basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

QUALITATIVE ANALYSIS OF LEARNER RESPONSES
AND
EVALUATION OF THE QUESTION PAPERS (PER PAPER)
NATIONAL SENIOR CERTIFICATE 2025
WESTERN CAPE EDUCATION DEPARTMENT

SUBJECT	**Marine Sciences**		
QUESTION PAPER	**1 X**	**2**	**3**
DURATION OF PAPER	**2,5 hours**		
INTERNAL MODERATOR	**DR M WHEELER**		
CHIEF MARKER	**MR M SCHROEDER**		
DATES OF MARKING	**FROM: 30 November 2025**	**TO: 6 December 2025**	
HEAD OF EXAMINATION	**MS LM BREDENKAMP**		

REPORT 2: QUALITATIVE ANALYSIS OF LEARNER RESPONSES

SECTION 1: ***(GENERAL OVERVIEW OF LEARNER PERFORMANCE IN THE QUESTION PAPER AS A WHOLE)***

Based on the RASC analysis of performance of all the 183 candidates who wrote, the national average for the paper is 53,24%. The national average for Paper 1 in 2024 was 48.5%. This is an increase of 4.74%.
The average for the Western Cape learners in 2025 is 57,06%.

SECTION 2: ***COMMENT ON CANDIDATES' PERFORMANCE IN INDIVIDUAL QUESTIONS***
(It is expected that a comment will be provided for each question)

QUESTION 1
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Q1.1- Multiple choice questions the multiple-choice questions were moderately answered with an average of 12,0 out of 20.

Q1.2- Terminology

the terminology questions were not well answered with an average of 3,1 out of 10 with some learners leaving questions open.

Q1.3-Column A and B

Candidates did not answer the question well with an average mark of 3,4 out of 10.

(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Q1.1 Multiple choice questions

Most of the topics have a substantial amount of terminology to be studied by the candidates. Although the terms have all been summarized at the end of each topic in a Glossary, the candidates seemed not to study the terms extensively.

Q1.2 Terminology

Many candidates did not seem to know the relevant terminology well. The table below provides a list of questions with the correct answers along with the incorrect terms frequently written by learners.

Question number	Correct Answer	Incorrect answer frequently written
1.2.1	Groynes	Hard engineering
1.2.2	Capillary waves/ripples	Surface waves
1.2.4	Tombolo	Spit
1.2.5	Interglacial periods	Climate change
1.2.7	Hydroponics	Aquaponics, hydrophonics, aquaculture

Q1.3 candidates seemed to struggle to distinguish between the different concepts in the Column A and B questions.

(c) Provide suggestions for improvement in relation to Teaching and Learning.

More time should be spent in class on testing terminology. This can be done through informal class tests or class activities such as charade-like "Thirty Seconds" word games with peer learning.

(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

Candidates must grasp entire concepts of scientific terms or phrases.

Glossary terms can be put at the bottom or side of the page of written material instead of at the end of the topic to ensure that learners study the terms as part of the content.

QUESTION 2

(a) General comment on the performance of learners in the specific question. Was the

question well answered or poorly answered?

Q2.1 – Coast of Chennai and composite graph

Candidates generally performed well in the data interpretation and relevant questions with an average of 14,5 out of 21. Some learners struggled with the composite graph axes.

Q2.2 Drysuit squeeze

Candidates performed average in this question that required interpreting the text and the diving sciences gas law calculation. Learners knew that they could be expected to get this type of calculation. It was the first time that temperature was also included in the calculation, with the conversion to Kelvin. The average was 2,9 out of 6.

Q2.3 Tidal bores

Candidates generally performed moderately in this question with an average of 5,4 out of 13. The content on tidal bores form a small part of the Gr 11 topic 'Currents' and the Gr 12 topic 'Global Ocean Circulation'. Based on learners' survey responses, the tidal bore scenario caught them off guard. But they would have found that while Q2.3.2(a) and (b) were specific to tidal bores, that they were expected to also bring other content and understanding of concepts such as global warming and preventative measures for flooding into their answers.

(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 2	
2.1.1a)	Only one candidate in the NSC answered a correct option for a constant variable. Most candidates answered 'seasons' as a constant variable. Learners were expected to be familiar with the scientific method and able to apply it to unseen investigations.
2.1.2	Graph heading left out seasons made candidate lose half a mark Only had one axis although the question was for drawing a composite graph Axis labelling did not have units Swapped bar graph with line graph, making candidates lose marks for the types of graphs (both a bar graph and a line graph) Some candidates got scale of the graph wrong, some did not have a 0 on the y-axis for the bar graph
2.1.3	Most learners could not answer this question, only wrote evaporation and freshwater influx and 'the water will freeze' which was wrong
2.1.5	Learners only described climate in different seasons but did not describe the effects of climate change within the context of the question
2.2.1	Candidates answered this as 'the bends' or 'euphoria' instead of 'trauma to the ears/sinuses/lungs'
2.2.2	Candidates did not convert temperature from degree Celsius to Kelvin

	Some candidates left out units at the end
2.3.1	Candidates linked this to ocean acidification – explaining how carbon dioxide emissions resulted in lower pHs of the ocean Some candidates only mentioned evaporation, without more detail, and rainfall Candidates did not mention that heat/greenhouse is trapped in the atmosphere
2.3.2	Candidates did not know what tidal bores are

(c) Provide suggestions for improvement in relation to Teaching and Learning.

Emphasis should be placed on data interpretation as well as the scientific method in both practical assessments and tests/exams.
Candidates should get more practice in the diving science gas laws calculations.
They should get more opportunities to write explain/discuss/describe type of questions.
More experience in interpreting texts and case studies is needed.

(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

Teachers should incorporate more case studies as class examples for learners to be more familiar to show their understanding and apply to unseen scenarios.
They should also feel more confident in voicing their own opinions, with motivation based on the theory studied. Candidates should also be encouraged to read further or watch documentaries related to the Marine Sciences content.

QUESTION 3

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Q3.1 Agulhas Eddies

Candidates generally performed poorly in this question on global ocean circulation with an average of 3.2 out of 9.

Q3.2 Benguela Upwelling System

Candidates struggled with this infographic-style question that included text, data interpretation and a diagram. The average for this question was 7,5 out of 17.

Q3.3 Wonders of the Wild Coast

This question was intended to be easier, but candidates struggled to answer Q3.3.1(a) and (b) as they did not know where the Wild Coast is located. They were able to explain erosion and to draw the formation of a cave. They generally did well in Q3.3.2 and Q3.3.3, with the average of Q3.3 being 5,2 out of 9.

Learners from one centre did exceptionally well in Q3.

(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 3	
3.1.1	Most candidates wrote 'warm' instead of 'warmer' which was required within the context
3.1.2	Most candidates did not refer to density and the effect that the density has on overturn in the Northern Hemisphere or they only gave the first effect and not the implication that this would have on overturn.
3.1.3	Candidates did not place emphasis on how the shift of the Westerly Wind Belt would affect the ocean circulation.
3.2.1a)	Candidates either left the question blank or answered 'backwash', 'reflection', 'refraction', 'diverge' or 'upwelling' instead of 'Ekman Transport'.
3.2.1b)	Candidates mentioned Ekman Transport at this question instead of at Q 3.2.1a). Candidates also explained upwelling based on the answer they gave in (a).
3.2.2	When having to explain the relationship between windspeed and the ENSO event, some candidates only stated that the relationship is directly proportional to ENSO and not the ENSO event (El Niño and La Niña)
3.2.3	Candidates referred mainly to the data provided and not the concept of upwelling
3.2.4a)	Not including sea surface temperature changes
3.2.4b)	Candidates did not write 'colder' that implied that the temperature became colder. Candidates did not refer to the sea temperature which was the first mark but generally received the second mark.
3.3.1a)	Candidates mostly wrote the 'West Coast', 'Wild Coast', 'Southeast Coast' or 'South African coast' instead of 'East Coast'.
3.3.2	Candidates wrote said 'fynbo's, based on the answer they gave incorrectly in Q3.3.1a).
3.3.3	Candidates drew wave cut platform instead of the formation of a cave. Some candidates also drew the formation of a stum Candidates lost marks for shading in the drawing Many candidates did not indicate that it was a process, by the use of an arrow

(c) Provide suggestions for improvement in relation to Teaching and Learning.

Emphasis should be placed on data interpretation.

Candidates should get more opportunities to write explain/discuss/describe type of questions.

More experience in interpreting texts and case studies is needed, in particular practice in interpreting infographics.

(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

Practice map work for candidates to have a general understanding of locations on earth and the

differences in climatic conditions.
Candidates are expected to know the basic regions and main locations along the South African coast. Teachers should motivate learners to read relevant media articles. Basic map work to make learners more familiar with the South African coastline is encouraged.
More time should be spend on practicing scientific drawing skills.

QUESTION 4

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

The majority of candidates chose to write Q5, with 75 candidates who wrote Q4 and 106 who wrote Q5. Two candidates did not attempt to write an essay. Marks are awarded in an essay for content (25 marks) as well as synthesis (10 marks).
The highest mark obtained for Q4 was 35 out of 35, the lowest 13. The average mark was 24,7 out of 35.

(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- For introduction, most candidate repeated the question and used it as an introduction. This was not credited if not placed in own words.
- Most candidate combined their opinion and conclusion.
- Some candidates had subheadings that were underlined or bullet points in their paragraphs and, therefore, lost one mark for paragraphs.
- Offshore environmental impacts bullet point – a few candidates mentioned increase in plant growth instead of algal bloom (D4).
- Socio-economic benefits of aquaculture bullet point – most candidates scored most of their flex and compulsory marks for this point, even those that did not perform well overall. It was good to see that candidates could apply content studied to real-life socio-economic implications.
- It was clear that come candidates could not make the distinguish between offshore AND onshore as the expected answers were based on these two different locations.

For this essay, candidates performed very well, some achieving between the range of 32-35.

(c) Provide suggestions for improvement in relation to Teaching and Learning.

The writing of essays is a skill. Learners are required to write the content that they have studied in an applied scenario and to give personal motivation or evaluation.
Considering that the essay makes up 23,3% of the exam, time should be spent on practising essays.

(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

Incorporate reading of scientific based articles in class with class discussions, class debates. Critical thinking is emphasised in Marine Sciences and candidates should be able to show understanding and application of content studied.

QUESTION 5

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

The majority of candidates chose to write Q5, with 75 candidates who wrote Q4 and 106 who wrote Q5. Two candidates did not attempt to write an essay. Marks are awarded in an essay for content (25 marks) as well as synthesis (10 marks).
The highest mark obtained for Q5 was 35 out of 35, the lowest 8. The average mark was 21,9 out of 35.

(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- Candidates wrote the introduction like a shopping list. All/most just repeated the bullet points in their own words.
- Benefits for the offshore (bullet 2): Q4 aspects of benefits could possibly have been added as alternative answers to the marking guideline as most candidates mentioned these benefits (income, uplift the community etc.). Similarities and differences (bullet 4): Candidates struggled to get min 4 marks. Did not refer to "impacts" but mostly explained what wind farms produce (wind → electricity)
- Relevant, correct statements were credited according to the marking instruction of **(Any logical relevant substantiating answer, marker discretion for insightful thinking)**

(c) Provide suggestions for improvement in relation to Teaching and Learning.

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Incorporate reading of scientific based articles in class with class discussions, class debates. Critical thinking is emphasised in Marine Sciences and candidates should be able to show understanding and application of content studied.