

Competency framework for Skipper Coastal / Offshore

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Function: Navigate the vessel at the management level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a coastal and/or offshore passage and determine position	1. Information on charts	Oral and written examination	<ul style="list-style-type: none"> • Finds data on the chart relating to surveys, publication, chart projection, geodetic datum, corrections, depths and topographical detail to assess the reliability and suitability of the chart for an intended passage. • Draws a diagram to illustrate the data used on charts for measuring depths, drying heights, tide levels, heights of shore objects. • Explains the meaning of the terms, but not limited to: chart datum, drying height, mean high water springs and soundings. • Explains the meaning and significance of specified symbols and abbreviations used on New Zealand charts (as contained in publication BA5011) • Describes the topography of the coastline, foreshore and seabed by reference to symbols and abbreviations on the chart. • Explains the meaning of terms used to describe the characteristics of lighthouses and light beacons. • Names the official publication which gives details of the sounds made by different types of fog signals. • Identifies dangers to navigation, defined limits, prohibited areas, sector and leading lights from the chart. • Describes the limitations and dangers of electronic charting systems in current use (eg, vector and rasterscan).
	2. Use of latitude and longitude scales		<ul style="list-style-type: none"> • Plot a given latitude and longitude position on a chart. • Determines the latitude and longitude of a position on a chart.

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Plan and conduct a coastal and/or offshore passage and determine position <i>continued</i>	3. Measurements of distance and speed		<ul style="list-style-type: none"> • Defines the terms: log distance, log speed, water track speed, ground distance, ground track speed, knot, drift and rate. • Measures distance on the chart. • Explains the functions of speed logs • Plots directions on the chart. • Solves time, speed and distance problems.
	4. Establishing directions		<ul style="list-style-type: none"> • States and demonstrates the meaning of the terms, and procedure for obtaining: <ul style="list-style-type: none"> – course, course to steer, heading, water track and ground track – bearing of one object from another – relative bearing of an object from a ship – set of a tidal stream or current – leeway angle • Accurately obtains true directions from a chart. • Plots true directions on a chart.
	5. Relationship between compass, magnetic, true and relative directions		<ul style="list-style-type: none"> • Determines and applies variation and deviation to true courses to obtain the compass course to the nearest degree. • Determines and applies deviation and variation to compass courses to obtain true courses to the nearest degree. • The ground track between two positions is correctly plotted, and the true, magnetic and compass courses are determined, along with the ground distance between them. • The time required to complete a passage between two or more specified positions, given water track speed, is determined. • The compass course to steer between two positions and the time taken in order to make good the ground track between them, allowing for tidal stream, current or leeway, is determined.

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Plan and conduct a coastal and/or offshore passage and determine position continued	6. Fixing the position of the vessel		<ul style="list-style-type: none"> • Describes the duty of a person in charge of a watch to establish the vessel's position as accurately as possible at regular intervals • Understands and describes the practical procedures required to obtain: <ul style="list-style-type: none"> • compass, relative and transit bearings of terrestrial objects by visual and radar observations • ranges by radar observations • geographical ranges of lights • The position is accurately fixed by plotting position lines given the data obtained by methods listed above. • The vessels position is obtained by a running fix • The reliability of a position obtained by a specific set of observations is assessed and commented upon. • The uses and limitations of echo soundings as an aid to establishing position are described
	7. Use of coastal aids to navigation		<ul style="list-style-type: none"> • Explains the meaning of: <ul style="list-style-type: none"> - geographical range - raising a light - luminous range, and - nominal range. • Calculates the geographical range of a specified light, given the observer's height of eye, chart, List of Lights or geographical range table or formula. • Determines the luminous range of a specified light given the actual meteorological visibility and a luminous range diagram. • Determines whether a specified light will be visible given the height of the observer's eye, the meteorological visibility and the observer's position. • Determines the time, range and the compass bearing at which lights will dip or be raised given the height of the observer's eye, the actual meteorological visibility and the observer's position, course and speed.

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<p>Plan and conduct a coastal and/or offshore passage and determine position continued</p>	<p>8. Tidal streams and currents</p>		<ul style="list-style-type: none"> • Determines the direction and rate of the tidal stream from a charted tidal diamond at a specific time and date, given the relevant tide tables. • Determines the approximate direction and rate of the tidal stream or current at a specified time and date by reference to arrows on the chart. • Plots vectors from tidal diamonds to illustrate the direction and rate of tidal streams for each hour of a specified period on a given date, by reference to the tidal stream tables on the chart and the New Zealand tide tables on a chart. • Determines the state of the tidal stream in French Pass or Tory Channel at a specified time on a given date, by reference to the New Zealand tide tables. • Calculates the ground speed, given the rate of a tidal stream or current flowing in the same or opposite direction from the vessel's water track.

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<p>Plan and conduct a coastal and/or offshore passage and determine position continued</p>	<p>9. Predicting position and track</p>		<ul style="list-style-type: none"> • Explains the meaning of the terms ‘dead reckoning position’, ‘estimated position’ and ‘ground track’. • Uses the abbreviations and symbols for ‘dead reckoning position’, ‘estimated position’ and ‘fix’ are used. • Lists the factors which affect the movement of a vessel over the ground, and the means by which they may be measured or estimated. • Assesses and explains the factors which affect the quality of the data, used to predict the position or the track of a vessel. • Given the compass course steered, log speed or log distance, any alteration of speed or course, the departure course, the departure position, the time and the direction and rate of the tidal stream and/or current and leeway, finds a by plotting: <ul style="list-style-type: none"> • the DR or EP at a specified time • the time at which a specified position will be reached • the compass bearing and distance off a specified position at a specified time • Determines by reference to a sequence of two or more time fixes; <ul style="list-style-type: none"> • the ground distance, ground speed or ground track • the EP at a specified time, by extending the ground track • the time at which a specified position will be reached • the distance the ground track passes off a specified position given that the course steered, log speed, wind direction and strength and set and drift of the tidal stream remain unchanged • the true rate and direction of a current or tidal stream.

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<p>Plan and conduct a coastal and/or offshore passage and determine position continued</p>	<p>10. Passage planning</p>		<ul style="list-style-type: none"> • Explains the principles of passage planning • Lists and understands the requirements of the maritime rule Part 25, Nautical Charts and Publications applicable to coastal trading and fishing vessels. • The publications available and, in general terms, the information available for planning a safe passage. • Selects charts for a passage using NZ 202. • Selects, plots and justifies safe tracks between two specified places, given characteristics of the vessel, approximate date and time of departure and appropriate charts and tide tables. Identifies and marks on chart danger areas, hazards and “call master” positions • Specifies means of checking that the intended ground track is maintained, and means of readily determining the positions at which courses are altered, including radar range and bearing and parallel indexing techniques. • Determines, by reference to a chart, dangers in making a specified landfall by day or night, and appropriate means of checking a vessel’s position in these circumstances. • Selects and specifies transit, clearing, and leading marks that would be appropriate for navigating in a specified narrow channel, approach to a port, or an anchorage. • Specifies radio listening watches to obtain weather forecasts, navigation warnings and other information. • Makes necessary adjustments to the passage plan on receipt of warnings received by radio.

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<p>Plan and conduct a coastal and/or offshore passage and determine position continued</p>	<p>11. Correction of charts</p>		<ul style="list-style-type: none"> • Makes a small correction by a reference to an edition of New Zealand Notices to Mariners • Applies and records a chart correction. • Explains actions to be taken if previous small chart corrections have not been made. • Explains the fact that navigation warnings may be promulgated initially on scheduled radio broadcasts is explained and the location of these schedules.
	<p>12. Tides and clearances</p>		<ul style="list-style-type: none"> • Determines information from the New Zealand tide tables using: <ul style="list-style-type: none"> - times and heights of high and low water at any New Zealand port - height of the tide at a specific time - time at which the tide will reach a specified height - vertical clearance under any overhead obstruction, given the height of the tide, the vertical clearance of the obstruction above MHWS, and the air draught of the vessel - clearance under the keel, given the height of the tide, the charted depth, and the draught of the vessel - days of the month when spring and neap tides occur at a specified standard port
	<p>13. GPS satellite navigation system</p>		<ul style="list-style-type: none"> • Clearly describes the dilution of precision concept and accuracy of the system. • Accurately makes datum adjustments to satellite derived positions using charted information. • Describes the dangers of relying on GPS position fixing alone when secondary methods such as visual observations, radar, echo sounder and available to verify the vessel's position.
<p>Plan and</p>			

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<p>conduct a coastal and/or offshore passage and determine position continued</p>	<p>14. Magnetic Compass</p>		<ul style="list-style-type: none"> • Names and indicates the component parts of a typical magnetic compass, binnacle, and associated equipment carried by coastal and offshore vessels on n provided illustration. • Describes the causes, effects and symptoms of common faults on the compass. • Describes the precautions and maintenance necessary to minimise the occurrence of faults on the compass. • States the actions to take when faults are detected. • Clearly understands the rules that specify the statutory requirements for compasses on coastal and offshore vessels. • Lists and explains the duties of the master specified in maritime rule Part 45 – Navigational Equipment - in relation to compasses. • Selects from a list of materials and equipment commonly found on coastal and offshore vessels those items that may disturb a magnetic compass. • Lists and explains the advantages and limitations of a hand held compass. • States the circumstances in which there is a need or a requirement to adjust compasses. • Knows and understands the fact that the deviations in the table of deviations are only correct for the conditions on board at the time the table was completed. • Lists and explains the general causes, including heeling error, of change in a vessel's deviation.

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<p>Plan and conduct a coastal and/or offshore passage and determine position continued</p>	<p>15. Variation, deviation and compass error</p>		<ul style="list-style-type: none"> • Determines the value of the variation to the nearest degree from a chart given the vessel's position and date. • Defines the variation. • Explains the meaning of the term 'local magnetic anomaly'. • Lists and explains the precautions to be taken when navigating in an area where local magnetic anomalies exist. • Defines deviation. • Describes the causes of deviation and why it changes. • Describes why it is necessary to check compass error frequently. • Knows and explains the practical procedures for obtaining bearings to find the compass error and deviation. • Accurately determines the error of the compass and deviation for the vessel's heading, given the: <ul style="list-style-type: none"> - compass bearing of two points in transit - compass bearing of a distant object from a known position - compass bearing of the sun when rising or setting, the latitude of the observer, the date and the amplitude tables. • Determines and constructs a table of deviations, given a series of compass bearings of a distant object on equidistant headings, or transit bearings
	<p>16. Coastal and offshore meteorology</p>		<ul style="list-style-type: none"> • Identifies the official sources of marine weather broadcasts available to vessel's in New Zealand's coastal and offshore waters, by reference to the New Zealand Nautical Almanac and MNZ Radio Handbook. • Determines the time and radio telephone frequencies of scheduled marine weather broadcasts by reference to the MNZ Radio Handbook and NZ MetService website • Explains the meaning of terms used in marine weather broadcasts. • Understands and states examples of variations in the direction and

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a coastal and/or offshore passage and determine position <i>continued</i>	<i>Coastal and offshore meteorology continued</i>		<p>strength of the wind, and the sea conditions that occur due to coastal landforms.</p> <ul style="list-style-type: none"> • Demonstrates knowledge of the correct procedures for operating a radio facsimile recorder. • Identifies on a sample New Zealand meteorological MSL Analysis map the following weather systems: <ul style="list-style-type: none"> - depressions, anticyclones, tropical depressions, inter-tropical convergence zone, ridges, troughs - warm, cold, stationary and occluded fronts. • Identifies and describes on a sample New Zealand Meteorological MSL Analysis map the following weather phenomena: <ul style="list-style-type: none"> - approximate strength and direction of the wind - sea state - approximate barometric pressure and pressure tendency - predominant cloud type - likelihood of precipitation - likelihood of reduced visibility... <p>...given a specified time and location, or coastal and offshore weather forecast area.</p> • Given a sample MSL prognostic weather map, vessel position and current weather observation, predicts the weather conditions that may be expected for up to 12 hours for a vessel proceeding en route including: <ul style="list-style-type: none"> - approximate strength and direction of the wind - sea state - approximate barometric pressure and pressure tendency - predominant cloud type - likelihood of precipitation - likelihood of reduced visibility.

Function: Safety at the management level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Manage safety aboard a coastal and offshore vessel</p>	<p>1. International Regulations for Prevention of Collisions at Sea (Maritime Rule Part 22)</p>	<p>Safety oral examination</p>	<ul style="list-style-type: none"> • Recognises the lights, day shapes and fog signals for all classes of vessels. • Recognises the manoeuvring sound signals and demonstrates knowledge of how to use them. • Understands and describes the procedures for determining if a risk of collision exists. • Demonstrates the correct action to take, by day and by night, in any visibility to avoid collision, using models or projected images. • Understands and describes the precautions to take in poor visibility with regard to speed, fog signals, lookout, radar, navigation lights, echo sounder and autopilot. • Accurately assesses the likelihood of collision with an approaching vessel and determines the appropriate action in poor visibility from a relative motion radar.
	<p>2. Buoyage and Beacons</p>		<ul style="list-style-type: none"> • Describes the buoys and beacons of the IALA System “A”, by day and by night, and demonstrates appropriate action to be taken upon encountering them.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Manage safety aboard a coastal and offshore vessel <i>continued</i>	3. Preparation for coastal and offshore voyages		<ul style="list-style-type: none"> • Describes the preparations to make as skipper in order to carry out a coastal or offshore voyage with particular reference to safety equipment, deck equipment, navigation equipment, stores, water and fuel, and securing for sea. • Describes the principles of keeping a safe navigational watch as prescribed in maritime rule Part 30. • Sets up GPS equipment according to instructions in the operator's manual; correctly interprets the information displayed; satisfactorily demonstrates use of the equipment for waypoint navigation; correctly plots information produced by the GPS on a navigation chart with integrity and correctly checks any ambiguities. • Correctly sets up a radio facsimile receiver according to instructions in the operator's manual and correctly obtains weather data for a maritime meteorological forecast and for passage planning purposes. • Reads an aneroid barometer to obtain barometric pressure and tendency, and to estimate expected wind strength. • Describes the procedure to change an automatic pilot from manual to automatic and vice versa. • Describes the methods for adjusting controls on an automatic pilot for optimum performance in all weather conditions, and gives a satisfactory explanation of when the vessel should be manually steered rather than using the automatic pilot.
	4. Accidents and Incidents		<ul style="list-style-type: none"> • Describes the actions to be taken as skipper in the event of collision, hull damage, grounding, loss of rudder or propeller, fire, towing and being towed, rescue of crew and passengers from another vessel, beaching, man overboard, shift of cargo and engine/steering gear failure. • Knows and explains the legal responsibility of the skipper in reporting accidents and incidents (new)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Manage safety aboard a coastal and offshore vessel <i>continued</i>	5. Organisation of the crew		Understands and explains organisation of the crew for watchkeeping when underway or at anchor in clear or reduced visibility, emergency duties and routine maintenance duties, including the use of standing orders, the requirements of crewing and watchkeeping rules, risk assessment, hazard identification and management of fatigue
	6. Lifesaving duties and responsibilities		<ul style="list-style-type: none"> • Describes the use and care of lifesaving equipment • Describes launching and boarding procedures for liferafts. • Techniques employed to survive at sea in a life raft until rescue occurs are described. • The search and rescue organization in New Zealand and the search patterns they employ are understood and described.
	7. Heavy weather precautions		<ul style="list-style-type: none"> • Describes the precautions to take with regard to the crew, cargo, passengers and the vessel's watertight integrity before the onset of heavy weather, and management of the vessel in heavy weather.
	8. Distress signals and responsibilities		<ul style="list-style-type: none"> • All distress signals and the international code flags for distress and their meanings are listed and recognised. • The correct procedure for sending PAN PAN, SECURITE and MAYDAY messages is demonstrated. • All phonetic letters and numbers are correctly pronounced. • The action to be taken on seeing or hearing a distress signal is understood and stated. • The use of distress signals is demonstrated

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Manage safety aboard a coastal and offshore vessel <i>continued</i>	9. Prevention of Marine Pollution		<ul style="list-style-type: none"> Understands and explains regulatory requirements for protection of the marine environment. The practical steps to prevent pollution of the marine environment from oily water discharges, oil spills from bunkering or oil transfer, and the discharge of sewage and garbage are understood and explained. Describes precautions to be routinely observed to prevent pollution of the marine environment by harmful substances.
	10. Maritime Operator Safety System (MOSS)		<ul style="list-style-type: none"> Understands and describes the requirements of MOSS, consistent with maritime rules Parts 19 and 44.
	11. Maritime Transport operator Plan (MTOC)		<ul style="list-style-type: none"> Understands and describes the requirements for development of an MTOC, consistent with rule requirements, including requirements for a Fit and proper Person.
	12. Maritime Transport Operator Certificate (MTOC)		<ul style="list-style-type: none"> Understands and describes the requirements for issue of an MTOC, consistent with maritime rules.

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<p>Manage safety aboard a coastal and offshore vessel <i>continued</i></p>	<p>13. Maintenance of vessel stability</p>		<ul style="list-style-type: none"> • Demonstrates knowledge of the following terms: <ul style="list-style-type: none"> - centre of gravity - centre of buoyancy - list and heel - metacentric height - righting lever - period of roll - free surface effect - freeboard - reserve buoyancy - watertight integrity
	<p>14. Maintenance of vessel stability</p>		<ul style="list-style-type: none"> • Clearly understands and explains that the vessel’s stability depends on the interaction of the forces of gravity and buoyancy. • Demonstrates knowledge of the changes in distribution in weight that occur during the course of a typical voyage of a coastal/offshore fishing vessel or a coastal/offshore cargo vessel and their effect upon stability. • Demonstrates knowledge of the bad practices and conditions that result in a dangerous loss of stability. • Demonstrates knowledge of the dangers that result from an excessive reduction in freeboard, an excessive reduction in reserve buoyancy, and loading a small vessel to a trim for which it was not designed. • Gives examples of specific situations which may result in dangerous loss of freeboard and reserve buoyancy. • Demonstrates knowledge of the need to employ closing appliances efficiently to achieve watertight integrity. • Demonstrates knowledge that the period of roll indicates the degree of stability.