

How to Write an Effective Abstract

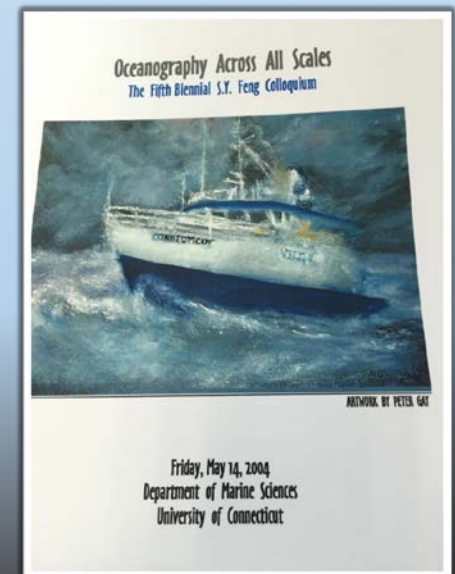
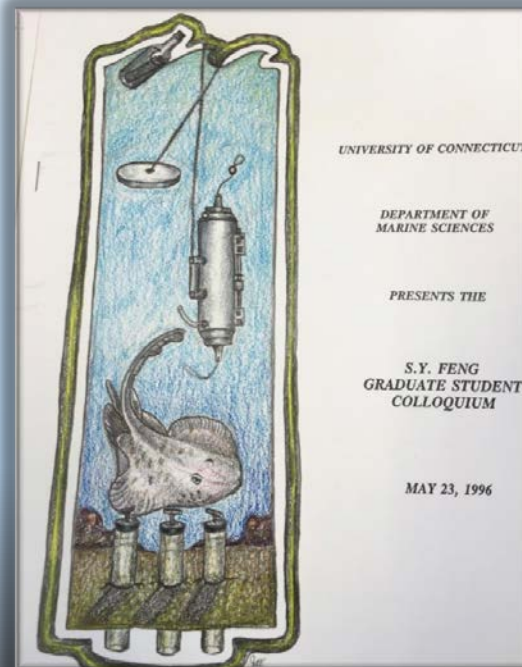
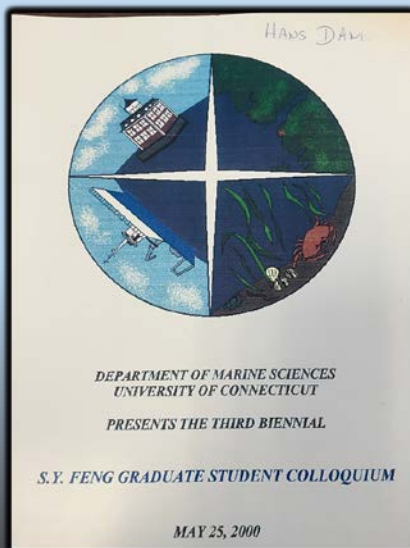
Hans Dam

DMS Brown Bag Seminar

UCONN

March 1, 2023

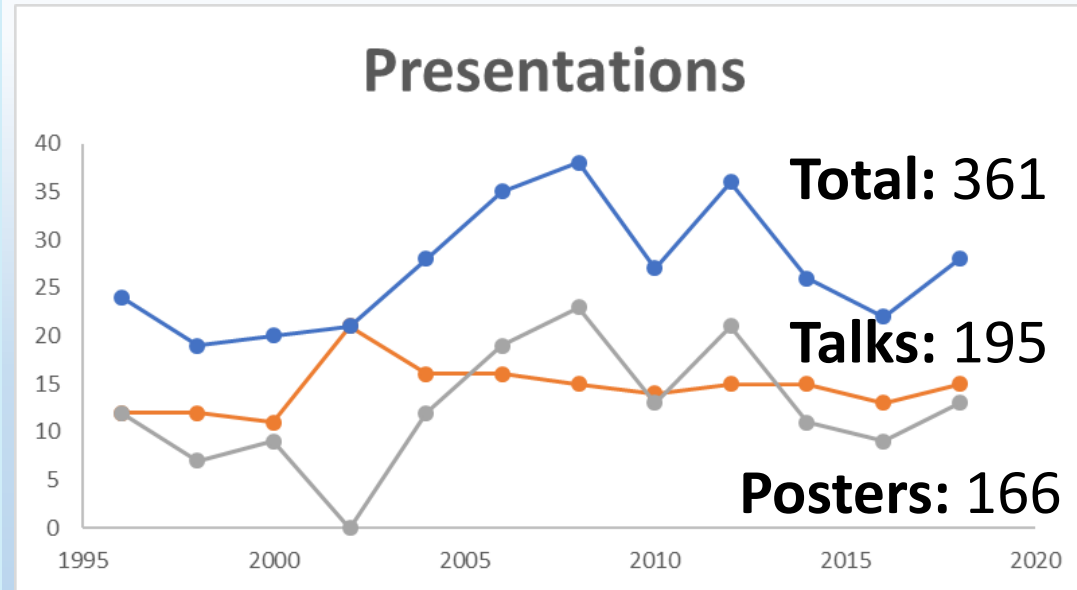
Welcome to the 14TH Feng Graduate Research Colloquium



In honor of Professor S. Y. Feng, Director of the former Marine Sciences Institute, and founder Head of the Department of Marine Sciences, University of Connecticut



27 Years



~ 2 presentations/student

Why a Colloquium?

- Showcase research & obtain feedback
- Develop presentation skills
- Develop organizational and leadership skills
- Foster scientific fellowship
- Use presentations to outline papers & future work
- Track your progress
- Have a jolly good time

So....you have to write an abstract for your presentation.

8:30-8:50	Breakfast	POSTERS
8:50-9:00	Opening Remarks	The isotope effect of denitrification and its implications for the marine nitrogen budget Name removed to protect the innocent
	Session I	
9:00-9:15	Variation among the microbiomes of bivalve shellfish, marine snow and aggregate-free seawater Melissa Pierce	Detection of perfluorinated compounds in wastewater effluent entering the Long Island Sound watershed Joanne Elmoznino
9:15-9:30	Enzyme level N and O isotope effects of dissimilatory nitrate reduction Lija Treibergs	Watching time fly: visualization of zooplankton population dynamics 1977 - 2013 from NOAA-NEFSC Ecosystem Monitoring of the NW Atlantic continental shelf Kayla Erikson
9:30-9:45	Are observed seasonal shifts in particle retention efficiency in the blue mussel <i>Mytilus edulis</i> real? Examining correlation with gene expression and particle size Maria Rosa	Inorganic mercury and methylmercury concentrations in pacific phytoplankton and zooplankton Kathleen Gosnell
9:45-10:00	Female reproductive status affects mate choice and mating frequency in copepods Zair Burris	The photocatalytic effects of titanium dioxide nanoparticles on marine filter feeders Name removed to protect the innocent
10:00-10:30	Coffee Break	Use of bathymetric proxies to predict the location of vulnerable marine species, communities, habitats and ecosystems in data-poor regions. Eric Heupel

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**

Timeline

- **April 1:** Draft of abstracts due (**mail to hans.dam@uconn.edu**)
- **April 15:** abstracts returned to students with comments and suggestions
- **May 1:** Final abstracts *due*.

Additional Information

- Oral presentations will be 15 minutes (12 minutes for presentation + 3 for Q/A).
- All requests for poster presentations will be honored.
- If more oral presentations are requested than the number of slots available, then the steering committee will decide which presentations will be oral to ensure a balance among all areas of research.
- The final schedule for oral presentations will be available by *the final abstract submission deadline – May 1*.
- The Feng Colloquium cannot run without *your* participation; in fairness to all students, everyone is required to participate unless unavoidable circumstances prevent you from doing so. Please, see Dr. Dam immediately if you think that you cannot participate in the Colloquium.

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? Summary of **main points** of work
(study/review/essay/presentation)

Purpose:

- Advertisement
read paper/attend presentation?
- Assignment of reviewers/conference sessions,
indexing & translation services

Abstract Types

Informative

Investigation

Motivation

Methodology

Results

Discussion, Conclusions

Indicative

Essay, Review

Motivation, Scope
Approach

Conclusions

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

Tips to Ace the Abstract

- **Appropriate title:** Complete & accurate
 - Goldilock rule (Not too broad or narrow)
 - Enhance reader's interest (appealing, but not glib or cute)
 - Help the reader (keywords)
- **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:** State a conclusion, insight or implication

Common Errors (to Avoid)

Substance:

- Inconsistency between presentation and abstract

Style:

- Excessive Jargon, abbreviations, references
- Present tense in methods and results

Abstract Component Allocation

**Work Done
Broad Audience**

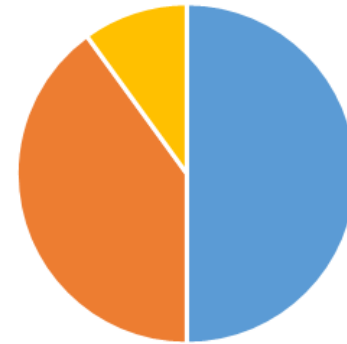


■ Motivation ■ Methods ■ Results ■ Discussion

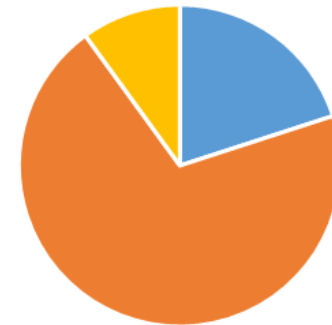
**Work Done
Narrow Audience**



**Work to Be done
Broad Audience**



**Work to Be Done
Narrow Audience**



Color Coding for Abstract Sections in Following Slides

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

~~Strikethrough:~~ Remove

Cost and benefit of toxin production in a marine dinoflagellate in Response to Copepod Grazing (First Draft)

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. (289 WORDS)

Cost and Benefit of Toxin Production in a Marine Dinoflagellate in Response to Copepod Grazing

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. (180 words)

The isotope effect of denitrification and its implications for the marine nitrogen budget

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 TiO₂ 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 TiO₂ 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 Hasselov 2007). As such, TiO₂ 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 TiO₂ 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