How to Write an Effective Abstract

Hans Dam
DMS Brown Bag Seminar
UCONN
Feb 7 26, 2018
But first...

We need volunteers for the organizing committee

11th Biennial
S.Y. Feng Colloquium

May 12, 2016
Department of Marine Sciences
University of Connecticut

ORGANIZING COMMITTEE
Chris Murray
Steven Schmidt
Emily Seelen

FACULTY ADVISORS
Hans Dam
Julie Granger
Hannes Baumann

COLLOQUIUM LOGISTICS
Debra Schuler

This colloquium honors the memory of Professor S.Y. Feng, Director of the former Marine Sciences Institute, and founding Head of the Department of Marine Sciences, University of Connecticut. The Colloquium is funded by the Department of Marine Sciences and the S.Y. Feng Scholarship Fund. Donations to this fund are accepted through the University of Connecticut Foundation, and are tax deductible. All donations are greatly appreciated.

The Department of Marine Sciences wishes to thank Mrs. Jean Feng for her continued support of Marine Sciences and the growth of its students.
8:30-8:50  **Breakfast**

8:50-9:00  **Opening Remarks**

**Session I**

9:00-9:15  Variation among the microbiomes of bivalve shellfish, marine snow and aggregate-free seawater
   **Melissa Pierce**

9:15-9:30  Enzyme level N and O isotope effects of dissimilatory nitrate reduction
   **Lija Treibergs**

9:30-9:45  Are observed seasonal shifts in particle retention efficiency in the blue mussel *Mytilus edulis* real? Examining correlation with gene expression and particle size
   **Maria Rosa**

9:45-10:00  Female reproductive status affects mate choice and mating frequency in copepods
   **Zair Burris**

10:00-10:30  **Coffee Break**

**POSTERS**

The isotope effect of denitrification and its implications for the marine nitrogen budget
   **Name removed to protect the innocent**

Detection of perfluorinated compounds in wastewater effluent entering the Long Island Sound watershed
   **Joanne Elmoznino**

Watching time fly: visualization of zooplankton population dynamics 1977 - 2013 from NOAA-NEFSC Ecosystem Monitoring of the NW Atlantic continental shelf
   **Kayla Erikson**

Inorganic mercury and methylmercury concentrations in pacific phytoplankton and zooplankton **Kathleen Gosnell**

The photocatalytic effects of titanium dioxide nanoparticles on marine filter feeders
   **Name removed to protect the innocent**

Use of bathymetric proxies to predict the location of vulnerable marine species, communities, habitats and ecosystems in data-poor regions.
   **Eric Heupel**

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**So....you have to write an abstract for your presentation.**
Abstract preparation

Please, have your advisor read your abstract and help you edit it before submission.

→ Follow the format for the sample abstract (on the right)
1) Title
2) Author(s): Last name, First name
The student should be the first author. Authors are only those who made a substantial contribution to at least one of these aspects: a) designed the study, b) performed experiments, c) analyzed data, d) wrote the work, e) approved the abstract. Those who do not meet these criteria are not authors. All who meet the criteria should be asked to be authors.
3) Author(s)’ affiliations
4) Email of presenting author
→ Text is single-spaced
→ Size 12 font, Times New Roman
→ Narrative of abstract must be no more than 200 words

How to Write a Truly Horrible Conference Abstract
Dam, Hans G.
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Producing a terrible abstract requires lack of thought on the part of the writer and lack of consideration for the reader. Here I present a recipe for writing a poor abstract. 1) Choose a title that is so general that it is essentially meaningless for a short conference presentation (example: Study of the Ocean), inaccurate (Example: Primary Production in the Ocean, but your study is for a local estuary) or so narrow that only you know what it means, but the reader immediately knows your presentation is parochial (Example: PAR absorbance in the red portion of the spectrum by Species incognita in Backwater Creek Varies Between 2 and 3 PM). 2) Provide zero background for the motivation and importance of your work, or-- if you do-- state truisms (example: biological production in the ocean is important) or disregard the audience (just talk to your niche group). By all means, do not state a problem or hypothesis that motivates your work. 3) Give so much detail for methods that the reader is sleeping by the time she finishes reading that section. 4) Do not present the main results in a logical and consistent manner. That is, make sure the results have little to do with the motivation and hypotheses of your study, or if they do, present them in random order of importance. 5). Fail to indicate the implications of your results. That would be an insult to the reader and you know better. Alternatively, waste valuable space by stating that the implications of the results will be discussed. 6. Pay no attention to grammar and spelling. After all, that’s what editors are for. 7) Do not follow the rules for preparing and formatting the abstract. For example, be like me in exceeding the word limit because rules are for suckers. In summary, following this recipe will ensure that your abstract will be immediately forgotten or that it will be long remembered for all the wrong reasons.

Choose: Oral (X) Poster ( )
Abstract

What is it? Stand-alone, one-paragraph summary of main points of a piece of work (study/review/essay/presentation)

Purpose:

• Advertisement in scholarly market
  Audience uses it to decide whether or not to engage with your work (read paper/attend presentation)

• Assignment of reviewers/conference sessions, indexing & translation services
Purposes of the Abstract

• Provides reminders for readers after they’ve read the article
• Directs readers’ attention to the highlights of the article

The abstract reflects on the professionalism and integrity of the work, and likely decides if the work will be cited.
Common Elements of Good Abstracts (4Cs, or ABC)

• **Complete (also accurate, A)** — covers major parts of project

• **Concise (Brief)** — essential information & text

• **Clear (C)** — readable, well organized, jargonless

• **Cohesive (C)** — smooth flow
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<tr>
<th>Type of Abstract</th>
<th>Informative</th>
<th>Indicative</th>
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## Abstract Component Allocation (%)

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<td>Discussion</td>
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Tips to Ace the Abstract

• **Appropriate title:** Complete & accurate
  • Goldilocks rule (Not too broad or narrow)
  • Enhance reader’s interest (sexy, but not frivolous)
  • Help the reader

• **Motivation:** Problem & hypothesis are winners

• **Methods:** Not the recipe, but the approach or how you tested hypothesis

• **Results:** Cut to the chase (main points only)

• **Discussion:** Do state a conclusion, insight or implication
Common Errors (to Avoid)

Substance:
• Inconsistency between text and abstract
• Reporting data not present in the paper
• Both above

Style:
• Jargon, abbreviations, references
• Present tense in methods and results
Color Coding for Abstract Sections in Following Slides

- **Yellow**: Introduction
- **Teal**: Methods
- **Green**: Results
- **Red**: Conclusion

**Strikethrough**: Remove
The marine dinoflagellate complex *Alexandrium tamarense* is characterized by strain-specific production of paralytic shellfish toxins (PST). There is considerable controversy as to whether PST production is an efficient form of defense against grazing. PST production in *Alexandrium* is both constitutive (always present) and inducible (increased in response to metazoan grazing). The latter has been assumed to be a form of defense. If that is indeed the case, then strains that produce PST should suffer lower grazing losses than those that do not produce PST. Moreover, if the efficiency of defense is proportional to PST production, then strains with the greatest PST production should suffer the lowest grazing losses. In addition, the cost of PST production, for a given strain, is manifested as a tradeoff with cell growth. Finally, the cost of constitutive PST production can be assessed by comparison of cell growth rates, in the absence of grazing, between strains that produce and do not produce PST. We tested these notions in laboratory studies (four separate experiments) by comparing net growth rates of three *Alexandrium* strains that differed in PST production (no PST production, moderate and high PST production, respectively) as a function of grazing pressure (given by a gradient in copepod concentration). There was no clear difference in growth rates among strains in the absence of grazing suggesting that the constitutive cost of toxin production is low. However, there were differences in the slopes of cell growth versus grazer concentration among strains, with the high-toxin strain usually having the steepest slope (greatest loss rate), and the moderate toxin strain having the lowest slope or no slope (lowest loss rate, or a balance between growth and grazing, respectively). This suggests that the best defense strategy is moderate PST production.
There is still controversy as to whether saxitoxin (STX) production by prey is an efficient form of defense against grazing. We tested for benefit and cost of STX production (both constitutive and inducible) in the marine dinoflagellate *Alexandrium tamarense* complex in response to copepod grazing. In four separate laboratory studies, we compared net growth rates of three *Alexandrium* strains that differed in STX production (no production, moderate and high STX production, respectively) as a function of grazing pressure (given by a gradient in copepod concentration). There were no clear differences in net growth rates among strains in the absence of grazing, suggesting that the constitutive cost of toxin production is low. However, there were differences in the slopes of net growth rate versus grazer concentration among strains, with the high-toxin strain usually having the steepest slope (greatest loss rate), and the moderate toxin strain having the lowest slope (lowest grazing loss) or zero slope (balance between cell growth and grazing). This suggests that high toxin production is not necessarily advantageous, whereas moderate toxin production may be the evolutionarily stable strategy.
Knowledge of the isotope effect of denitrification, the ratio of the rate at which the light and heavy isotopes of nitrogen in nitrate are depleted during nitrate respiration, is essential to the determination of a marine nitrogen budget as derived from an isotopic mass balance of nitrogen. However, the isotope effect of denitrification has been seen to vary significantly when measured in the laboratory, and the cause(s) of its variation are yet unresolved. In this study, *Paracoccus denitrificans*, a model bacterium used in the study of denitrification, was grown on several carbon sources with a range of oxidation states to test the hypothesis that carbon substrates of a higher oxidation state will result in a lower isotope effect. While no clear relationship was found between the oxidation state of the carbon substrate and the isotope effect of denitrification, a strong association between the isotope effect and the specific growth rate was observed. I hypothesize that these results are due to the ultimate control of the isotope effect by the rate of supply of electrons to respiratory processes, which is in turn driven by the organism’s growth rate and the relative partitioning of energy between anabolism and respiration during growth on a particular carbon substrate.
The photocatalytic effects of titanium dioxide nanoparticles on marine filter feeders

Metal-oxide nanoparticles are used in a variety of consumer products and their environmental loads are in the range of ppb; however, the production of nanoparticles is expected to increase in the next decade (Neal et al., 2011) and thus their release into the environment. Photocatalytic properties of TiO$_2$ nanoparticles generate reactive oxygen species that can cause cellular stress and damage DNA (Reeves et al., 2008), causing toxic effects on cells, tissues and organisms. The transport and fate of TiO$_2$ in the environment are dependent on a number of properties (e.g., pH, ionic strength and concentration of organics) and there is evidence that these nanoparticles are incorporated into marine snow through association with other particles (Stolpe and Hassellov 2007). As such, TiO$_2$ could impact both the microbial communities associated with marine snow, as well as benthic organisms that consume the suspended microparticulate material that is exported from the water column. The aims of this study are to examine the photocatalytic effects of TiO$_2$ on marine snow-associated microbes and benthic filter feeders under natural light regimes. This work will provide information about the environmental risk of nanoparticles in the coastal environment, in particular their bioavailability and toxic effects on cellular processes and whole organisms.
Recipe for Writing a Good Abstract

• Informative or Indicative?
• Cocktail mixture
  (Scope/approach/results/conclusions)
• Follow 4Cs (ABC)
• Remember the tips for acing abstract
• Feedback from peers
• Revise, revise, revise