Improving your exam performance

We hope that as you read *Marine Ecology: Processes, Systems and Impacts*, your learning will be enhanced by the examples we have given and that you will be excited enough to explore some of the additional recommended literature and papers to learn in more depth about the subject. Despite our best efforts to convey the essentials of marine ecology, ultimately your ability to assimilate and reproduce that information in an examination setting is beyond our control. At the end of the day you need to learn the material you are taught and if you are given recommended reading, you need to do it. Recommended reading is usually given so that some element of self-learning is undertaken such that your depth of understanding is increased. On the courses we teach, we specifically tell students that it is impossible to achieve top grades without evidence of a greater depth of understanding than can be gleaned from 20 x 1 hour lectures – the remaining time allocated for the course is for self-learning around the subject.

However, after many years of teaching students, setting exams, and marking the resultant output, it is clear that many students fail to perform as well as they might because of simple errors of exam *technique*. As teachers, nothing makes us despair more than a student who has thrown away easily-gained marks for whatever reason. Hopefully the examples (drawn from real experience) and advice below will help you prepare better and achieve your full potential.

The moment of truth

As you enter the examination room, the amount of preparation that you have done and the information you can retain will define the upper limit of the mark you can achieve. You cannot answer questions about which you have no knowledge whatsoever, e.g. *'What is the name of the sea in which European eels spawn?'* – you either know the answer or you do not. But there are two types of knowledge, and often students fail to appreciate this. Firstly, there is the information you learnt specifically for the course which is likely to be 90% of the focus of the exam. Secondly, there is the wider knowledge you have gained from other courses which may be relevant (perhaps in a terrestrial ecology course) and the wider facts that you have read or seen in the media. Faced with a question to which you do not know the answer directly you may need to draw on your wider knowledge to deduce an answer as best you can. This applies to questions or requests such as *'Describe the population processes that regulate*

fish populations' – in this case if you remember your terrestrial ecology course on density-dependent processes then this will help you answer some of this question and at least gain some marks even if you don't know the fish specific examples. **Some marks are better than none!**

Once you sit down at your desk and turn over the paper and begin, it is crucial that you remain focussed and concentrate on the task in hand. This is where many students begin to falter and marks quickly disappear. Reading the question carefully and accurately is critical. Many students make the mistake of reading a key word in the question without reading the context in which it is set. This often results in an answer that is related to the key word or words, but doesn't answer the question. Here is an example:

'Write notes on the ecological effects associated with static fishing gears and how their negative ecological effects might be minimised' *[4]*

This example may seem straightforward, but experience shows that many students answered this question entirely incorrectly. What did they do wrong? Well judging from their answers only the following components of the question were read or registered:

'Write notes on the ecological effects associated with fishing gears'

This is a very different question and resulted in a discourse about the effects of trawls and dredges, and maybe some reference to static gears, but nothing about the second half of the question.

Why might this happen? It could be for a number of reasons, but panic and carelessness are two of the most common causes. How can you avoid making the same mistake? A simple technique is to break the question or request into its key components using a highlighter pen as shown below.

'Write notes on the ***ecological effects*** *associated with* ***static fishing gears*** ***and how*** *their* ***negative*** *ecological* ***effects*** *might be* ***minimised****'* *[4]*

Here we have used different colours to identify the key requirements for a correct response (notice there are two colours to emphasise that there are two parts to the question):

1. What are the effects?
2. How can they be minimised?

To what does the question refer specifically? Underlining the word static helps us to focus the answer and address only the effects of ***static fishing gears***. Anything written about moving fishing gear is irrelevant and gains no credit. The other key clue to guide how you answer is the number in the square brackets which indicates the number of marks available for this question. This number often relates to the number of points that the marker is looking for in your answer. It is likely that one relevant point will gain one mark. However, if the space allocated for the answer is particularly large and you only fill half the space with four points then it may be the case that each point is worth only half a mark. In this case, you need to use your common sense. If the space provided is larger than the space you have filled then it is likely that more is required!

So there are four marks available and two parts to the question - ***ecological effects*** ***and how might they be minimised*** – thus it is logical to assume that for every effect the marker is looking for a suggestion as to how it might be minimised.

So what should a model answer look like? Here is our attempt highlighting the parts of the answer that address each part of the question:

'Write notes on the ecological effects associated with static fishing gears and how their negative ecological effects might be minimised' *[4]*

Static fishing gears include gill nets and traps that are anchored to the seabed that are left unattended while they fish.

These gears can be lost as a result of storm action or due to other vessels towing them away or cutting surface marker buoys with their propeller. The lost gear can continue to 'ghost-fish' on the seabed for more than a year in some circumstances. The ghost-fishing potential of lost gears could be reduced by using biodegradable components or by tagging the gear to aid its retrieval. Long-lines used in the Southern Atlantic attract scavenging seabirds such as albatross to the baited hooks. Once hooked, the birds are drowned as the gear

sinks into the seabed. Seabirds can be deterred from attacking the baited hooks by using bird-scaring lines or by deploying the baited line from the vessel at a depth beyond the reach of a diving bird.

Although the request was for 'notes', you still need to write short pieces of text that are coherent and make sense in the language demanded by the exam. Why did we write the first sentence? It helps contextualise your answer, and in the event of your final mark teetering on the borderline between two grades it might give the marker a reason to award an additional mark. When you reach higher education we look to reward knowledge rather than mark you down!

Essays

What about essays? Well, the same rule applies: if you have not understood what the question wants then you have already lost part of the battle. In addition to understanding the title, essays require much more preparation and thought in terms of structure. Any essay should have a broad introduction, gradually becoming more focussed and then finally a general conclusion. Of course, you should have learnt this at school, but it is amazing how quickly students lose the discipline of writing in a structured manner. You need to practice these skills, which may be strengthened in tutorial sessions, for example. This is not a skill you can learn without feedback. So if your course does not offer tutorials or similar opportunities you may need to specifically request help with this from a personal mentor.

At a higher education level, top class essays show evidence of wider reading around the subject which will be exemplified by lots of detailed and relevant examples. At final year level we expect these to have appropriate references (authors and year – not the full reference). Mediocre answers will be superficial and imprecise. We give an example of this below:

'Write a short essay on the morphological and behavioural characteristics that enable each of the following fishes to locate and capture their prey: brill, tuna, anchovy, dogfish, rabbit fish, John Dory, sand gobies, flounder' *[40]*

As before, it is best to break up the essay into its key components:

*'Write a short essay on the **morphological** **and behavioural characteristics** that enable **each** of the following fishes to **locate and capture their prey**: brill, tuna, anchovy, dogfish, mackerel, John Dory, sand gobies, flounder'* *[40]*

Firstly this is a very easy essay title because it has structure imposed upon it by the specification of separate components. So for each species you need to think about the fish's **morphology** and **behaviour** and how this helps it **locate** and **capture** prey. There are eight species of fish and there are 40 marks available, so logically you should give at least five relevant points for each fish. You might benefit from grouping the fish according to where they live:

Pelagic: tuna, anchovy, John Dory, mackerel
Demersal: brill, flounder, sand gobies, dogfish

At this point you should write an essay plan and rough out a structure and as many bullet points as you can think of. Why do this? The structure will guide your writing and the bullet points will ensure you do not forget anything. If you do forget a key point, a marker can refer to the essay plan and scour for extra marks (we do actually do this) as it is easy to forget something, especially if you are pushed for time.

Once you begin writing it is important to remember that you are looking for five points for each species. Your writing needs to be precise. Many students are vague and lose marks accordingly: this is because you know what you are writing about, but the marker does not – we are not mind readers. A good way to avoid this problem is to re-read a sentence you have just written. If you ask yourself the questions 'who, why, where, how, when, what, or so what?' and you cannot answer them given the wording of your sentence, then it is imprecise and you need to add more information. Now for an example using our essay title above in which we provide only some text for the part of the answer that addresses John Dory:

'Write a short essay on the morphological and behavioural characteristics that enable each of the following fishes to locate and capture their prey: brill, tuna, anchovy, dogfish, rabbit fish, John Dory, sand gobies, flounder' *[40]*

…John Dory is a truncated fish. It has a pseudo eye spot which keeps it relatively safe from predation. The John Dory has an extendable mouth which

enables it to create a vacuum and draw the prey towards it. It is also a compressed shape which means it is less visible to its prey. The John Dory has two pairs of muscle blocks that enable it to control its fins…

Let us break up the answer and consider each statement in turn:

1. John Dory is a truncated fish. (so what?)
2. It has a pseudo eye spot which keeps it relatively safe from predation. (how?)
3. The John Dory has an extendable mouth which enables it to create a vacuum and draw the prey towards it. (how?)
4. It is also of a compressed shape which means it is less visible to its prey. (why?)
5. The John Dory has two pairs of muscle blocks that enable it to control its fins. (so what?)

We have five points which is good, but sadly not all of them are relevant. Statement one is true but has no relevance to how John Dory locate or capture prey. Statement two is true, but this is an anti-predator adaptation and similarly is not relevant in the context of the question. Statements three, four, and five are true and are relevant, but do not provide detail and are superficial. None of the statements above answer our one word questions. The following is our attempt at a model answer for this part of the essay:

The John Dory is a pelagic piscivore that feeds primarily on small forage fishes. It is laterally compressed such that it presents a small cross-sectional surface area as it approaches prey and thereby avoids detection. Its twinned muscle blocks give subtle control over its fins enabling finely controlled forward and backward movements. It is a feeble swimmer and is essentially an ambush predator. The highly articulated mouth parts enable the mouth to extend to one third of the fish's body length. The in-rush of water that occurs into the buccal cavity as the mouth is extended helps draw the prey towards the fish.

Here is the same answer with our vital questions inserted where they are answered:

The John Dory is a pelagic piscivore that feeds primarily on small forage fishes.
where on what

It is laterally compressed such that it presents a small cross-sectional surface areas
how

as it approaches prey and thereby avoids detection. Its twinned muscle blocks give
so what how

subtle control over its fins enabling finely controlled forward and backward

movements to manoeuvre close to prey. It is a feeble swimmer and is essentially an
so what

ambush predator. The highly articulated mouth parts enable the mouth to extend to
how

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how

cavity as the mouth is extended helps draw the prey towards the fish.
so what

The advice we give here is built on years of witnessing students make needless mistakes. Hopefully these experiences will help you avoid these pitfalls. Our advice is by no means comprehensive, but if it gets you thinking about how you approach the exam before you walk through the door then we have succeeded in some measure. **Good luck!**