



Focus on Voyage Planning with ECDIS

Spill Prevention, Preparedness & Response

Avoid hazards with voyage planning

Even well-trained and skilled mariners can make simple mistakes when operating navigational equipment or interpreting information. Washington state believes a high-quality voyage plan can:

- Reduce simple errors and mistakes
- Provide ways to cross-check conclusions and assumptions
- Highlight essential information
- Enhance the bridge team’s shared understanding of expectations during transit

A good voyage plan will include

- Relevant SMS requirements
- Checklists for tasks
- Contingency plans for vessel emergencies
- Risk assessments with mitigation measures

Voyage planning and ECDIS

Paper charts have been used to plan vessel voyages for hundreds of years. Now, Electronic Chart Display and Information System (ECDIS) and other technology advancements are making voyage planning easier, safer, and more consistent. As systems like ECDIS become the standard for navigation, paper charts are becoming less common. Although using the ECDIS for voyage planning can be quite different than paper charts, voyage planning principles remain the same.

International Regulations

SOLAS Chapter 5, Safety of Navigation

Regulation 27 – requires that “Nautical charts and nautical publications... shall be adequate and up to date.”

Regulation 34 – requires that “Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned... taking into account the guidelines and recommendations developed by the [IMO] Organization.”

Annex 23– expands on the requirements of Regulations 27 and 34. It refers to IMO Res A.893(21) and affirms the application of the four interactive stages of Voyage Planning.

IMO Resolution A.893(21), Guidelines For Voyage Planning

Supports SOLAS Chapter 5 obligations by expanding on and explaining the four stages of Voyage Planning.

STCW Convention, Section A-VIII/2, Part 2 (Voyage Planning)

Provides an outline of the requirements for Voyage Planning detailed in SOLAS Chapter 5, Annex 23, and RES. A.893(21). Any non-compliance is a breach of the STCW Convention.

Using ECDIS in voyage planning

The ECDIS system is designed to assist in voyage planning and can be very effective if the ECDIS is set up properly and the planning is carried out correctly. The following ECDIS-specific steps expand on the International Maritime Organization's (IMO) four interactive stages of voyage planning.

1. Appraisal stage (Preparation and information gathering)

- All relevant company SMS and Master's standing orders regarding ECDIS use are read, understood, and properly applied
- Latest software uploaded, and all anomalies are known
- Internal log checked for failures or abnormalities
- Required charts, publications, and licenses are available and up to date
- Input sensors checked and operational, e.g., gyro, GNSS, radar
- Ship specific characteristics are known, e.g., draft, dimensions, turn radius

2. Planning stage (Voyage plan creation)

- Appropriate scale charts used
- Limitations of ENC known and considered, e.g., Categories of Zone Of Confidence (CATZOC)
- All relevant layers used for each leg
- Correct safety parameters and contours input for each leg
- Alarm limits decided for each leg of the voyage using the passage scanning function
- Plan scanning function used to check for issues
- Plan verified by Master visually and using the plan scanning

3. Execution stage (Voyage plan use)

- Correct scale chart used for each leg
- Correct layers displayed for each leg
- Alarm set points are input, following SMS and Master's requirements
- Appropriate cross track error input for each leg
- Under keel clearance requirements input following SMS requirements
- Ship's characteristics correctly input
- Required course notes correctly input

4. Monitoring stage (Voyage plan monitoring)

- Appropriate scale chart is used with the correct layers for each leg of the voyage
- External inputs are checked for proper operation
- Overlays are used as appropriate
- Correct vector type and length are used
- Position is cross checked using visual range and bearings or radar plotting
- All alarms are monitored, checked, and accepted before canceling
- The look-ahead alarm features are used to assess dangers, e.g., anti-grounding cone
- Handover meets SMS requirements



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Example of Voyage Plan

Voyage Plan			
Vessel Name/voyage number:			
From:		To:	
Draft	Departure	fore	aft
	Arrival	fore	aft

Distance	ETD:
Port to Port:	ETA:
Pilot Station to Pilot Station:	ETA Pilots (next port):
Estimated Speed:	
Prepared by:	Date:
Verified by:	Date:

GYRO ERROR:	This passage plan has been read and understood by:	
Date Last Check:	C/O	3/O

ENC Chart Nos.	CATZOG	Waypoint		Speed / Course	Distance and Time to go				Charted Depth / UKC	Safety Contour/ Safety Depth / Shallow Contour/ Deep Water Contour				Position Fixing			Watch Condition	Master's Instructions/Special Procedures/ Hazards / Environmental Protection
		No.	Latitude Longitude		Next WP		Total			Freq.	ECDIS	Cross Check by:						
					Distance	Time	Distance	Time										

Related Information

- The Nautical Almanac, Chapter 5, ECDIS, <https://thenauticalalmanac.com/>
- Spills Program vessel information: <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Guidance-for-oil-industry/Vessel-information>
- IMO, Electronic Nautical Charts (ENC) and Electronic Chart Display and Information Systems (ECDIS), <https://www.imo.org/en/OurWork/Safety/Pages/ElectronicCharts.aspx>