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**Year 12 Integrated Science**

**Task 1 - Unit 3: Estuarine Wetlands in Western Australia**

**Assessment type:** Extended Response

**Conditions:**

Time allocation for completion of the task:

* Research: three (3) x 60-minute class lessons (Part 1).
* Presentation: 5 minute class lesson (Part 2)

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| **Task Weighting:** | **Task Marks:** | **Due Date:** |
| 15% of the year mark. | **\_\_\_\_\_\_\_\_\_\_\_ / 56 marks %** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Estuarine Wetlands in Western Australia**

Western Australia’s unique and diverse wetlands are rich in ecological and cultural values and form an integral part of the natural environment of the state. Your local Creery Wetland Nature Reserve (CWNR) is listed as part of a system of ‘Wetland of International Importance’ under the Ramsar Convention.

**Task**

You will need to complete a research assignment on the CWNR and present a 5 minute presentation of your research using either of the following format:

* A PowerPoint presentation (no more than 10 slides),
* A video,
* An online interactive website,
* A poster (minimum size A3),
* Another medium if approved after discussion with the teacher.

**Part 1: Research Phase [35 marks]**

You will be provided nine (9) questions that you need to research. To support your research the following will be provided:

1. A notetaking template
2. A Fishbone template
3. A number of class lessons will be designed covering some questions
4. A document titled “An information sheet on Ramsar Wetlands” will be provided
5. You need to access the internet for information; links you may like to include:

<https://www.dpaw.wa.gov.au/management/wetlands>

<https://www.environment.gov.au/water/wetlands/ramsar/criteria-identifying-wetlands>

<http://www.creerywetlands.info/>

Your notes should include:

* Be written in concise dot points in your own words
* Correctly include a bibliography **[5 marks]**

Include the following in your response: **[30 marks]**

1. Write a brief description of what is a wetland? (1 mark)
2. Define what the Ramsar Convention is and clarify why is it important? (2 marks)
3. Identify the name of the Ramsar site that the CWNR is part of? (1 mark)
4. Justify one reason of how the CWNR site meets one of the nine qualifying Ramsar criteria. (3 marks)
5. Wetlands have been mapped in some areas of Western Australia.
   1. Provide a map of the wetlands of Western Australia (include geographical coordinates and location of nearest or major town/city to wetland), and (2 marks)
   2. Provide a map of the Ramsar site that the CWNR is part of (include geographical coordinates and location of nearest town or major town/city). (2 marks)
6. Analyse some key features of the CWNR (biogeography, physical conditions, hydrological values, wetland type). (4 marks)
7. Use a Fishbone Template to classify noteworthy biotic factors (flora and fauna) that inhabit the CWNR. (6 marks)
8. Describe if the site has any social and/ or cultural values. (4 marks)
9. Analyse how the current land and water use activities within the Ramsar site and surrounding catchment are affecting the CWNR ecological character. (5 marks)

Your notes from the research phase **WILL** need to be submitted to your teacher during your final presentation.

**Part 2: Presentation Phase [21 marks]**

With the information you have collected through your research, produce a 5 minute presentation that will engage the viewer (your fellow peers). Your presentation must include information that answers the 9 questions above.

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|  | **Marks Allocated** | | |
| **Description** | **3.0** | **2.0** | **1.0** |
| Presentation of content   * PowerPoint * Video * Online website * Poster | 8-10 slides/sections included with key ideas linked to images and sources of information referenced. | 8-10 slides/sections included that shows organisation of ideas in each of the researched content areas. | 7 slides/sections included that is mainly text. |
| Content | Shows a full understanding of the topic | Shows a good understanding of the topic | Shows some understanding of the topic |
| Use of headings and sub-headings | All headings and subheadings used. | Some headings and subheadings used. | Some headings used |
| Delivery | Speaks with fluctuation in volume and inflection to emphasize key points. | Speaks with satisfactory variation of volume and inflection. | Speaks in uneven volume with little or no inflection. |
| Creativity | Creative use of fonts, transitions or animation function that includes a short embedded clip/s that have been produced by the student | Some attempt to use transitions or animation functions on PowerPoint. | Some relevant images used and an attempt made to use colour, smart art or different fonts. |
| Audience interest | Engaging and interesting all the way through. | Captured interest reasonably well. | Relevant information is included. |
| Engagement | High level of effort. | Satisfactory level of effort. | Little effort shown. |
| **Total** |  |  |  |
| **Overall total** | | | **/ 21**    **%** |

**Student Worksheet**

To support your research the following support has been provided:

1. A notetaking template
2. A Fishbone template
3. A number of class lessons will be designed covering some questions
4. A document titled “An information sheet on Ramsar Wetlands” will be provided
5. You will conduct a field trip to the site where you can read the signage provided
6. You need to access the internet for information; links you may like to include:

<https://www.dpaw.wa.gov.au/management/wetlands>

<https://www.environment.gov.au/water/wetlands/ramsar/criteria-identifying-wetlands>

<http://www.creerywetlands.info/>

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| **Note Taking Template** | **Mark** |
| 1. **Write a brief description of what are wetland?**   **\* NOTE: this has already been done for you to demonstrate the teachers expectations \*** | **[1]** |
| * **Definition:**   Wetlands are areas either temporarily or permanently covered by water and can be either natural or artificial with water that is still or flowing, fresh, brackish (slightly salty) or salty. This includes marine water which is no more than six metres deep at low tide. | **1** |
| * **Other interesting points:**   Wetlands often include riparian zones (land which adjoins or directly influences a body of water) and coastal zones adjacent to the wetlands, as well as islands. |  |
| 1. **Define what the Ramsar Convention is clarify why is it important?** | **[1-2]** |
| * **Definition:**   The Ramsar Convention is an international treaty on the conservation of important wetlands. This was created to ensure our internationally important wetlands are conserved. | **1** |
| * **Other interesting points:**   Australia was among the first five member countries of the Ramsar Convention, and the first to nominate a wetland for listing. Australia was among the first five member countries of the Ramsar Convention, and the first to nominate a wetland for listing. Any activity that may have a significant impact on a Ramsar wetland goes through a [rigorous environmental assessment and approvals process](http://www.environment.gov.au/topics/water/water-our-environment/wetlands/managing-wetlands/epbc-act-and-wetlands). | **1** |
| 1. **Identify the name of the Ramsar site that the CWNR is part of?** | **[1]** |
| * **Name**   Peel-Yalgorup Ramsar Site is in the City of Mandurah and the Shires of Murray, Waroona and Harvey (local authorities) in the State of Western Australia. It is immediately south of the City of Mandurah within the Swan Coastal Plain bioregion. | **1** |
| 1. **Justify one reason of how the CWNR site meet one of the nine qualifying Ramsar criteria.** | **[1-3]** |
| * **Group letter and Group Name:**   **One of the following:** Group A of the Criteria. Sites containing representative, rare or unique wetland types-1  * Group B of the Criteria. Sites of international importance for conserving biological diversity- **3, 5, 6, 8**   CWNR is an important feeding area for migratory shorebirds that depart their breeding grounds in the Arctic to avoid the northern winter and fly huge distances along the East-Asia—Australia Flyway.  The Creery Wetlands are an important habitat for waterbirds, including 22 species of migratory shorebirds. These extraordinary birds, some weighing only 30 grams, spend the southern summer on lakes and beaches in Australia, then fly north to catch the summer in their northern hemisphere breeding grounds. The reserve is also home to a population of Quendas, a native marsupial. | **1** |
| **Criterion number and definition**  **One of the following:**  **Criterion 1:** The site includes the largest and most diverse estuarine complex in south-western Australia and also particularly good examples of coastal saline lakes and freshwater marshes.  **Criterion 3:** The site is one of only two locations in south-western Australia and one of very few in the world where living thrombolites occur in inland waters.  **Criterion 4:** The basic description of this criterion implies a number of common functions/roles that wetlands provide and the following apply at Peel-Yalgorup Ramsar site, in most if not all cases both at the date of listing and at present:  • the critical life stage of migration: annual use by large numbers of many species of migratory animals;  • the critical life stage of drought refuge: seasonal influx of large numbers of waterbirds from dried out wetlands in surrounding areas, and periodic massive influx from wider regions during drought;  • the critical life stage of breeding: regionally and nationally significant colonies of cormorants occurred in the 1980s in paperbark swamp in “Carraburmup Swamp Nature Reserve” (Jaensch et al. 1988) on the south-east side of Peel Inlet (and part of the Ramsar site) and small breeding colonies of pelicans breed now and then on islets in Peel Inlet; in addition, the Yalgorup Lakes are a significant site bioregionally for breeding of Hooded Plover (Birds Australia 2005);  • breeding also applies to fishes, crabs and prawns; and  • the critical life stage of moulting: shelducks and Musk Ducks that congregate on the open waters of the Ramsar site outside the breeding season are engaging in moult (hence, the birds are flightless for a short period).  **Criterion 5:** The site comprises the most important area for waterbirds in south-western Australia, supporting in excess of 20,000 waterbirds annually, with greater than 150,000 individuals recorded at one time (February 1977). Numbers exceeding 20,000 birds have been recorded in all comprehensive surveys conducted in the 1990s in the Peel-Harvey Estuary.  **Criterion 6:** According to the 4th edition of Waterbird Population Estimates, the site regularly supports 1% of the population of: Red necked Avocet (Recurvirostra novaehollandiae), Red necked Stint (Calidris ruficollis), Red-capped Plover (Charadrius ruficapillus), Hooded Plover (Thinornis rubricollis), Black-winged Stilt (Himantopus himantopus), Banded Stilt (Cladorhynchus leucocephalus), Curlew Sandpiper (Calidris ferruginea), Sharp-tailed Sandpiper (Calidris acuminata), Fairy Tern (Sterna nereis), Musk Duck (Biziura lobata), Grey Teal (Anas gracilis), Australasian Shoveler (Anas rhynchotis), Australian Shelduck (Tadorna tadornoides) and, Eurasian Coot (Fulica atra).  **Criterion 8:** The Peel-Yalgorup Ramsar Site is important as a nursery and/or breeding and/or feeding ground for at least 50 species of fish as well as the commercially significant Blue Swimmer Crab (Portunus pelagicus) and Western King Prawn (Penaeus latisulcatus). In addition, the Peel - Harvey Estuary is a migratory route for the Pouched Lamprey (Geotria australis). | **2** |
| 1. **Wetlands have been mapped in some areas of Western Australia.**   **a). Provide a map of the wetlands of Western Australia (include geographical coordinates and location of nearest or major town/city to wetland) , and** | **[1-2]** |
| * **Latitude and Longitude:** | **1** |
| * **Towns/Cities** | **1** |
| **b). Provide a map of the Ramsar site that the CWNR is part of (include geographical coordinates and location of nearest town or major town/city).** | **[1-2]** |
| * **Latitude and Longitude:** | **1** |
| * **Towns/Cities** | **1** |
| 1. **Analyse some key features of the CWNR (biogeography, physical conditions, hydrological values, wetland type).** | **[1-4]** |
| * **Climate: Name and description** | **1** |
| * **Soil type: Name and description** | **1** |
| * **Wetland description** | **1** |
| * **Name of main rivers, channels artificial drainage that flow into the area** | **1** |
| 1. **Use the Fishbone template to classify noteworthy biotic factors (flora and fauna) that inhabit the CWNR.** | **[1-6]** |
| * **Flora \* WRITE ANSWER ON FISHBONE TEMPLATE \*** | **3** |
| * **Fauna \* WRITE ANSWER ON FISHBONE TEMPLATE\*** | **3** |
| 1. **Describe if the site has any social and/ or cultural values.** | **[1-4]** |
|  | **1** |
|  | **1** |
|  | **1** |
|  | **1** |
| 1. **Analyse how the current land and water use activities within the Ramsar site and surrounding catchment are affecting the CWNR ecological character.** | **[1-5]** |
|  | **1** |
|  | **1** |
|  | **1** |
|  | **1** |
|  | **1** |
| **Other noteworthy information** |  |
|  |  |
| * **Bibliography:**   *For example:*  *Art* + soul : a journey into the world of aboriginal *art* *2010, television program, Australian Broadcasting Corporation, Sydney, 4 October.*  *Centres for Disease Control and Prevention (1994) Epi Info (Version 6) [Computer program]. Available at*[*http://www.cdcp.com/download.html*](about:blank)*(Accessed: 23 June 2015).*  *Davidson, A. (2013) ‘The Saudi Marathon Man’, The New Yorker, 16 April. Available at: http://www.newyorker.com/news/daily-comment/the-saudi-marathon-man (Accessed: 22 June 2015).*  *Department of the Environment and Energy, 2019, accessed 1st January 2019, http://www.environment.gov.au/water/wetlands/about*  *Google Earth 6.0. 2008. Hylands House and estates 51°42'39.17"N, 0°26'11.30"W, elevation 60M. 3D Buildings data layer, viewed 31 August 2011,* [*http://www.google.com/earth/index.html*](about:blank)  *Gough, P 2017,* What makes art good or bad?*, video recording, Youtube, viewed 17 July 2017* [*https://www.youtube.com/watch?v=XNQVe4qgtx8*](about:blank)  *Jones, B., (1997) Methods in tumour research. National Agency for Tumour Research, volume. 7.*  *Ubisoft Entertainment 2012,*Assassins creed III*, computer program, Ubisoft Australia.*  *The University of Birmingham (2010) The University of Birmingham experience. Available at:*[*https://www.youtube.com/watch?v=YLxV5L6IaFA*](about:blank)*(Accessed: 18 June 2015).* |  |
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**STUDENT FISHBONE TEMPLATE** [6 marks]

