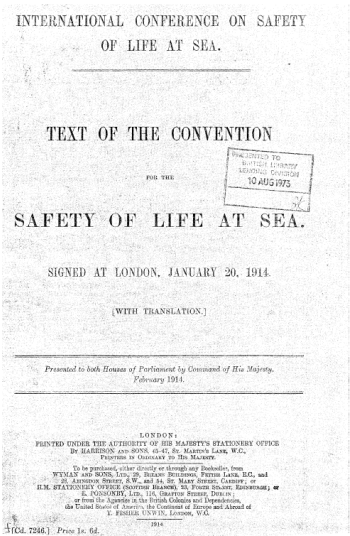


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SOLAS 1914 – After Titanic disaster



H.M. the EMPEROR OF GERMANY, KING OF PRUSSIA, in the name of the German Empire :—
His Excellency Dr. Von Koerner, Wirklicher Geheimer Rat, Director of the Commercial Section of the Imperial Foreign Office ;
Dr. Seeliger, Geheimer Legationsrat und vortragender Rat, at the Imperial Foreign Office ;
M. Schmitt, Geheimer Regierungsrat und vortragender Rat, at the Imperial Ministry of the Interior ;
Dr. Riess, Geheimer Regierungsrat, Member of the Imperial Insurance Office ;
Professor Pagel, Director of the Germanischer Lloyd Classification Society ;
M. Schrader, Geheimer Ober Postrat und vortragender Rat, at the Imperial Post Office ;
Rear-Admiral Behn (retired), Director of the Deutsche Seewarte.

H.M. the EMPEROR OF AUSTRIA, KING OF BOHEMIA, &c., and APOSTOLIC KING OF HUNGARY :—
Baron Georges de Frankenstein, Councillor of Legation, Commercial Director of the Austro-Hungarian Embassy at London ;
M. Paul Schreckenthal, Doctor of Law, Secretary in the Austrian Ministry of Commerce ;
M. Ladislaus Dunay, Sektionsrat at the Royal Hungarian Maritime Administration at Fiume.

Sa Majesté le Roi de Norvège :
M. Harald Polerem, Directeur principal de l'Office de la Marine marchande ;
Dr. Johannes Bruhn, Directeur principal du " Norske Veritas " ;
M. Jens Evang, Secrétaire au Ministère des Affaires Etrangères.

Sa Majesté la Reine des Pays-Bas :
M. J. V. Wierdema, Directeur-Président du Comité des Directeurs de la Compagnie Hollandais-Américaine ;
M. H. S. J. Mass, Conseil général des Pays-Bas à Londres ;
M. A. D. Muller, Inspecteur général de la Navigation ;
M. J. Wilmsch, Directeur du Lloyd Royal Hollandais ;
M. J. W. G. Coops, Chef de Division au Ministère de l'Agriculture, de l'Industrie et du Commerce.

Sa Majesté l'Empereur de toutes les Russies :
M. N. de Ester, Conseiller d'Ambassade à Londres.

Sa Majesté le Roi de Suède :
M. le Vice-Amiral Olsen, ancien Président général des services de la Marine de Guerre ;
M. N. G. Nilsson, Inspecteur des Engins de Sauvetage au Ministère du Commerce ;
M. J. Wilmsch, Directeur du Lloyd Royal Hollandais ;
Lesquels, à ce dûment autorisés, se sont réunis en conférence à Londres et ont d'un commun accord arrêté la Convention suivante :

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Regulations in shipping tend to be ‘disaster driven’



Titanic (1912) SOLAS (1929)
Torrey Canyon (1967) MARPOL (1973) / STCW (1978)
Amoco Cadiz (1978) SOLAS / MARPOL 1978 Protocols
Herald of Free Enterprise (1987) ISM / SOLAS Ch. II-1 /
Exxon Valdez (1989) OPA 90 / MARPOL
Scandinavian Star (1990) SOLAS Ch. II-2
Carriers lost early 1990 SOLAS Ch. XII (1997)
Estonia (1994) SOLAS Ch. II-1 (1995)
Erika (1999) Erika Pack I/II -> PSC/Class/EMSA
Prestige (2002) Erika Package III>Flag State/Pollution Liability
 09. 11(2002) ISPS Code
Star Princess (2006) SOLAS Ch. II-2
General latest years Emission Controlled Areas, Discharge to Sea,
 Green Passport



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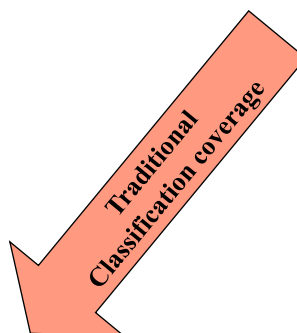


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Class Rules vs. International Legislation

International Legislation covers aspects related to Safety, Health and Environment:

- Accommodation
- Life saving
- Navigation
- Fire
- Load Line, Stability
- Radio Communication
- Dangerous goods
- Safety Management and Security
- Pollution Prevention
- **Technical safety: Hull, Machinery, Electrical (Class Certificate)**
- Manning ...



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LOAD LINE – Structure and scope

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Load Line elements

- Freeboard, marking of load lines and deck line
- Ship's stability and information to Mater about strength and stability
- Weathertightness of openings
 - Superstructures and deck houses
 - Cargo hatches
 - Cargo ports
 - Doors and Windows
 - Small hatches
 - Ventilators and Air pipes
 - Scuppers, Inlet and Discharges
 - Other openings
- Freeing ports
- Protection of crew
 - Accommodation strength
 - Railings, bulwarks
 - Safe passages
- Freeboard plan – Record of Assignment of Load Lines / Initial Load Line Survey

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Load Line Survey Scope

- Exercise on Survey Simulator

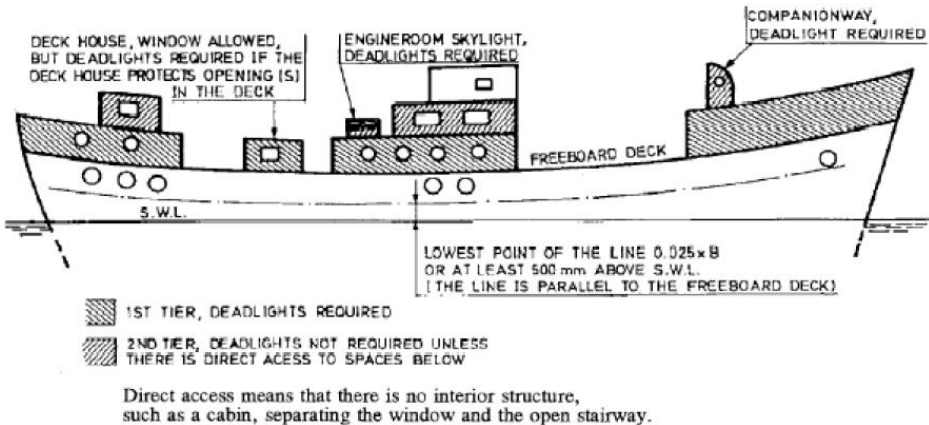


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Windows – as per Load Line

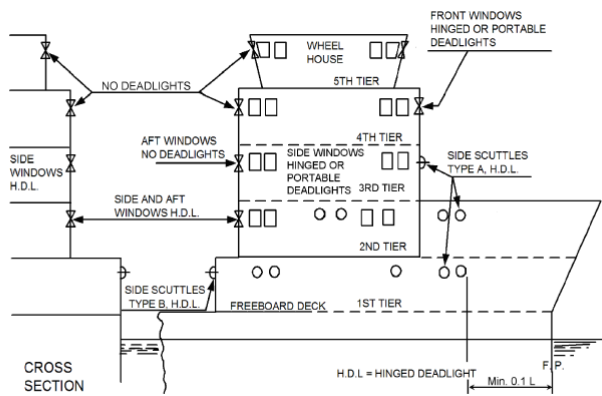


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Windows on OSV – additional requirements as per DNV Rules



Side scuttles and windows in supply vessel with forecastle only

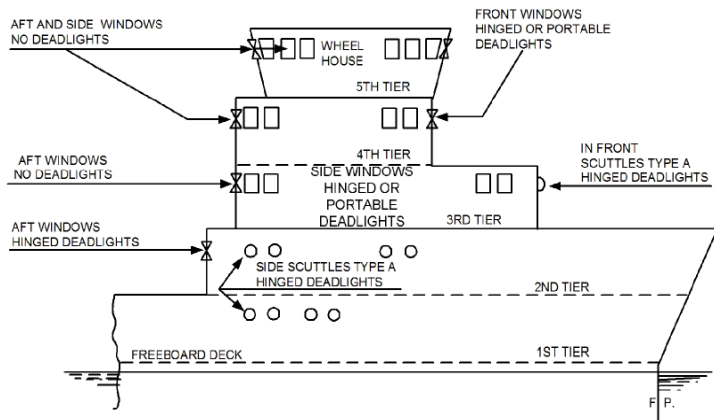
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Windows on OSV – DNV Rules



Side scuttles and windows in supply vessel with complete superstructure and uppermost forecastle

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SOLAS Certificates

CCC - Cargo Ship Safety Construction Certificate

- Structure: hull, bottom, materials & scantlings
- Cargo spaces, pump rooms,
- Watertight integrity
- Machinery: main & aux. engines, propulsion, boilers, steering gear, anchoring, mooring and towing,
- Electrical Installations, Control Systems, Internal communication
- Ventilation systems including safety devices
- Stability Information
- Structural fire integrity
- Escape routes
- Emergency lighting

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SOLAS Certificates

CEC – Cargo Ship Safety Equipment Certificate

- Fire detection and extinction systems & appliances
- Lifesaving appliances & arrangements
- Navigational equipment
- Pilot Arrangements
- Fire control plan & Crew emergency plan
- Nautical publications, lights
- Sound & distress signals

CRC – Cargo Ship Safety Radio Certificate

- Radio installations including those used in LSA - Chapter III and IV

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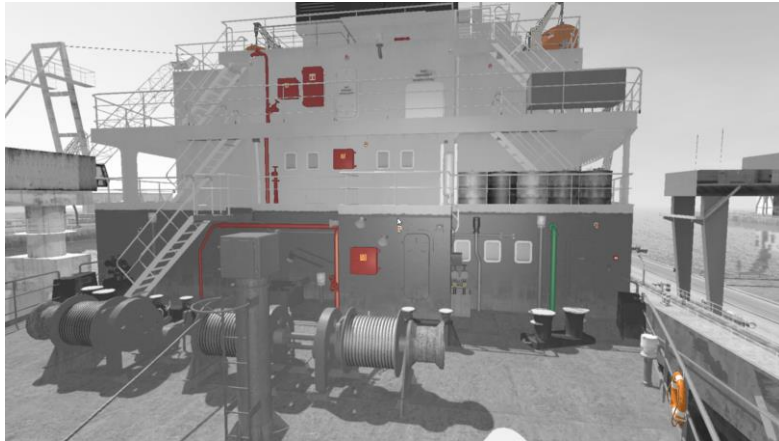
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Scope of SOLAS Surveys

- Exercise on Survey Simulator



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MARPOL Structure and Scope

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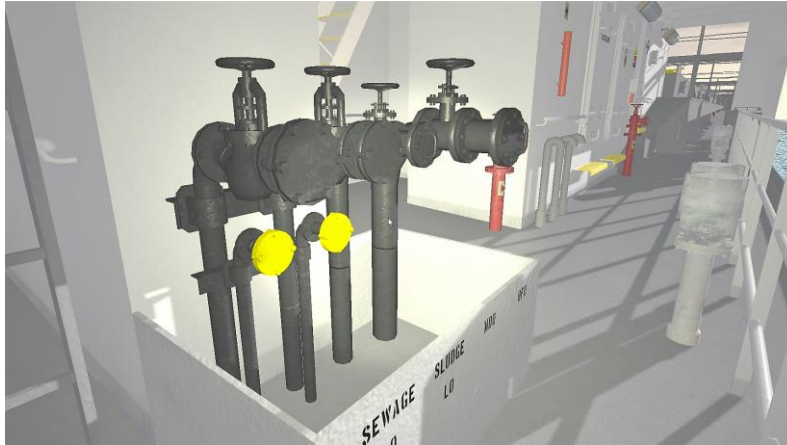
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MARPOL Annex I and IV - Survey Scope

- Exercise on Survey Simulator



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Inspection of Engine Room - Common deficiencies

- Exercise on Survey Simulator



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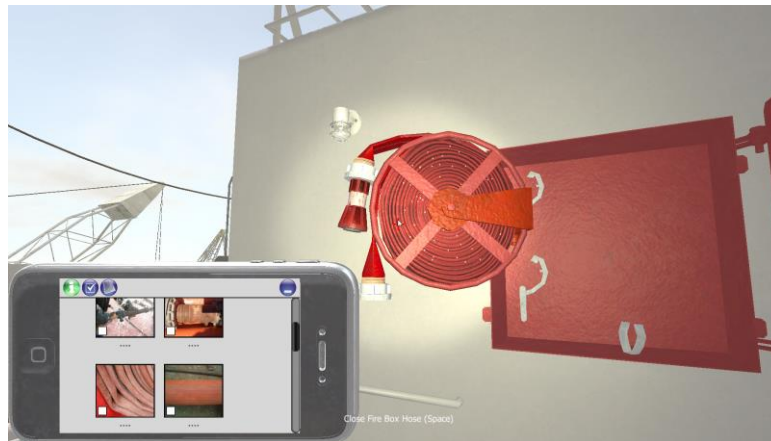
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Inspection of Open Decks - Common deficiencies

- Exercise on Survey Simulator



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Inspection of Accommodation - Common deficiencies

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Inspection of Wheelhouse - Common deficiencies

- Exercise on Survey Simulator



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Inspection of Emergency Fire Pump Room - Common deficiencies

- Exercise on Survey Simulator



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MODU Statutory Surveys

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Flag States

- Ships and Mobile Offshore Units *trading internationally* have to comply with safety regulations of the Maritime Authority in the country whose flag the unit is flying (the Flag State)
- Flag states adopt and implement the safety regulations given in conventions issued by IMO (International Maritime Organisation)
- An Owner generally has the choice of which flag to operate under



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Maritime Authorities (Flag States)

Some 150 maritime flag administrations to choose from

Offshore units classed with DNV are registered with following flag states (decreasing order):

- Liberia (LBR)
- Bahamas (BHS)
- Panama (PAN)
- Marshall Islands (MHL)
- Norway (NOR)
- UK (GBR)
- Bermuda
- Vanuatu (VUT)
- China (CHN)
- USA

Also units flagged with:

- Mexico,
- Russia,
- Singapore,
- Azerbaijan,
- Cyprus,
- Netherlands,
- Denmark,
- Canada,
- Nigeria,
- Barbados,
- Vietnam,
- Cayman Islands,
- Iran

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Maritime Certificates for Mobile Offshore Units

Certificate for safe design and construction:

Based on SOLAS:

- **Safety Construction Certificate**
- **Safety Equipment Certificate**
- **Safety Radio Certificate**

Based on IMO MODU Code:

- **Mobile Offshore Drilling Unit Safety Certificate**



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SOLAS vs MODU Code

- Adoption of MODU Code is voluntary
- Some flag states require MODU Code (e.g. Liberia)
- Some require SOLAS (e.g. U.K.)
- Some accept both (e.g. Bahamas)



NOTES:

- Even where SOLAS is required for a JU or Semi Sub, it will be necessary to use the MODU Code damage stability requirements
 - SOLAS is based on mono-hull design
- Helideck may need to be covered even for SOLAS (Singapore)



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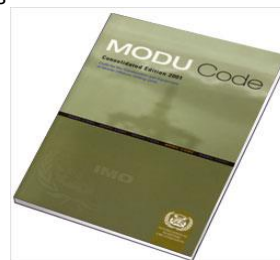


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MODU Code – Scope

The following areas are covered by the MODU Code :

- Construction, strength and materials
- Subdivision, stability and freeboard
- Machinery installations
- Electrical installations
- Machinery and electrical installations in hazardous areas
- Machinery and electrical installations for self-propelled units
- Periodically unattended machinery space for all types of units
- Fire safety
- Life-saving appliances and equipment
- Radio communication installation
- Lifting devices
- Helicopter facilities
- Operating requirements.



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Certificates for MOUs

MARPOL

- **International Oil Pollution Prevention Certificate (IOPP)**
– ANNEX 1
- **International Sewage Pollution Prevention Certificate (ISPP)**
– ANNEX IV
- **Statement of Compliance Prevention of Pollution by Garbage from Ships (Annex V)**
- **International Air Pollution Prevention Certificate (IAPP and EIAPP)**
– ANNEX VI



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Other Maritime Certificates for MOUs

LOAD LINE CONVENTION

- International Load Line Certificate (ILLC)

TONNAGE CONVENTION

- International Tonnage Certificate

INTERNATIONAL SAFETY MANAGEMENT CODE

- International Safety Management (ISM) Code Certificate

ILO

- Statement of Compliance with ILO convention 92 (accommodation of crews convention)
- Statement of compliance with ILO convention 133 (accommodation of crews, supplementary provisions)
- Register of Lifting Appliances and Cargo Handling Gear

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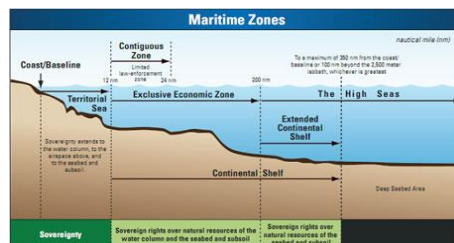
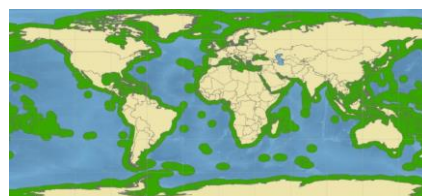
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Coastal (Shelf) State Regulatory Principles

- **Offshore Units must comply with the Coastal State Legislation of the country it is to operate**
- All states have *full sovereignty* w.r.t regulating activities on their continental shelves
- Activities on the shelf are generally *not* regulated by international conventions
- For floating units national legislation precede Maritime Rules, but will normally refer to these w.r.t. maritime aspects



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DNV's different roles for MOUs

Classification Society

- Establishing quality and safety standards
- Verification that units are built and maintained according to these standards

Appointment by Maritime Authority (RO)

- Verification that offshore units are built and maintained according to maritime safety conventions on behalf of a Maritime Authority (flag states)
- Responsibilities defined in Agreements with Flag States



Coastal State Compliance Services

- Most Coastal States do not delegate authority to Classification Societies
- Verification activities are consultancy services (including N-notation)

Certification

- Product and Personnel Certification as a Notified Body
- Based on international, national, industry, and DNV standards including EU Directives, CE Marking, etc.



Advisory Services

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Typical list of Maritime Certificates for a Drilling Unit

Status		
▼ Periodical surveys / audits and certificates		
▼		
➤	Classification Certificate	(FullTerm)
➤	Load Line Certificate	(Statutory FullTerm)
➤	Cargo Ship Safety Radio Certificate	(Statutory FullTerm)
➤	Mobile Offshore Drilling Unit Safety Certificate	(Statutory FullTerm)
➤	Safety Management Certificate	(Statutory FullTerm)
➤	Ship Security Certificate	(Statutory FullTerm)
➤	International Oil Pollution Prevention Certificate, Type A	(Statutory FullTerm)
➤	Sewage Pollution Prevention Certificate	(Statutory FullTerm)
➤	Air Pollution Prevention Certificate	(Statutory FullTerm)
➤	International Anti-Fouling System Certificate	(Statutory FullTerm)
➤	Ballast Water Management Certificate - Exchange Method	(Statutory FullTerm)
➤	Lifts register book	(Statutory FullTerm)
➤	Declaration of Compliance with ILO Convention No.92	(Statutory FullTerm)
➤	Tonnage Certificate (1969)	(Statutory FullTerm)



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Inspection of MODU Top Side – Scope and Common deficiencies

- Exercise on Survey Simulator



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Thank you very much for your attention!
We hope to welcome you again soon

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