

Aquatic Practices 2019 v1.0

Sample module of work

Module 5: Boating

Overview

Module 5: Boating

Module description

This module investigates the fundamentals of working safely on the water (pre-departure checks, manoeuvring vessels, emergency communication, using safety equipment), monitoring weather and tides, equipment maintenance and navigation skills. Students are introduced to boat design and propulsion systems and investigate fishing/trawling and commercial shipping channels in the local area.

Time allocation

40 hours

Elective/s

R2.1 Navigation knowledge and skills are essential for activities on the water
R2.2 Specialised skills are required to safely participate in aquatic activities
C3.1 Different vessel designs are suited to different situations

Underpinning factors

- Applied learning
- Community connections
- Core skills for work
- Literacy
- Numeracy



Assessment

Assessment number	Assessment description	Technique and mode	Assessment conditions	Dimensions and objectives
5	<p>Plan and evaluate a boating field trip, including demonstration of boating skills.</p> <ul style="list-style-type: none"> • Generate a trip plan, including <ul style="list-style-type: none"> – a report explaining how expected weather conditions for the day will affect the trip, considering factors such as air pressure, temperature, rainfall, wind speed and wind direction – a proposed route (on the chart provided) to and from Pelican Banks (or Horseshoe Bay) and a suitable anchorage, considering the tides and weather conditions. Propose recommendations for alternative routes if weather conditions change. Provide a concise and coherent explanation of the reasoning behind your proposal/s, including fuel, time, safety and other resource requirements – a risk assessment for the proposed trip, which identifies possible hazards and assesses and manages the risks. • Demonstrate the following boating skills and apply them during the field trip in given scenarios <ul style="list-style-type: none"> – identify the main parts of the vessel and its equipment (including safety equipment) – conduct pre-departure checks (including a seaworthy assessment) – demonstrate knowledge of the IALA buoyage system 'A' while navigating – correctly use safety equipment, raise the alarm during emergencies, use distress signals and assist others in distress 	<p>Project</p> <ul style="list-style-type: none"> • Performance component • Written component 	<p>Boating trip plan and evaluation.</p> <p>500–900 words</p> <p>Students will be provided with some continuous class time to develop and practise the performance.</p>	<ul style="list-style-type: none"> • Knowing and understanding <ul style="list-style-type: none"> – describe concepts and ideas in aquatic contexts – explain concepts and ideas in aquatic contexts – demonstrate skills in aquatic contexts • Analysing and applying <ul style="list-style-type: none"> – analyse information, situations and relationships in aquatic contexts – apply knowledge, understanding and skills in aquatic contexts – use language conventions and features appropriate to aquatic contexts to communicate ideas and information, according to purpose • Planning and evaluating <ul style="list-style-type: none"> – generate plans and procedures for activities in aquatic contexts – evaluate the safety and effectiveness of activities in aquatic contexts – make recommendations for activities in aquatic contexts

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	<ul style="list-style-type: none"> - moor and anchor a recreational vessel - safely manoeuvre a recreational vessel underway. • Complete an evaluation of the field trip, addressing: <ul style="list-style-type: none"> - safety control measures - management of hazards - the accuracy of weather and tide predictions and the effect of these on the trip - the suitability of the anchorage - any justified recommendations or advice for the following year's students when they prepare for this trip. 			

Teaching and learning sequence

Notional hours	Core topics		Learning experiences
	Core concepts and ideas	Knowledge, understanding and skills	
5 hours	R1.1 People engage with the aquatic environment in different ways.	<ul style="list-style-type: none"> specialised equipment and materials 	<p>Theory — Boating familiarity</p> <p>Students:</p> <ul style="list-style-type: none"> become familiar with the language of boating by labelling images of boats with terms including <ul style="list-style-type: none"> bow, bollard, helm, stern, chine, freeboard, transom, cleat, keel, gunwale and beam ahead, port, starboard, port and starboard beam, port and starboard quarter, port and starboard bow investigate hull types, comparing planing, displacement and semi-displacement hulls, as well as identifying features of inflatables, rigid inflatables, and catamaran and cathedral hulls describe hull materials in terms of their usefulness and effectiveness in different contexts discuss specific uses, advantages and disadvantages of propulsion systems including outboards, inboards, stern-drive and jet drive describe buoyancy in terms of Archimedes' principle and buoyancy types (basic and level flotation) interpret an Australian Builder's Plate (ABP) and assess the foam flotation in their boats. <ul style="list-style-type: none"> Resource: <i>Maritime Safety Victoria</i>, 'Buoyancy', www.transportsafety.vic.gov.au/maritime-safety/recreational-vessel-operators/powerboat/trip-preparation/vessel-maintenance-and-preparation/buoyancy
	R1.2 Scientific principles explain how objects behave in the water.	<ul style="list-style-type: none"> application of Archimedes' principle, Boyle's Law and the principles of buoyancy 	
	C3.1 Different vessel designs are suited to different situations.	<ul style="list-style-type: none"> major hull types — displacement and planing different hull shapes for different purposes, e.g. punt for sheltered estuary waters, deep-v hulls for open water materials for vessel construction are dependent on purpose, e.g. rubber, alloy, wood, fibreglass, steel 	
	SM1.3 Observation of workplace health and safety practices is essential when participating in aquatic activities.	<ul style="list-style-type: none"> understand and implement duty of care implement risk management plans, e.g. take preventative action 	
	SM4.1 Working with others is essential when working in aquatic environments.	<ul style="list-style-type: none"> instructions from teachers and trainers effective communication strategies 	

Notional hours	Core topics		Learning experiences
	Core concepts and ideas	Knowledge, understanding and skills	
			<p>Practical — Boating familiarity and safety</p> <p>Prepare students to responsibly meet the general safety obligation.</p> <p>Students:</p> <ul style="list-style-type: none"> ensure the boats are properly equipped and crewed by <ul style="list-style-type: none"> becoming familiar with parts of the boat hull and motor developing a pre-departure safety checklist and roles for each group member practising tilting, securing, starting and stopping motors checking oil, engine mount screw clamps, bungs, prop, fuel line and primer bulb (for cracks or wear), sacrificial anodes, and fuel tank (for water or vent blockages) becoming familiar with launching area, including potential hazards practising trailering the boats.
10 hours	SM1.1 Commonwealth and state legislation, rules and regulations control activities in aquatic environments.	<ul style="list-style-type: none"> legislation, rules and regulations relevant to aquatic practices 	<p>Theory — Registration and trip planning</p> <p>Students:</p> <ul style="list-style-type: none"> analyse information shown on an ABP, including capacity specifications research registration requirements for Queensland vessels, including registration number specifications construct a sample trip plan and a list of responses to potential problems on the water, from Section 2 activities, Activity 1 and 2 in the BoatSafe Workbook 6th edition (p. 43) <ul style="list-style-type: none"> Resource: <i>Queensland Government</i>, 'BoatSafe training and accreditation', www.tmr.qld.gov.au/business-industry/Accreditations/Boatsafe-accreditation (workbook link is found in the 'See also' section at the bottom of the webpage) practise reading tide tables, calculate tide heights, read and interpret weather maps, access weather information and
	C1.1 Core skills for work are valued by employers.	<ul style="list-style-type: none"> anticipation or identification of problems in aquatic contexts, decisions about courses of action to solve problems and reflection on the outcomes of decisions 	
	R1.1 People engage with the aquatic environment in different ways.	<ul style="list-style-type: none"> factors determining available activities, e.g. weather, water visibility, swell, tides 	
	E1.1 Understanding weather and tides is essential for activities in and on the water.	<ul style="list-style-type: none"> interpretation of weather and tide data, e.g. Bureau of Meteorology 	

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		website <ul style="list-style-type: none"> prediction of tide heights and weather conditions 	investigate the effects of these on the local waterways, e.g. channel depths, water flow, fuel consumption, effect of tides on overhead clearances
	SM2.1 The natural environment impacts on reliable and safe operation of equipment.	<ul style="list-style-type: none"> components of the aquatic environment that impact on equipment, e.g. salts, water, air, sunlight and living things implementation of processes and using products to protect equipment against effects of the natural environment, e.g. cleaning and storing equipment 	Practical — Boating operation Prepare students to responsibly meet the general safety obligation. Students: <ul style="list-style-type: none"> ensure the boats are properly equipped and crewed by <ul style="list-style-type: none"> practising the use of safety equipment (life jackets, signalling devices, radios, anchor, bailing equipment, oars, firefighting equipment) practising packing the boat, keeping safety equipment in places for easy identification and access while also ensuring the vessel is stable preparing a pre-launch safety gear checklist for the crew checking weather and tides, and taking boats out to familiarise themselves with the local area cleaning and storing equipment after use, including life jackets, torches, radios and fuel tanks flushing and cleaning motor, rinsing inside and outside of hull and spraying with corrosion inhibitor, lubricating moving parts (including trailers) checking spare parts kit for all required parts, including spare bungs, spark plugs and tools checking suitability of participants' clothing, medical, food and water requirements for boating.
	SM2.2 Regular maintenance is essential for reliable and safe operation of equipment.	<ul style="list-style-type: none"> use of operation manuals for service instructions and information, e.g. following maintenance schedules, everyday servicing and maintenance of equipment identification of faults and taking appropriate action 	
	SM2.3 It is essential to follow equipment operating instructions at all times.	<ul style="list-style-type: none"> operation manuals 	
	SM1.3 Observation of workplace health and safety practices is essential when participating in aquatic activities.	<ul style="list-style-type: none"> manage risks and hazards implement risk management plans 	

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5 hours	R2.1 Navigation knowledge and skills are essential for activities on the water.	<ul style="list-style-type: none"> equipment requirements for boats, including navigation lights characteristics and interpretation of charts 	<p>Theory — Navigation Students:</p> <ul style="list-style-type: none"> analyse information on the IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) buoyage system to complete BoatSafe Workbook Section 4 (begins on page 54), including <ul style="list-style-type: none"> lateral, cardinal, special, isolated danger and safe water marks other navigation aids and advisory signs rules of the road or navigation rules (lookout, safe speed, taking action to avoid collision, channels, giving way, sailing boats, divers and restricted visibility sound signals navigation lights navigating at night specific local rules. <p>Practical — Navigation Students:</p> <ul style="list-style-type: none"> practise the following skills <ul style="list-style-type: none"> identifying and acting in response to navigation marks (IALA buoyage system and signage) maintaining a proper lookout travelling at a safe speed staying on the right in channels looking for signs of vessel impacts, e.g. wash, noise and discharge. investigate GPS systems, including <ul style="list-style-type: none"> digital navigation applications for phone and tablets GPS units (fixed) explain how multifunction displays operate and how they enhance the safety and accessibility of boating. Multifunction
	R2.2 Specialised skills are required to safely participate in aquatic activities.	<ul style="list-style-type: none"> skills required to operate water craft, e.g. following collision regulations, IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) buoys and buoyage 	
	SM1.1 Commonwealth and state legislation, rules and regulations control activities in aquatic environments.	<ul style="list-style-type: none"> implementing legislation, rules and regulations, e.g. operating a vessel according to International Association of Lighthouse Authorities (IALA) buoyage system 	
	C1.1 Core skills for work are valued by employers.	<ul style="list-style-type: none"> identification of how digital technology and digitally based systems can extend, enhance or make possible specific aspects of an aquatic role or task, and create new opportunities 	

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			<p>displays include</p> <ul style="list-style-type: none"> – electronic engine data – GPS routes and planning – phone and tablet connectivity.
3 hours	SM4.2 Completion of aquatic activities requires a range of management skills.	<ul style="list-style-type: none"> • goal setting to complete aquatic activities • plan and organise aquatic activities 	<p>Assessment — Planning a boating trip</p> <p>Students:</p> <ul style="list-style-type: none"> • generate a trip plan, including weather conditions, proposed route, recommendations and risk assessment • use local maps to determine currents and other geographical formations, as well as identify channels and navigation marks to plan the field trip course.
	E1.2 Oceanography and riparian processes shape aquatic environments.	<ul style="list-style-type: none"> • ocean currents — localised 	
12 hours (including field trip)	E3.1 Marine and freshwater pests and threats, including pollution, impact on aquatic environments.	<ul style="list-style-type: none"> • sources of aquatic pollution and associated threats 	<p>Theory — Pollution threats and emergency responses</p> <p>Students:</p> <ul style="list-style-type: none"> • create a marine pollution brochure, including relevant legislation and rules associated with garbage, oil, sewage and noise <ul style="list-style-type: none"> – Resource: <i>Queensland Government: Maritime Safety Queensland</i>, 'Marine pollution', www.msq.qld.gov.au/Marine-pollution • analyse information and complete BoatSafe Workbook Section 4 and 5, covering topics including <ul style="list-style-type: none"> – pollution threats – impact on marine animals and habitats due to pollution – emergency response and associated specialised safety and first aid skills, including <ul style="list-style-type: none"> ▪ engine failure ▪ abandoning the boat ▪ fire prevention and fighting
	SM1.1 Commonwealth and state legislation, rules and regulations control activities in aquatic environments.	<ul style="list-style-type: none"> • legislation, rules and regulations relevant to aquatic activities 	
	SM3.1 The aquatic environment poses particular threats.	<ul style="list-style-type: none"> • identification of aquatic threats, injuries and emergencies, e.g. hypothermia, hyperthermia, marine stings, drowning 	
	SM3.2 First aid skills are applied in response to illness, injuries and emergencies.	<ul style="list-style-type: none"> • responses to illness, injuries and emergencies, e.g. hyperthermia, allergic reactions, unconsciousness, bleeding, burns and scalds, fractures, cardiopulmonary resuscitation (CPR), pressure 	

Notional hours	Core topics		Learning experiences
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		immobilisation technique	<ul style="list-style-type: none"> ▪ capsizing ▪ person overboard ▪ grounding ▪ First Aid response. <p>Practical — Boating operation Students:</p> <ul style="list-style-type: none"> • practise the following skills <ul style="list-style-type: none"> – drive vessel forward and astern, including smoothly bringing vessel onto and off the plane, and to an emergency stop – control trim and tilt of the engine – control the vessel in a figure-of-eight turn at speed and at low speed – perform a person overboard drill and manoeuvre the vessel to collect the person – bring a recreational vessel alongside a floating object – control the vessel to approach a floating object from the lee side taking the effects of wind, currents and tide into consideration <p>Assessment Students demonstrate practised boating skills and apply them during the field trip in given scenarios.</p>
	SM3.3 Aquatic environment requires specialised safety skills.	<ul style="list-style-type: none"> • application of specialised aquatic safety skills, e.g. survival techniques including HELP/HUDDLE, swimming, treading water, rescue tow 	
	SM4.2 Completion of aquatic activities requires a range of management skills.	<ul style="list-style-type: none"> • management of time and resources to complete aquatic activities 	

Notional hours	Core topics		Learning experiences
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5 hours	R1.1 People engage with the aquatic environment in different ways.	<ul style="list-style-type: none"> specialised equipment and materials 	<p>Theory — Emergency communications Students:</p> <ul style="list-style-type: none"> complete BoatSafe Workbook Section 6, covering topics including <ul style="list-style-type: none"> distress signals marine radio mobile phone. <p>Practical — Emergency communications Students:</p> <ul style="list-style-type: none"> demonstrate the use of distress signals (waving for assistance, v-sheet, flares, radio, mobile phone, EPIRB), including recalling which radio frequency to use. simulate a sécurité, pan pan and mayday call. <p>Theory — Legislation Students:</p> <ul style="list-style-type: none"> research the role of the Queensland Boating and Fisheries Patrol (QBFP) in enforcing fisheries and boating safety laws research the boating activities allowed in local marine parks/reserves complete a F3701 Marine Incident Report form for a marine mock scenario <ul style="list-style-type: none"> Resource: <i>Queensland Government: Maritime Safety Queensland</i>, 'Maritime incidents', www.msq.qld.gov.au/Safety/Marine-incident <p>Theory — Licensing and registration requirements Students:</p> <ul style="list-style-type: none"> review licensing and registration requirements on the Marine Safety Queensland website
	SM4.1 Working with others is essential when working in aquatic environments.	<ul style="list-style-type: none"> effective communication strategies 	
	SM1.1 Commonwealth and state legislation, rules and regulations control activities in aquatic environments.	<ul style="list-style-type: none"> legislation, rules and regulations relevant to aquatic activities, e.g. marine parks, licences and permits for provision of products and services resources to support understanding and implementation of legislation, rules and regulations 	
	SM1.2 Commonwealth and state legislation, rules and regulations are administered by government departments and authorities.	<ul style="list-style-type: none"> information and advice from relevant officers in government departments and authorities, e.g. Queensland Transport — boating licences 	

Notional hours	Core topics		Learning experiences
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	<p>C1.2 There are different career opportunities and pathways in aquatic industry and businesses.</p>	<ul style="list-style-type: none"> roles in aquatic industry and businesses, e.g. marine engineer, eco-tour guide, boat-builder, dive instructor, commercial fisher, aquaculturist knowledge, skills and qualifications relevant to positions, roles and/or pathways, e.g. Coxswain's licence, deckhand certificate 	<p>Resources:</p> <ul style="list-style-type: none"> – <i>Queensland Government: Maritime Safety Queensland, 'Registration'</i>, www.msq.qld.gov.au/Registration – <i>Queensland Government: Maritime Safety Queensland, 'Licensing'</i>, www.msq.qld.gov.au/Licensing <ul style="list-style-type: none"> complete a boat licence application form and review the following webpage to identify the requirements for boat licencing. <ul style="list-style-type: none"> – Resource: <i>Queensland Government, 'Boat and personal watercraft licenses'</i>, www.qld.gov.au/transport/boating/licences/recreational <p>Theory — Careers and training</p> <p>Organise a visit from a commercial training organisation (e.g. TAFE Queensland) regarding Certificate II in Maritime Operations (Coxswain) and Deckhand qualifications.</p> <p>Students:</p> <ul style="list-style-type: none"> research careers on the water using career guides from boating industry associations create a poster for a chosen career. <ul style="list-style-type: none"> – Resource: <i>Boating Industry Association of Victoria, 'Employment guides'</i>, www.biavic.com.au/employment-guides
	<p>C1.3 Employers expect employees to build and update their knowledge and skills.</p>	<ul style="list-style-type: none"> recording and updating training and other learning, e.g. certificates, registrations and licences 	