



Australian Government

MSS025013 Assist with assessing and monitoring wetlands

Release: 1

MSS025013 Assist with assessing and monitoring wetlands

Modification History

Release 1. Supersedes and is equivalent to MSS025013A Assist with assessing and monitoring wetlands

Application

This unit of competency covers the ability to plan and conduct desktop and field activities designed to collect and interpret information about the characteristics and condition of specific wetlands. This work assists environmental scientists and planners to develop wetland inventories, assess and monitor the condition of wetlands and/or develop wetland management plans.

This unit of competency is applicable to environmental technicians in a range of industry sectors, such as stormwater management; clean water (e.g. catchments, supply and environmental flows); environmental services (e.g. monitoring of water quality); and environmental compliance, auditing and inspection.

While no specific licensing or certification requirements apply to this unit at the time of publication, environmental monitoring and management activities are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

Nil

Competency Field

Monitoring

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 **Confirm details of assigned activities with supervisor**

1.1 Clarify the scope and objectives of assigned activities, constraints and wetland components involved and any conservation measures or management plans in place.

1.2 Identify regulations, standards, guidelines and workplace

- procedures that apply to assigned activities.
- 1.3 Clarify the required outputs, timeframe, available resources and stakeholder involvement.
 - 1.4 Confirm assessment indices and data collection plan details for target wetland.
 - 1.5 Clarify the use of survey proformas, data collection forms and/or field identification guides, as necessary.
- 2 **Source and assess available wetland data**
- 2.1 Locate and obtain existing wetland data and review its relevance and accuracy.
 - 2.2 Locate external sources of relevant data sets and assess their availability, price, value and limitations.
 - 2.3 Obtain selected data sets in accordance with workplace procedures.
 - 2.4 Use available data to identify known wetland boundaries, characteristics, condition and any environmental issues relevant to the study.
 - 2.5 Identify any significant information gaps.
- 3 **Plan and organise assigned field activities**
- 3.1 Analyse field activities to identify related tasks and plan efficient sequences.
 - 3.2 Identify risks, safety and environmental requirements associated with field activities.
 - 3.3 Assemble required field equipment and materials and check that they are fit for purpose.
 - 3.4 Liaise with relevant personnel to explain the scope and purpose of field activities, organise site access and obtain permits, as necessary.
 - 3.5 Review work plan in response to new information, changed circumstances or instructions from appropriate personnel.
 - 3.6 Update work plan and communicate changes to appropriate personnel, as necessary.

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| 4 | Conduct wetland survey and monitoring activities | <p>4.1 Observe and record wetland characteristics and evidence of disturbance using survey proformas, field identification guides and digital photography, as appropriate.</p> <p>4.2 Collect reliable point positional data and attribute environmental data/samples for each location in accordance with data collection plan.</p> <p>4.3 Verify any existing geographic information system (GIS) mapping of wetland location/type.</p> <p>4.4 Collect representative water, soil and/or (micro)biological samples using specified sampling methods and equipment.</p> <p>4.5 Obtain valid and reliable in-situ measurements using specified test methods and equipment.</p> <p>4.6 Ensure that monitoring data/samples are collected at the same locations and during similar seasonal/climatic conditions.</p> |
| 5 | Finalise field work | <p>5.1 Pack and safely transport all samples, equipment and supplies back to home base.</p> <p>5.2 Ensure all samples and data are labelled and stored safely to ensure integrity and traceability.</p> <p>5.3 Ensure dispatch of collected samples for subsequent laboratory analysis.</p> <p>5.4 Clean and test equipment before storage.</p> |
| 6 | Contribute to assessment of wetland condition | <p>6.1 Review field observations, measurements and/or results of laboratory analyses to identify significant trends and/or problems with data.</p> <p>6.2 Use given formulae and tables to assign scores, parameter values, index values and health index/rating, where appropriate.</p> <p>6.3 Analyse data relating to wetland characteristics, existing</p> |

		conditions and management values, as required.
	6.4	Identify environmental issues that may impact on current wetland management objectives/practices.
	6.5	Report findings using a format and style that suits their intended use and in accordance with workplace guidelines.
	6.6	Communicate results within the specified time and in accordance with workplace confidentiality and security guidelines.
7	Maintain a safe work environment	7.1 Use safe work procedures and protective equipment to ensure personal safety and that of others. 7.2 Minimise environmental impacts of testing/sampling and generation of waste. 7.3 Collect and/or dispose of all waste in accordance with environmental requirements and workplace procedures.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Legislation, regulations, standards, codes, workplace procedures and requirements include the latest	• federal legislation, such as the Environment Protection and Biodiversity Conservation Act • state/territory government legislation and regulations and local government by-laws, policies, and plans dealing with land use, acquisition, planning and protection; protection of wetlands; vegetation management; nature conservation and wildlife/plant protection; water quality and water management; soil
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version of one or more of:

- conservation; pollution and contaminated sites
- Australian and international standards and guidelines, such as:
 - RAMSAR Convention
 - AS/NZS 5667 Water quality set
 - A Directory of Important Wetlands in Australia, Environment Australia
 - ANZECC Wetland Classification System
 - National Water Commission Framework for the Assessment of River and Wetland Health (FARWH)
- state/territory Environmental Protection Authority (EPA) indexes, guidelines and manuals, such as:
 - Index of Wetland Condition (VIC EPA)
 - Water Quality Sampling Manual (QLD EPA)
 - Regulatory monitoring and testing: Water and wastewater sampling (EPA SA)
 - Wetland Assessment Techniques Manual for Australian Wetlands (Wetlandcare Australia).

Wetlands include one or more of:

- marine and coastal zone wetlands, inland wetlands, human made wetlands (**ANZECC classification system**)
- riverine, palustrine (river, run-off/rainfall, groundwater fed), lacustrine, artificial, marine, spring or groundwater fed (state/territory classification systems).

Desktop and field activities include one or more of:

- accessing relevant data sets and using GIS techniques to map wetland areas, high conservation areas and/or high degradation areas; and determining priority areas for field assessments
- validating GIS mapping of wetland location and type
- conducting rapid wetland assessments
- assessing condition of specific wetland components, including flora and fauna (type, % cover, dominant species and condition buffers)
- collecting information for use in wetland vegetation inventory
- assessing disturbance and relating this to wetland condition
- trialling a wetland monitoring program
- establishing sites for future wetland monitoring.

Wetland management plans include:

- existing and future values of wetland
- wetland management objectives to protect these values
- problems and issues that may compromise these objectives
- agreed wetland management practices to mitigate existing

impacts and minimise future impacts.

Wetland data sources and data include one or more of:

- national databases, such as:
 - Directory of Important Wetlands in Australia
 - EPBC Online Protected Matters Search Tool
- state/territory databases, such as:
 - Regional Ecosystem (RE) maps, Wildlife Online, Wildnet, Ecosystem Health Monitoring Program (EHMP) surveys (EPA QLD)
 - Index of Wetland Condition (EPA VIC)
- geographic information system GIS datasets, such as:
 - climate
 - biological and physical parameters of the land and ocean
 - management boundaries and tenure
 - biodiversity
 - natural resources, agriculture and fisheries
 - land use information, such as topographical maps, aerial photos, satellite imagery and land use/zoning maps
 - terrain models
 - drainage intensity, flood and drainage studies
 - water and sediment quality studies
 - contaminated site reports
 - acid sulphate soil studies
 - aquatic ecology studies (e.g. threatened/scheduled species, migratory birds, key habitats and habitat corridors/connectivity)
 - riparian vegetation studies
 - reports of consultations with the scientific community, local environmental groups and industry associations, catchment management committees and councils.

Survey proformas, data collection forms and field identification guides include one or more of:

- observer identification details (ID)
- site ID, (sub) catchment and/or regional ID
- ownership, access, location (e.g. global positioning system (GPS)), site photo ID and transect ID
- verification of wetland classification (GIS mapped, field) using identification guides and codes:
 - proximity of other wetlands, ecosystems, roads and current/adjacent land use
 - site disturbance indicators, such as soil disturbance, vegetation structure modification, water quality, hydrologic

disturbance, dumping, land use, feral/domestic animals, and weed causal factors

- acid sulphate soil indicators, such as iron stain, scald and hydraulic conductivity
- general wetland characteristics, such as:
 - water body dimensions, current/max water level, depth, water sources, modifications and banks
 - water quality (e.g. visible slime, temperature, turbidity and electrical conductivity)
 - habitat potential
 - vegetation buffer/cover/types/health/dominant species/recovery potential
 - fauna observations
- field identification guides with descriptors, photos and/or coding for wetland types and specific disturbance indicators.

Field equipment and materials include one or more of:

- topographic maps and aerial photos
- compass, survey point markers and drivers, GPS, tape measure, flagging tape, 1m2 quadrats and sub-quadrats
- data recording sheets, laptop, data logger, digital camera and binoculars
- sampling equipment, such as bottles, bags, biological specimen containers, secateurs, scoop nets, esky and ice, sample preservatives, water pumps and tubing, and shovels
- automatic water samplers
- portable water quality probe that measures (e.g. dissolved oxygen, temperature, turbidity, pH, conductivity and field test reagents)
- flow meters
- personal protective equipment, insect repellent, appropriate clothing and footwear, phone, emergency position indicating radio beacon (EPIRB) and first aid kit.

Laboratory analyses include one or more of:

- suspended solids
- phosphates
- nitrates and ammonium
- peroxide oxidation (combined acidity and sulphate for soils).

Environmental issues and possible causes include one or

- fragmentation or loss of connectivity of wetlands and/or vegetation
- adjacent land use pressure causing excessive nutrients, sediment and noise pollution

more of:

- human disturbance due to vehicles, boats, fire, rubbish, excessive nutrients and sediments, and impacts of feral/stock/domestic animals
- exposure of acid sulphate soils
- low diversity of vegetation, invasion by weeds
- poor habitat potential due to invasion by pest species and land clearing
- structures affecting wetland hydrology
- poor condition of banks and fringing vegetation due to access of stock
- poor condition of mangrove, salt marsh, seagrass due to impaired natural flow/tidal flush, excessive human disturbance, and impaired vegetative filter strips.

Work health and safety (WHS) requirements include:

- compliance with relevant federal/state/territory WHS legislation at all times
- assuming that samples are potentially hazardous and applying standard precautions
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and state/territory Departments of Health, where relevant.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS025013 Assist with assessing and monitoring wetlands

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Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- planning and conducting at least one (1) desktop activity to assess and report on aspects of wetland condition
- planning and safely conducting survey/monitoring activities on at least one (1) occasion to assess and report on aspects of wetland condition
- accurately interpreting relevant regulations, standards, guidelines, work instructions, workplace procedures, guidelines and manuals
- locating and evaluating available environmental data sets and wetland information
- using available data to identify known wetland boundaries, characteristics, condition and environmental issues relevant to desktop/field activities
- setting up, checking and operating sampling/measuring equipment in accordance with manuals and/or workplace procedures
- following specified sampling methods/procedures to ensure that samples are representative, viable and traceable
- following specified test methods to obtain reliable in-situ measurements
- making 'objective' observations based on clear criteria
- estimating numbers of flora and fauna, % coverage, and measuring dimensions and areas
- accurately recording and/or storing field data
- assessing quality of field data, recognising anomalies, identifying and rectifying basic instrument faults
- assigning assessment scores, index values, health index/rating, and calculating scientific quantities, uncertainties and unit conversion factors
- providing detailed descriptions of wetland characteristics, existing conditions, management values and environmental issues that may impact on current wetland management objectives/practices
- seeking advice when issues/problems are beyond scope of competence/responsibility
- communicating effectively with others, such as workplace staff, members of the public, clients, landowners and consultants
- providing documentation that meets user needs, is in the required format, and delivered within the agreed timeframe
- transporting, cleaning, maintaining and storing field equipment in accordance with workplace procedures

- following procedures for working safely and minimising environmental impacts and waste.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- basic terminology and principles of wetland assessment, monitoring and management relevant to job role
- sources of wetland information (e.g. directories, indexes, data sets and assessment tools)
- defining characteristics and functions of major wetland types
- fundamental principles of ecology and assessment of site environmental indicators
- environmental factors that impact on soils, water quality, population and diversity of flora and fauna
- specific legislation, policies and guidelines relevant to desktop/field activities
- procedures and equipment for collecting soil, water, (micro) biological samples and environmental measurements (e.g. water)
- procedures and equipment for maintaining, storing and transporting samples/specimens to ensure their wellbeing, viability and integrity
- procedures and equipment for conducting basic spatial and environmental measurements
- workplace procedures for the recording of field data and reporting of findings
- protocols for the confidentiality and security of information and communicating with the community and media
- relevant hazards, health, safety and environment requirements.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace, or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept in each case).
- Holistic assessment methods include:
 - review of the accuracy and completeness of data, records and results prepared by the candidate

- review of findings/reports prepared by the candidate, including details of wetland characteristics, existing conditions, management values and environmental issues that may impact on current wetland management objectives/practices
- feedback from supervisors that the candidate can plan and conduct desktop/field activities efficiently, work safely and provide reliable results within the agreed timeframe
- oral and/or written questions to assess the candidate's understanding of the use of environmental data sets and the findings of surveys and monitoring to develop wetland inventories, assess and monitor the condition of wetlands and/or develop wetland management plans.
- Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - access to a range of wetlands
 - relevant sampling equipment, field instruments and materials
 - documentation, including wetlands system information, environmental data sets, user manuals, workplace safety procedures, test/survey methods, survey proformas, data collection forms and field identification guides, workplace procedures, test methods and equipment manuals.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing environmental monitoring, management or technology related services about performing the competency being assessed within the last twelve months.

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