

Classification Surveys



Intervals & Requirements

Learning Objectives

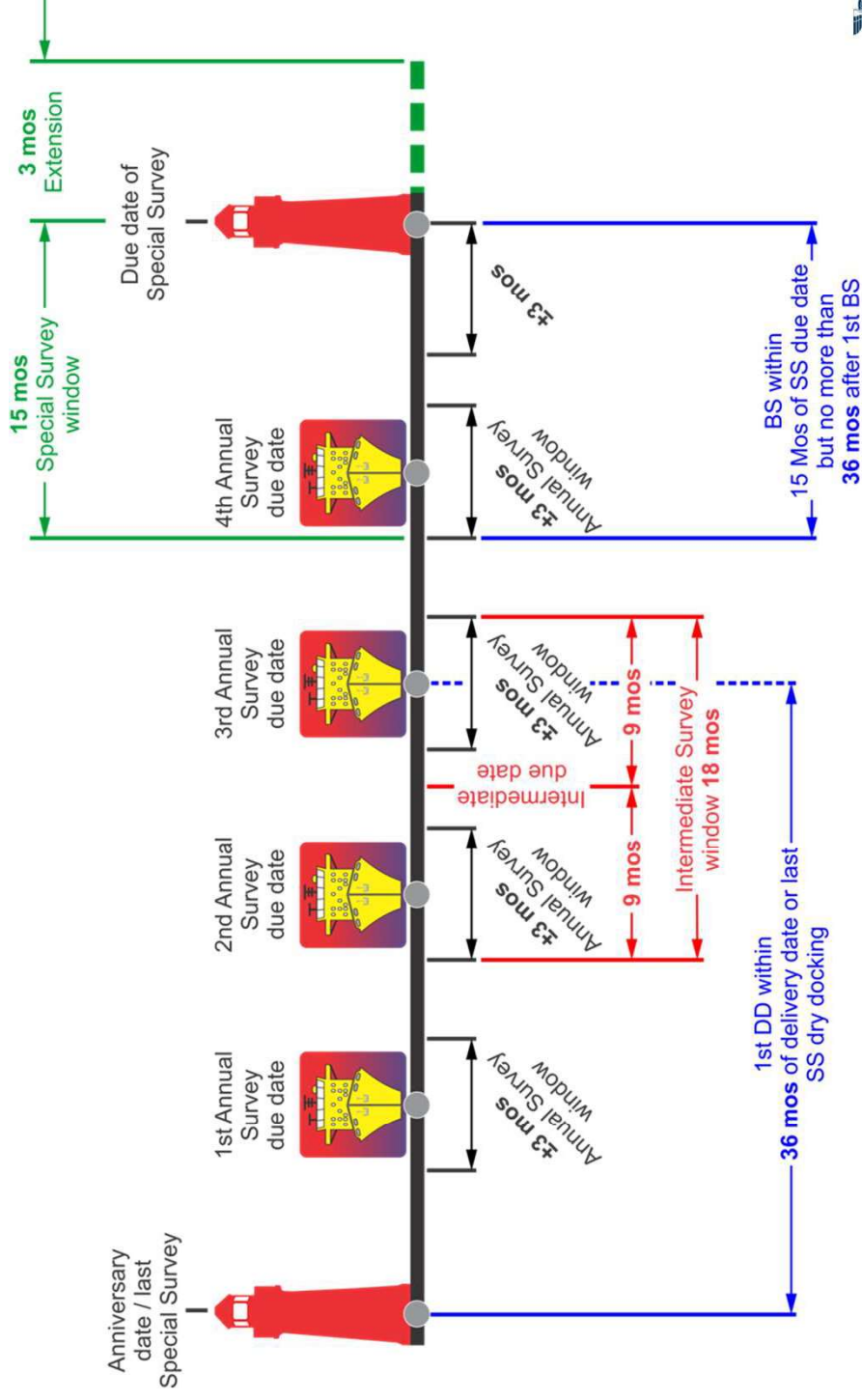
- The participant will be able to identify the various hull and machinery Class surveys and the Rule requirements for each survey including details for the intervals of these Surveys.

Survey Intervals

- Periodical surveys are based on a five-year cycle commencing at delivery date of the classed vessel
- The **delivery date** is also called the **anniversary date**
- Every vessel must undergo a special periodical survey at the end of every five-year cycle



Survey Intervals



Survey Intervals

- All items required to undergo special periodical surveys, including but not limited to:

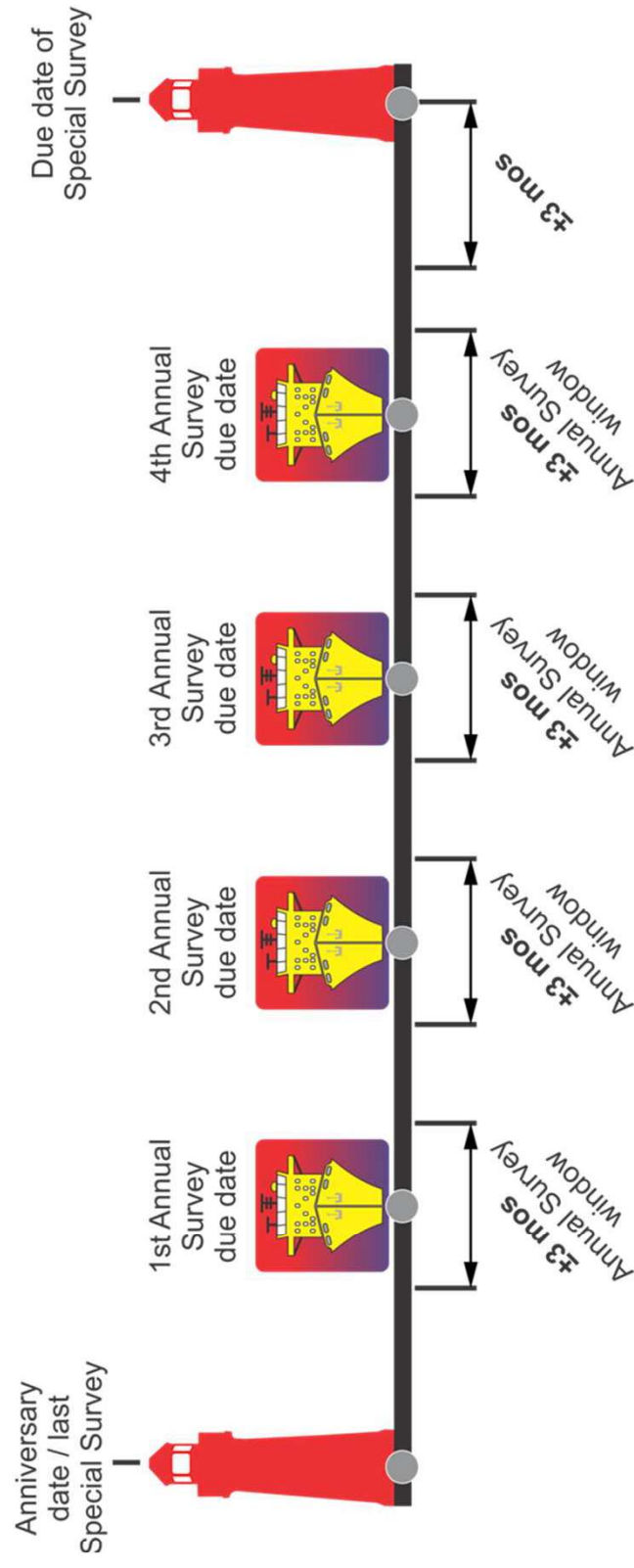
- hull,
- machinery,
- automation,

are to be carried out at the same time and interval such that they are recorded with the same crediting date



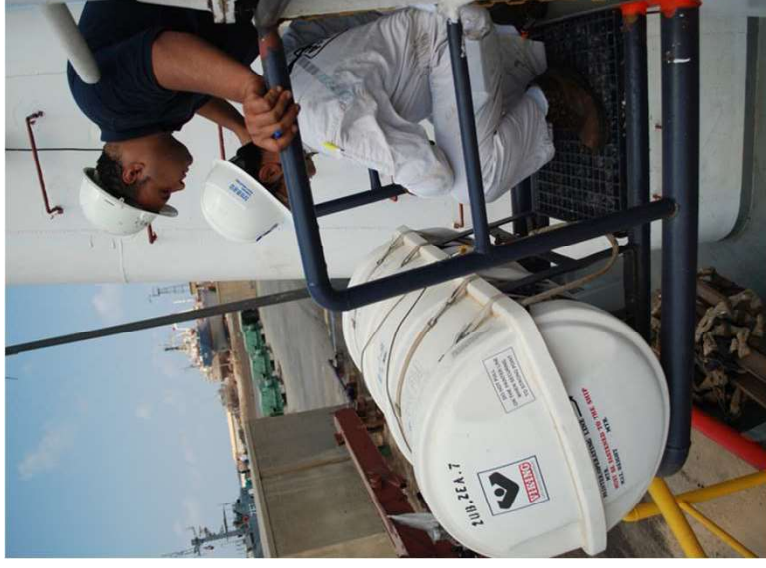
Survey Intervals

Annual Surveys



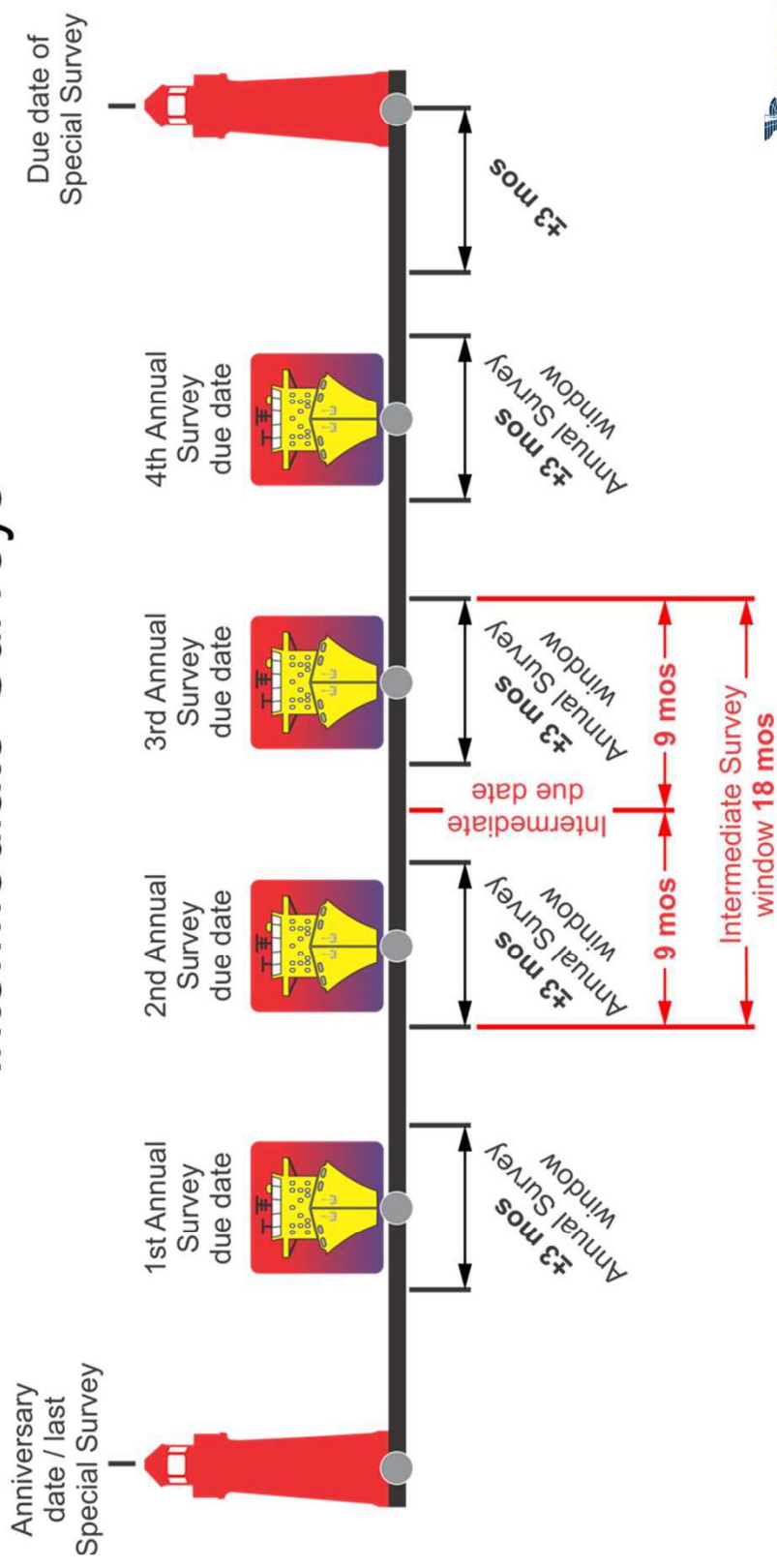
Survey Intervals

- Annual survey on a yearly basis between special periodical surveys
- Four annual surveys with the fifth annual survey being part of the special survey
- Survey window of 3 months before and after the due date
- Annual survey must be carried out inside of the survey window



Survey Intervals

Intermediate Surveys



Survey Intervals

- An intermediate survey is carried out for hull only
- Due midway between special survey's, starting after special survey no.1
- Either at or between the 2nd and 3rd annual survey
- The survey window is 9 months before and after the due date



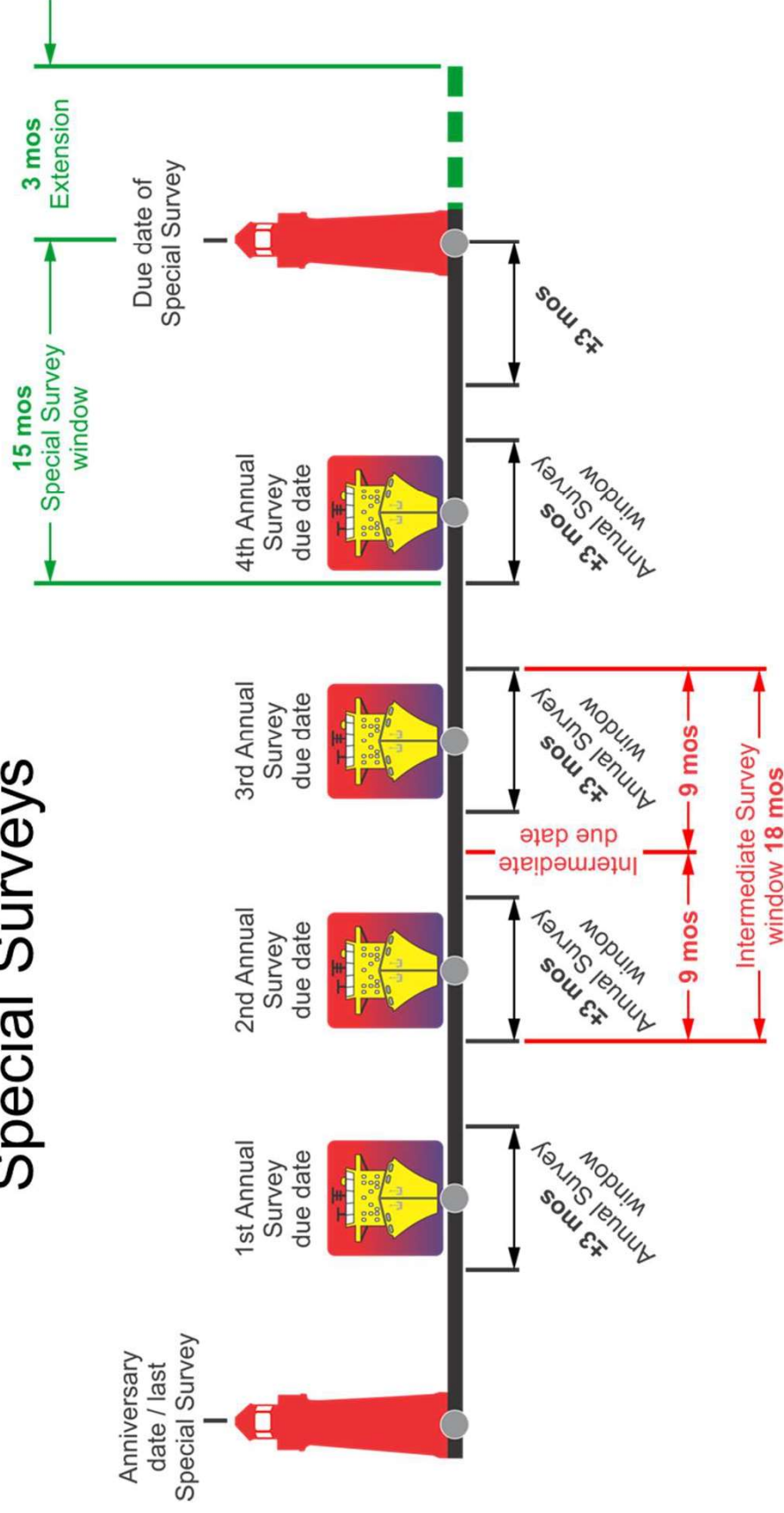
Survey Intervals

- Intermediate hull survey cannot be completed outside of the survey window
- No extension of intermediate hull survey is granted beyond the survey window



Survey Intervals

Special Surveys



Survey Intervals

- Special survey: 5 years after the anniversary date or previous special survey
- The survey window: 15 months before and 3 months after the due date
- Surveys: intensive and include testing and thickness measurements
- Vessel can meet Class requirements for the next 5-year cycle



Content Outline

- Periodic hull surveys
 - Annual
 - Intermediate
 - Special Periodical
- Periodic machinery surveys
 - Annual
 - Special Periodical **OR**
 - Continuous survey cycle
- Survey preparation



Periodic Hull Surveys



Annual Hull Survey

- All Vessels
- Protection of cargo hatch openings such as covers, hatch coamings, their securing and sealing devices including close visual inspection
- Random checking of the satisfactory operation of mechanically-operated hatch covers is to be made



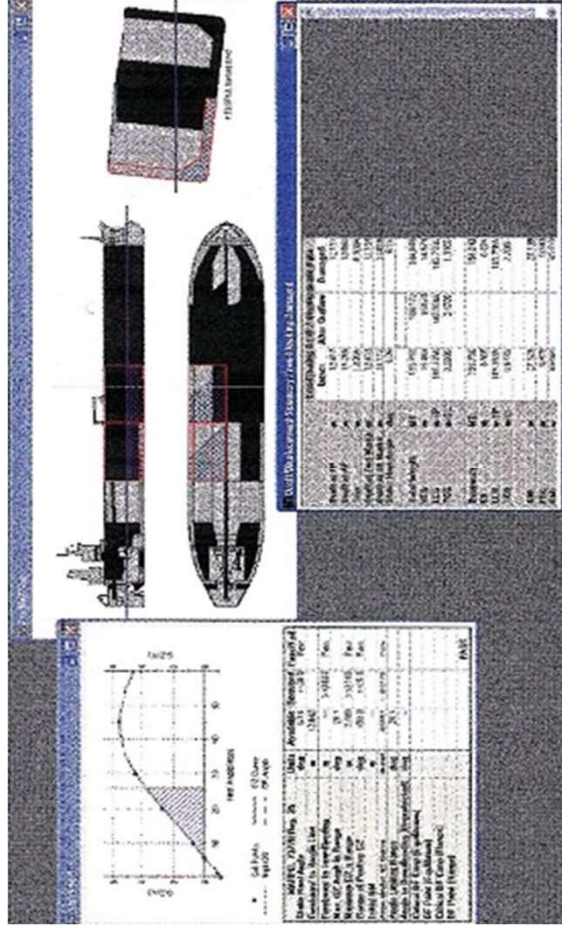
Annual Hull Survey

- Protection of other openings, hatchways, manholes and scuttles in freeboard and superstructure decks
- Weathertight doors and closing appliances for all of the above including dogs, hinges, stiffening and gaskets
- Confirm proper operation



Annual Hull Survey

- Guard rails, lifelines, gangways and deck houses accommodating crew
- Confirmation of
 - loading guidance and stability data and damage control plans
 - approved loading instruments or approved stability computers in working order



Load Line

- No alterations were made to the hull or superstructures affecting the freeboard assignment
- Verify record of conditions of assignment on board
- Verify physical load line marks:
 - position
 - plainly visible contrasting color
 - recut and/or repainted ?



Structural Fire Protection

- Arrangement of structural fire protection remains intact and operational
- Verify operation of manual and/or automatic fire doors
- Means of escape from accommodation, machinery space and other spaces



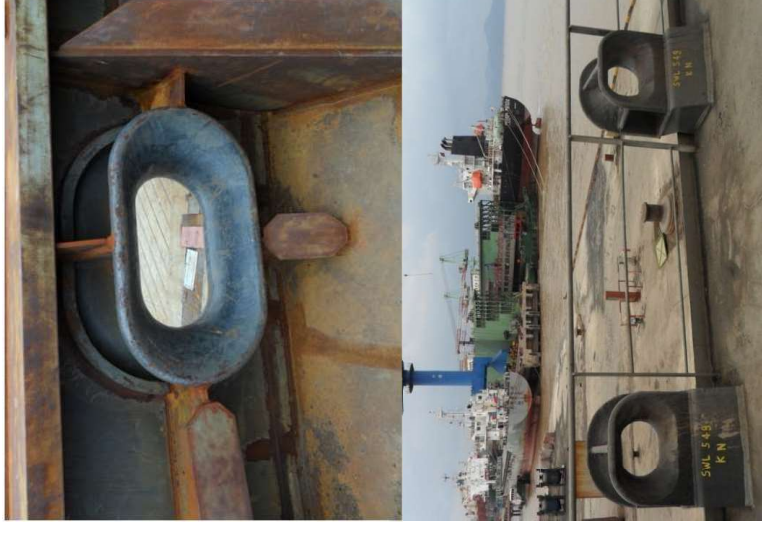
Anchors & Chain Cables

- Each anchor windlass to be operated and inspected,
 - Brake and clutch function
 - Lowering and hoisting of chain cable and anchor
 - Proper riding and transit of the chains
 - Stowage of the chain and anchor
 - Foundations and drums
 - Prime mover and controls



Mooring & Towing Equipment

- Examined as far as possible
 - General condition
 - Attachment to deck
 - Winch prime mover and controls
- Confirm properly marked with any restriction associated with its safe operation



Suspect Areas

- Overall examination
- Overall and close-up survey of suspect areas identified at the previous surveys
- Thickness measurements to confirm extent of substantial corrosion
- TM's to be carried out before the survey is credited as completed



Ballast Tanks & Combined Cargo/Ballast Tanks

- Vessels > 5 years of age
- Ballast tanks & combined cargo/ballast tanks
- Double bottom ballast tanks, where substantial corrosion was found
- Suspect coating condition:
 - POOR hard protective coating
 - Soft or semi-hard coating
 - No hard protective coating



Ballast Tanks & Combined Cargo/Ballast Tanks

- Vessels > 15 years of age, additionally:
 - Ballast tanks/combined cargo/ballast tanks except DB tanks in way of cargo spaces
 - Ballast tanks Fair coating conditions
 - Minimum 3 such tanks,
 - one forward,
 - one midship
 - one aft
- Peak tanks with fair coating conditions



Annual Survey - Lightering Service

- External examination of hull structures where fenders for lightering operation were located
- TM's and internal examination, including close-up survey, may be required by the Surveyor as considered necessary for large areas of wastage



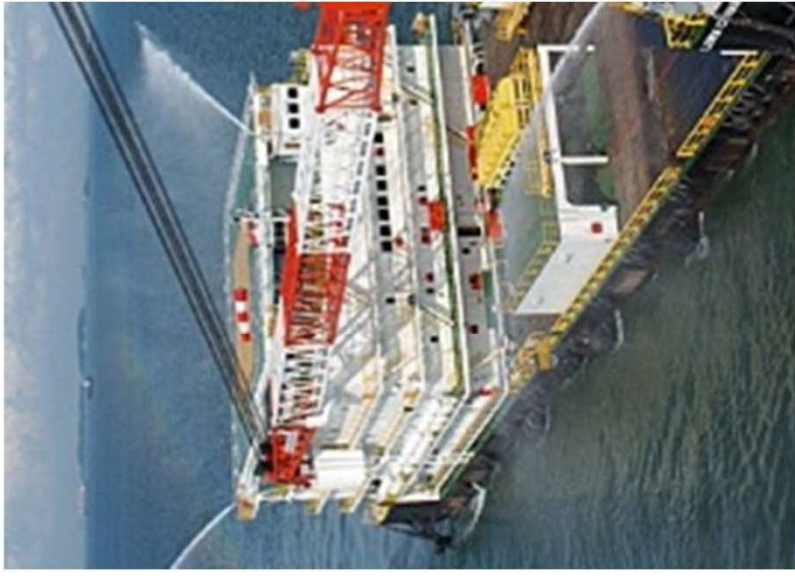
Annual Survey - Barges

- Dry bulk cargo trade
- Holds at each annual survey > SSH no. 3, particular attention to:
 - tank tops,
 - underside of main deck
 - side shell plating, framing and attachments
- TM's may be required



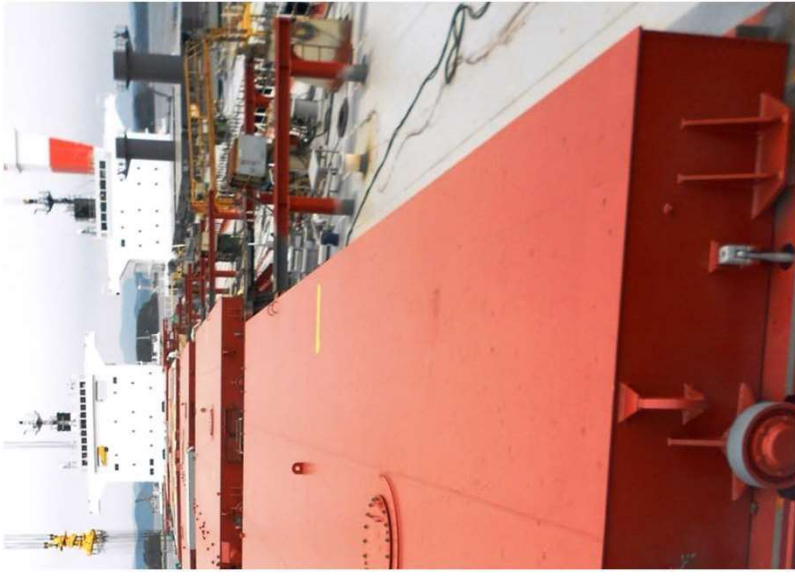
Annual Hull Survey – Barges

- Manned barges include also the following:
 - Fire safety measures
 - Fire main tested to P_w and surveyed over their full length
 - Fire extinguishers
 - Main and emergency power supply
 - Lifesaving appliances and equipment
 - Radio installation
 - Windlass, anchors and chains



Annual Hull Survey – Bulk Carrier

- Distinction is made
 - Non Double Skin ESP
 - Double Skin ESP
 - Particular attention to hatch covers
 - Cargo holds
 - Vessels $10 < \text{Age} \leq 15$
 - Overall survey of 2 holds plus TM as required
 - Cargo hold pipe penetrations



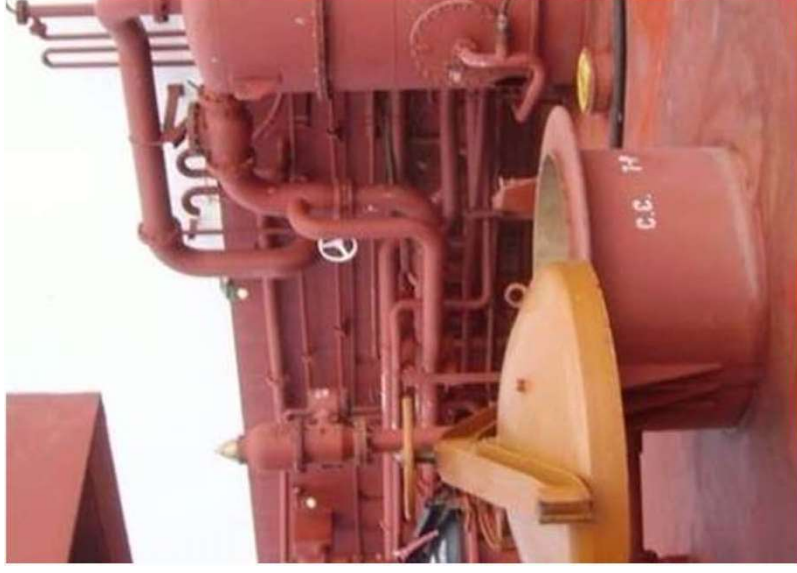
Annual Hull Survey – Bulk Carrier

- Vessels > 15 years
 - Overall survey of all holds plus TM as required
 - Cargo hold pipe penetrations
- SOLAS XII/12 and XII/13
 - Water ingress detection and alarm systems
 - Draining and pumping arrangements of tanks and bilges forward of the collision bulkhead



Annual Hull Survey – Tankers

- ESP and non-ESP
- Cargo tank openings including gaskets, covers and coamings
- Pressure/vacuum relief valves, flame arrestors and flame screens
- Tank vent protective devices



Annual Hull Survey – Tankers

- Piping systems above the weather deck and in the cargo pump room and pipe tunnels
 - Cargo, crude oil washing, bunker, ballast, steam and tank vent
- Cargo and stripping pumps
 - foundations, gland seals, operation of remote control and shut-down devices



Annual Hull Survey – Tankers

- Operational test of cargo discharge pressure gauges and level indicator systems
- Electrical bonding arrangements and electrical equipment in hazardous locations
- Gas detection system in cargo pump room



Annual Hull Survey – RoRo

- Bow doors, inner doors, side shell doors and stern doors
- No unapproved changes observed
- Examined together with shell plating surrounding the opening
- Securing, supporting and locking devices



Annual Hull Survey – RoRo

- Particular attention being paid to:
- Plating and stiffening
- Supporting structure, supports and lifting arms
- Hinging arms
- Secondary stiffeners
- Hinges, bearings and thrust bearings including clearances
- TM of locking and supporting devices
- Tightness test of sealing arrangements



Annual Hull Survey – RoRo

- Additional requirements (2012)
 - Function test of bow, stern and side doors
 - Test satisfactory operation of indicator system; water leakage detection system; closed circuit monitoring system
- NDT and thickness measurements



Annual Hull Survey – RoRo

- General dry cargo vessels under expanded survey program (ESDC)
- Close-up of steel pontoon hatch covers and devices
- Random verification
 - Stowage and securing
 - Sealing in closed condition
 - Operational test



Annual Hull Survey – RoRo

- For vessels age > 15 years
- Overall survey of all cargo holds and tween deck spaces
- Close-up examination min. 25% of the frames
- Forward lower cargo hold plus 1 more hold to establish condition of:
 - lower one third length of side frame at side shell and
 - side frame end attachment



Annual Hull Surveys – ESDC

- Thickness measurements
 - when considered necessary by the surveyor
 - where extensive corrosion exists
- Additional thickness measurements to confirm the extent
- Examine all piping and piping penetrations in cargo holds



Intermediate Survey

- The scope of the second or third annual survey is extended to include additional requirements



Intermediate Survey

- A survey planning meeting is to be held prior to the commencement of the survey
- Sample survey plan is given in the Rules
- Information provided by Owner



Intermediate Survey

- All vessels
- Ballast tanks
 - Vessels $5 < \text{age} \leq 10$ years:
 - Overall survey of a minimum of 3 representative ballast tanks selected by the surveyor
 - With suspect coating conditions extend examination as highlighted before
 - Vessels > 10 years of age:
 - Overall survey of all ballast tanks
 - Verification of corrosion prevention system effectiveness



Intermediate Survey

- Ballast tanks and combined cargo/ballast tanks other than double bottom tanks
 - Examine the condition of corrosion prevention system, where provided
 - Tanks with suspect coating conditions: annual internal examination
 - Thickness measurements considered necessary by the surveyor



Intermediate Survey

- Ballast tanks in way of double bottom
 - Suspect coating conditions and where substantial corrosion is documented: annual internal examination
 - Thickness measurements as required
 - Wastage to be evaluated and dealt with as described in the Rules



Intermediate Survey

- Vessels in lightering service
 - the intermediate survey:
 - external examination
 - internal close-up survey of hull structures
 - thickness measurements, IWO fender locations
- Cargo vessels > 10 yrs except dry cargo:
 - internal inspection of selected cargo spaces



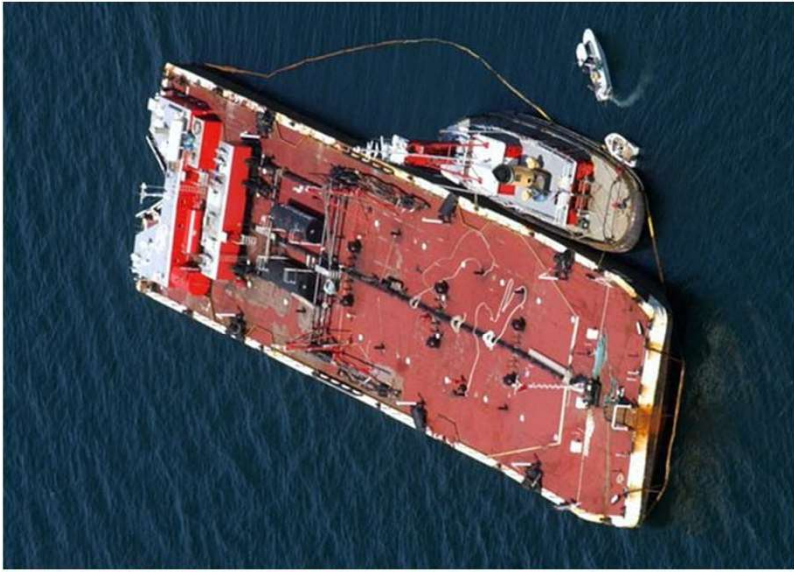
Intermediate Survey

- Barges
- Salt water ballast tanks
 - overall survey 3 tanks
 - 1 rake tank
 - 1 upper wing tank
 - 1 additional tank selected by the surveyor
- Deck cargo barge
- After SSH no. 1 additionally
 - Minimum 2 two void spaces
 - 1 port and 1 starboard



Intermediate Survey

- Dry cargo barge
- After SSH no. 1 additionally
 - Minimum 2 representative cargo holds
- Oil/fuel oil tank barges and chemical tank barges
- After SSH no. 2 additionally
 - Minimum 3 cargo tanks
 - 1 center tank
 - 1 port wing tank
 - 1 starboard wing tank



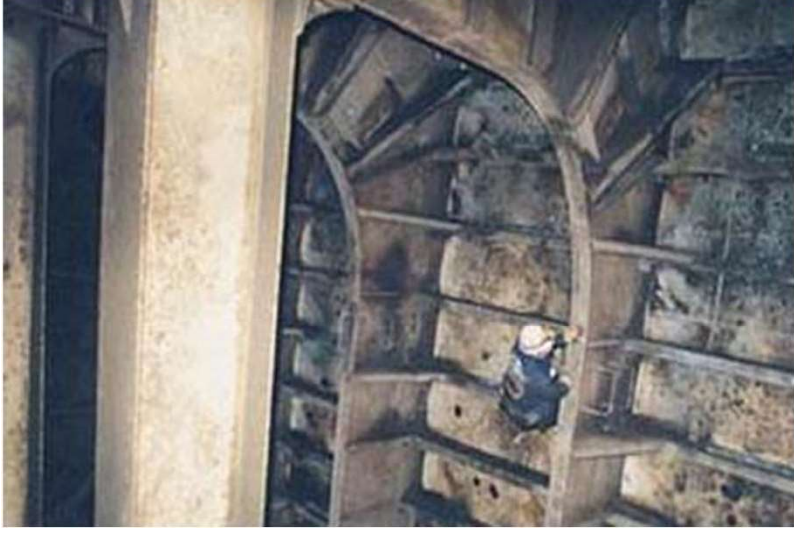
Intermediate Survey

- Double hull ESP tankers
- Survey planning meeting
- Tankers > 10 years: specific survey program
- Piping systems on weather decks
 - cargo, COW, bunker piping
 - ballast, steam and vent piping
 - vent masts and headers
- Open, test, set random selected P/V valves



Intermediate Survey

- Tanker 5 < age $\leq$ 10 years
 - All ballast tanks, combined cargo/ballast tanks and double bottom tanks
 - Thickness measurement and testing, as deemed necessary
 - Previously examined suspect areas



Intermediate Survey

- Tankers > 10 years of age
- Requirements based on those of previous special survey
- Overall survey
- Close-up survey
- Thickness measurements
- Tank testing as deemed necessary by the Surveyor



Intermediate Survey

- Tankers > 15 years
- Out of water inspection
 - Dry-dock
 - Slipway
- The overall and close-up surveys
- Thickness measurements of lower portions of the cargo tanks and water ballast tanks



Intermediate Survey

- General dry cargo with ESDC
 - Survey planning meeting
 - For vessels age > 15 year
 - Requirements based on those of previous special survey
- Overall survey
- Close-up survey
- Thickness measurements
- Tank testing as deemed necessary by the Surveyor
- Dry-docking (or UWILD)



Special Periodical Survey

- Sufficient examination, tests and checks by the Surveyor to satisfy himself that the hull, equipment and related piping are in or,
- They are placed in satisfactory condition fit for the intended purpose for five (5) years
- Subject to proper maintenance and operation and periodic surveys



Special Periodical Survey

- All vessels
- Survey planning meeting
- Dry-dock survey
- Rudder
- Shell openings and their closures
- Decks, bulkheads and shell plating



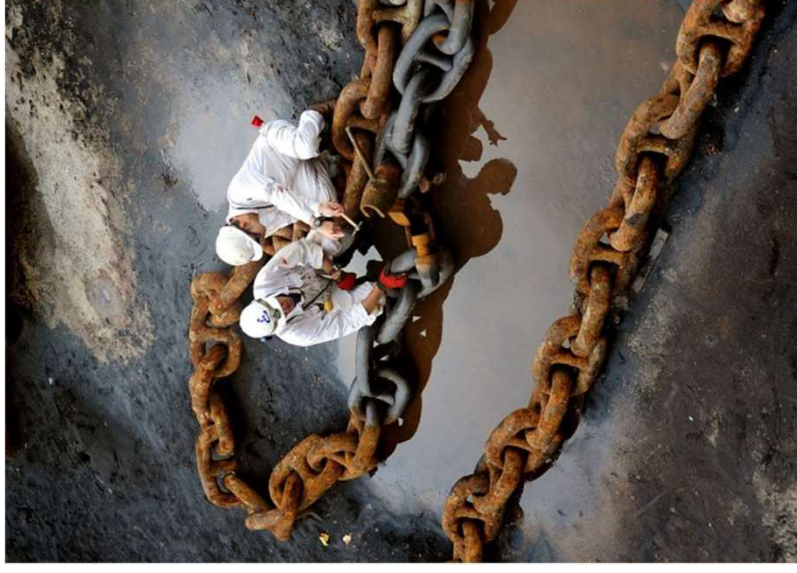
Special Periodical Survey

- Overall survey of
 - Holds, Double bottom, deep, ballast, peak and cargo tanks
 - Pump-rooms, pipe tunnels, duct keels,
 - Machinery spaces
 - Dry spaces, cofferdams and voids
 - Includes plating, framing, bilge wells, sounding, venting, etc
- Thickness measurements and testing as required



Special Periodical Survey

- SSH No. 1
 - Range and examine anchor chains
- SSH No. 2 and subsequent SSH
 - In addition, anchor chains are to be gauged
 - Renewal when mean diameter $\geq 12\%$ below the original nominal size



Special Periodical Survey

- Engine room structure
- Particular attention to
 - Sea suctions and SW cooling pipes
 - Overboard discharge valves
 - Shell plating and bulkheads
 - Tank top and bilge wells
 - Bilge and ballast piping



Special Periodical Survey

- Ballast tanks and combined cargo/ballast tanks other than double-bottom tanks
- Suspect coating condition:
 - Poor hard protective coating
 - Soft or semi-hard coating
 - No hard protective coating
- Internal examination at each annual survey,
- Thickness measurements as necessary



Special Periodical Survey

- Double bottom tanks
- Poor hard coating conditions
- Owners elects not to restore coating
- Soft coating has been applied
- No protective coating
- Internal examination every annual survey where substantial corrosion is documented
- TM's as necessary



Special Periodical Survey

- SSH No.2 ($5 < \text{age} \leq 10$ years)
 - 1 fuel oil tank in the cargo length area
 - 1 freshwater tank
- SSH No. 4 ($\text{age} > 15$ years)
 - 1 fuel oil (FO) tank in engine room
 - 50% FO tanks in the cargo length area
 - 1 deep tank is to be included, if fitted
 - 1 lube oil tank
 - All freshwater tanks
 - External exam of ER independent oil tanks



Special Periodical Survey

- Examination of tank protective devices
- Open out (P/V) valves and pressure relief valves
- Pressure/vacuum valve discs checked for good contact with their respective seats and/or proved by testing
- Open out air pipes, closing arrangements and flame screens
- Examine externally and internally



Special Periodical Survey

- Bulk carriers hatch covers and coamings
- Close-up examination
 - plating, securing and sealing arrangements
- Hose testing
- Operational test
- Thickness measurements
 - depending on vessel type (e.g. container carrier)
 - in areas of close-up surveys



Special Periodical Survey

- Container carrier
- Hatch coaming top and/or side plating of higher-strength plate $t > 50$ mm
- After SSH No. 2 butt weld joints within $0.3L \sim 0.7L$ at Coamings from material $\geq EH40$ and $t \geq 60$ mm
UT of:
 - all hatch coaming top
 - side plate butt weld block erection joints



Special Periodical Survey

- Vessels carrying vehicles
- Additional survey items concerning:
 - bow doors,
 - inner doors,
 - side shell doors and
 - stern doors
- In satisfactory condition
- Subject to proper maintenance and operation and periodical surveys
- Able to remain in compliance



Special Periodical Survey

- Cargo doors to be supplemented by thickness measurements and testing
- Confirm integrity of structure and weather tightness
- Identify the presence of:
 - Corrosion and fractures
 - Significant deformation,
 - Damages or other structural deterioration



Special Periodical Survey

- Clearances of Hinges, Bearings and Thrust Bearings
- Representative bearings may need to be opened, unless otherwise recommended in the OMM
- Visual examination and NDT of hinge pins and bearings when hinges are dismantled

