Melissa S. Armstrong

Hamilton, ON | 617-365-6643 | melissa.armstrong@gmail.com | undisciplinedart.com

Student Portfolio

Video link to view a reel of time-based student work
https://youtu.be/DCCjyHjItR0

Included works:

Hungry Eyes by Morrison Tulloch, created in fulfillment of The Networked Image GIF assignment for *VISA 110 Foundation Studio: Digital Media*, spring 2023. Tulloch was interested in exploring the objectifying gaze through reaction shots that occur after the camera objectifies a body in film and television. Digital stills included on page 7.

Cycle by Pia Lo, created in fulfillment of The Networked Image GIF assignment for *VISA 110 Foundation Studio: Digital Media*, spring 2023. Lo appropriated images of death and decay that are necessary for birth. Digital still included on page 8.

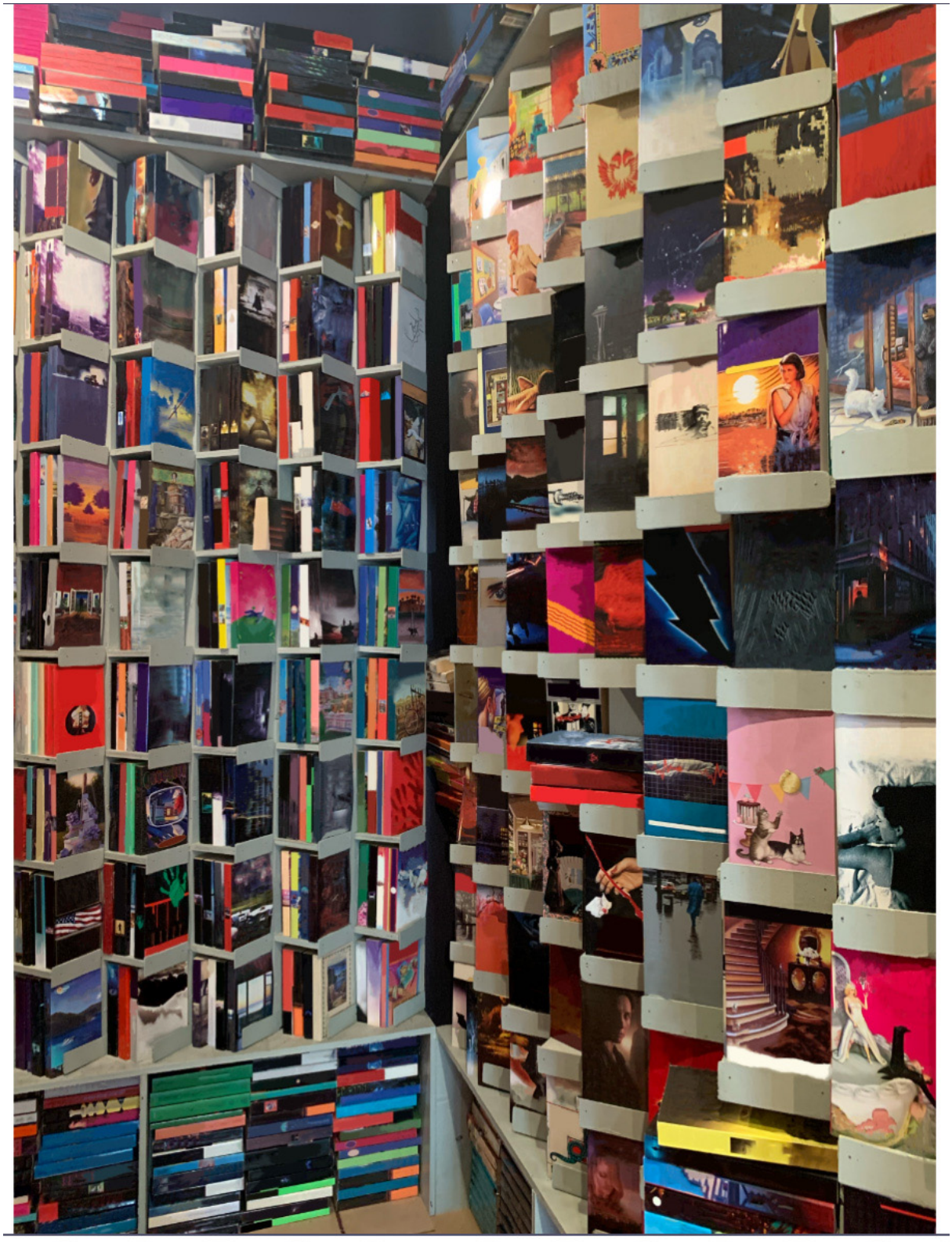
No Fair by Sheenam Prabhakar in fulfillment of The Networked Image GIF assignment for *VISA 110 Foundation Studio: Digital Media*, spring 2023. Prabhakar studied South Asian double consciousness through differences in beauty company messaging in the west vs the east. Digital still included on page 9.

While all the images in this portfolio of recent student work are from digital media classes, I am more interested in teaching sculpture and physical media based classes as I have equal or more expertise in three-dimensional media. Student work included here is from classes I was invited to teach due to my background in graphic and industrial design.

Pairs, conceptual photography “formula” project by Aidan Cheung from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Cheung photographed every sock in the ‘missing sole mate” pile in his dorm laundry facility, paired them, and organized them by color.

Nitobe Garden, conceptual photography “formula” project by Aurelia Workneh from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Workneh photographed her walk, making an image each time the path changed direction and organized the images according to the path’s twists and turns.

Dog Meat, photographic “erasure” project by Kiran Bassi from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Bassi appropriated a photograph by Farah Al Qasimi, *Piper at the Barbeque in Houston*, depicting a pile of guns and meat on a table and digitally erased all the guns, resulting in the above image.

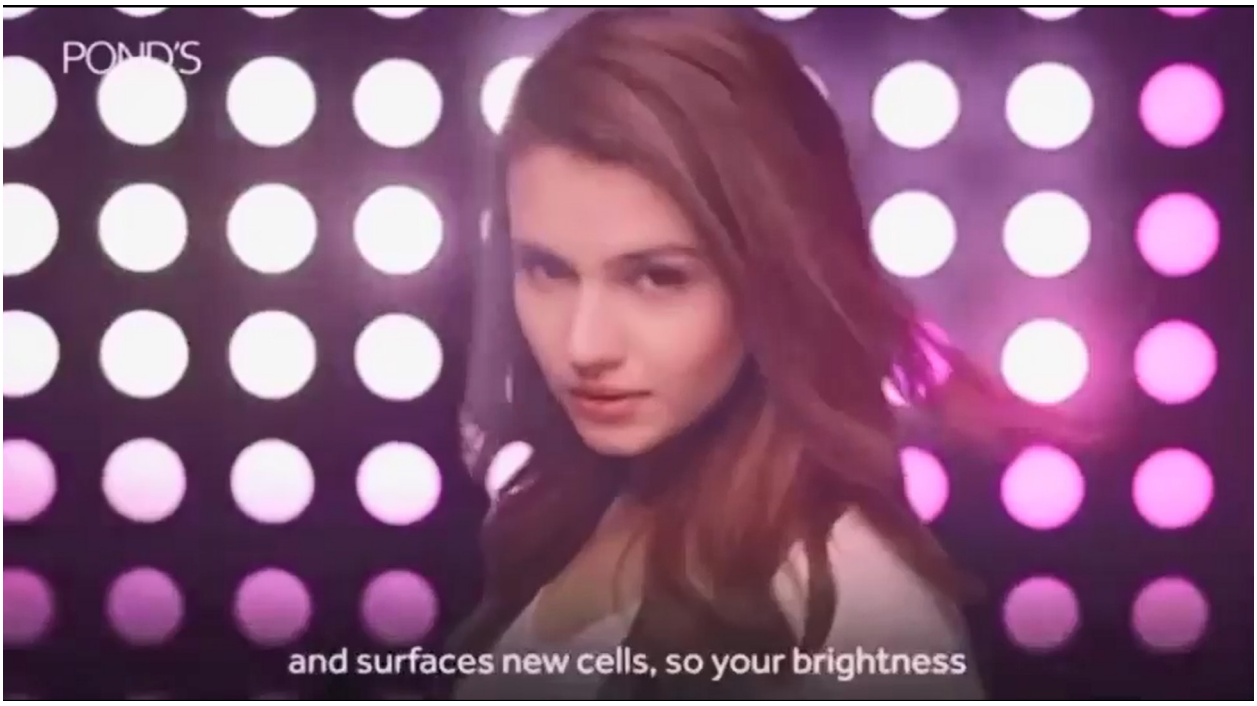


Bookstore, photographic “erasure” project by Lily Hogenstad-Patrick from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Hogenstad-Patrick erased text from the books in the image.

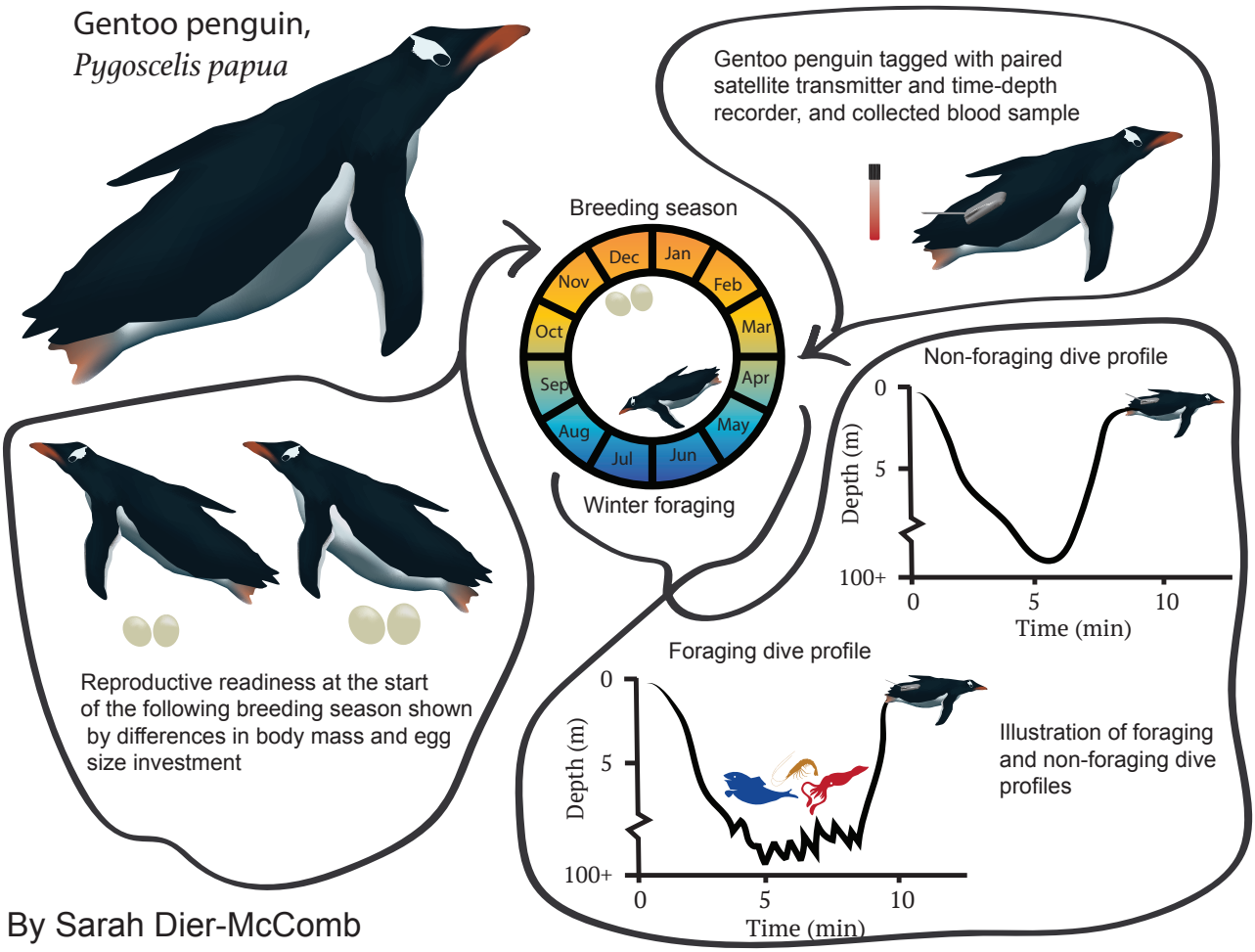
Gaijin, photographic “erasure” project by Morrison Tulloch from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Morrison digitally erased her costume from a childhood school performance when she lived in Japan.

Digital stills from *Hungry Eyes,* the networked image "gif" project by Morrison Tulloch from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Tulloch was interested in exploring the objectifying gaze through reaction shots that occur after the camera objectifies a body in film and television. The full video is included in a reel of student time-based work, link on page 1.

Digital still from *Cycle*, the networked image “gif” project by Pia Lo from *VISA 110 Foundation Studio: Digital Media,* spring 2023. Lo appropriated clips of decay or death providing necessary sustenance for birth. The full video is included in a reel of student time-based work, link on page 1.



Digital stills from *No Fair*, the networked image "gif" project by Sheenam Prabhakar from *VISA 110 Foundation Studio: Digital Media*, spring 2023. Prabhakar studied South Asian double consciousness through differences in beauty company messaging in the west vs the east. The full video is included in a reel of student time-based work, link on page 1.



Organism illustration from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department MSc student Sarah McComb-Turbitt. Students were asked to create a vector illustration of their study organism in their first assignment, which they would then use in each subsequent assignment.

Winter foraging and the subsequent reproductive readiness of Gentoo Penguins, *Pygoscelis papua*

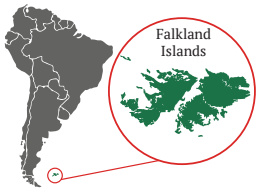
Sarah Dier-McComb[1], Marie Auger-Méthé[1], Glenn Crossin[2]
[1]Zoology Department, University of British Columbia [2]Biology Department, Dalhousie University

BACKGROUND

Gentoo penguin (*Pygoscelis papua*) colonies fluctuate around the Falkland Islands which are attributed to a range of reasons from illness to foraging success[1].

While we know foraging behaviour for Gentoo penguins during the breeding season and pre-moult interval period[2,3], little is known on their wintering foraging patterns.

Migratory costs during winter foraging can carry over and impede reproductive readiness for following breeding seasons[4].

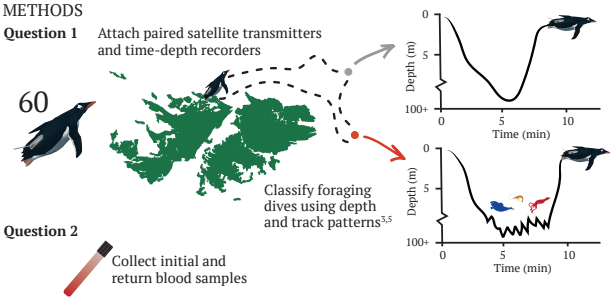


RESEARCH QUESTIONS

1. Where are Gentoo penguins foraging during the non-breeding season
2. How does this relate to their reproductive success?

METHODS

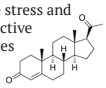
Question 1 Attach paired satellite transmitters and time-depth recorders



Question 2

Collect initial and return blood samples

Analyze stress and reproductive hormones

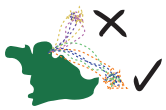


Relate foraging behaviour to proxies of reproductive readiness

$$\text{Foraging efficiency} = \frac{\text{\# Foraging events}}{\text{Distance traveled}}$$

POSSIBLE RESULTS

Investigate foraging site quality



Investigate individual foraging strategies

SIGNIFICANCE

Gentoo penguins are an important tourist attraction for the economy of the Falkland Islands.

Information gained will provide insight on basic aspects of non-breeding foraging behaviour in Gentoo penguins.

It will advance our understanding of penguin foraging behaviour profiles and the impact of foraging location decisions on breeding success.

We will better understand migratory costs through further knowledge of their effect on reproductive success.

Determination of successful foraging areas amidst non-successful areas for Gentoo penguins will aid in conservation efforts.

We will better understand potential affects from anthropogenic activities such as fisheries competition and oil exploration.

This research also provides a novel way to assess the importance of geographical areas, which can be applied to a variety of other species.

LITTERATURE CITED

[1] Pistorius PA, et al. 2010. Marine Ornithology 38: 49-53.
[2] Crossin GT, et al. 2010. American Naturalist 176: 357-366.
[3] Kokubun N, et al. 2010. Mar Biol 157: 811-825.
[4] Lee WY, et al. 2015. Animal Cells Syst. 19(4): 274-281.
[5] Takahashi A, et al. 2004. Marine Ornithology 32: 47-54.

THE UNIVERSITY OF BRITISH COLUMBIA · DALHOUSIE UNIVERSITY · NSERC CRSNG

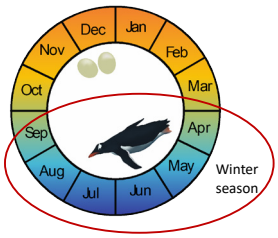
Mini-poster from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department MSc student Sarah McComb-Turbitt, utilizing the organism illustrations from the previous page.

Winter foraging and the subsequent reproductive readiness of Gentoo Penguins, *Pygoscelis papua*

Sarah Dier-McComb

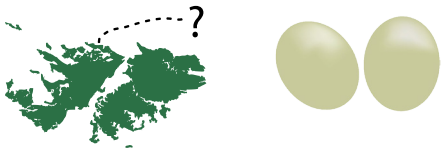
Background

- Around 40% are found on the Falkland Islands
- Colony populations fluctuate
- Winter movement costs can carryover and impact reproductive readiness in the breeding season

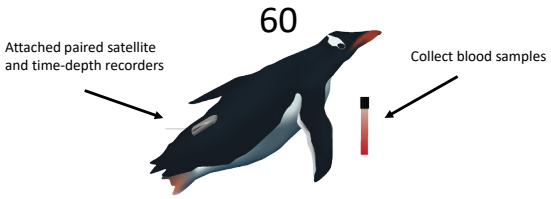


Research Questions

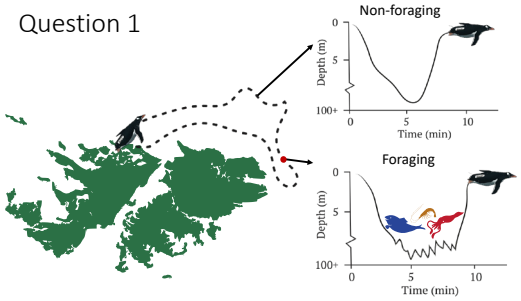
1. Where are Gentoo penguins foraging during the non-breeding season?
2. How does this relate to their reproductive success?



Methods



Question 1

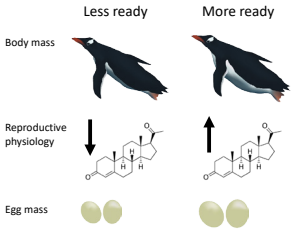


Question 2

Measure foraging success

$$\text{Foraging efficiency} = \frac{\#\text{ Foraging events}}{\text{Distance traveled}}$$

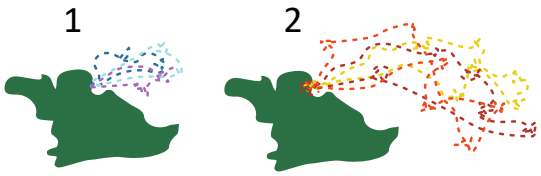
Relate foraging behaviours to proxies of reproductive readiness



Potential Results – Foraging strategies

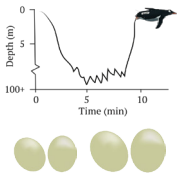
Shorter trips, return frequently to rest

Longer trips before returning to rest

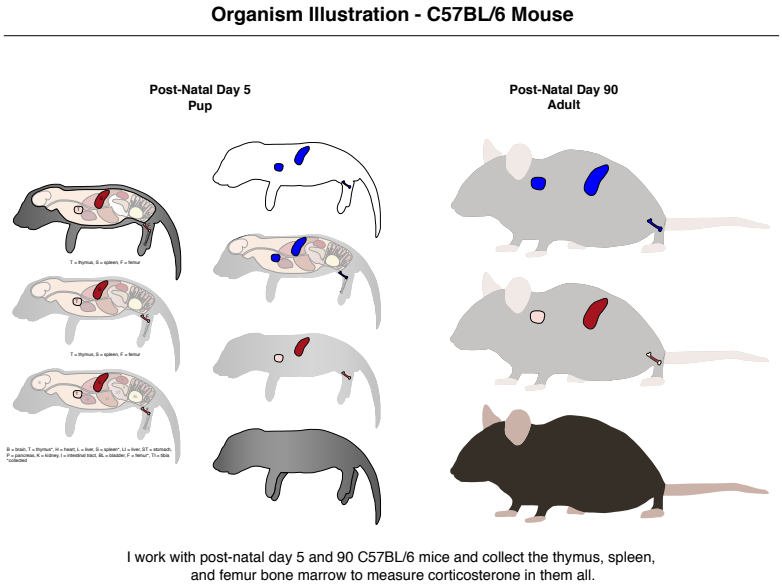


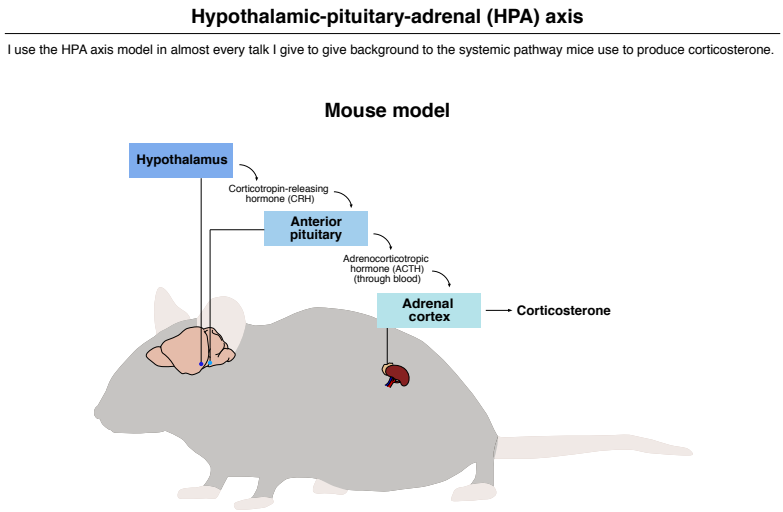
Research Significance

- Provide insight on basic aspects of non-breeding foraging behaviour
- Advance understanding of penguin foraging profiles and the impact of foraging location decisions on breeding success
- We can better understand winter movement costs
- Reduce impacts from anthropogenic activities, such as fisheries competition and bycatch and oil exploration
- Provides a novel way to assess the importance of geographical areas



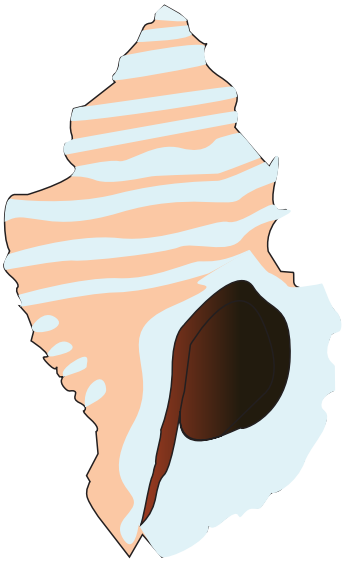
Slides accompanying a mini-talk from *BIOL548L: Visual and Oral Presentations,* fall 2017, by Zoology Department MSc student Sarah McComb-Turbitt, utilizing the organism illustrations from the previous pages. McComb-Turbitt is now a wildlife artist for conservation.



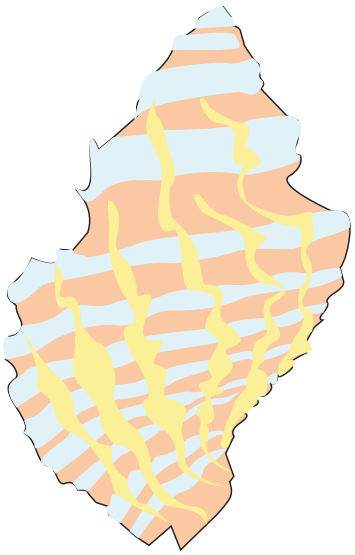


Organism illustration from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department BSc student Melody Salehzadeh. Students were asked to create a vector illustration of their study organism in their first assignment, which they would then use in each subsequent assignment. Salehzadeh is currently wrapping up a PhD in Zoology at UBC.

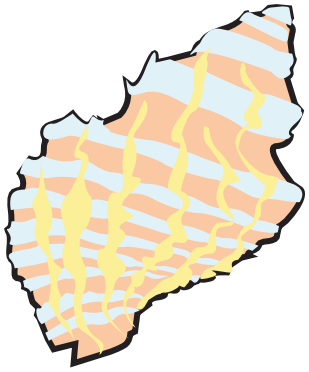
Organism illustration
Scientific name: *Nucella lamellosa*
Common name: Frilled dogwhelk
Fiona Beaty
BIOL 548L

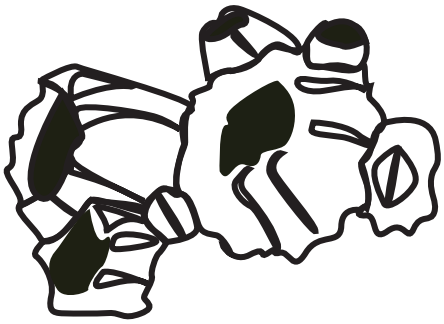


Front view



Back view



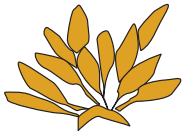


Feeding rate measurement
Snail + prey
(acorn barnacles)

Organism illustration from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department MSc student Fiona Beaty. Students were asked to create a vector illustration of their study organism in their first assignment, which they would then use in each future assignment: a poster and talk.

Local adaptation in marine invertebrates to multiple climate-linked stressors

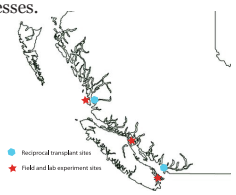
Fiona Beaty, Christopher Harley
University of British Columbia



Introduction

Climate-linked changes, such as elevated oceanic acidity and temperature, have the potential to significantly alter marine ecosystem structures.

Species survival during periods of environmental change is determined by non-adaptive (i.e. gene flow) and adaptive (i.e. natural selection) evolutionary processes.

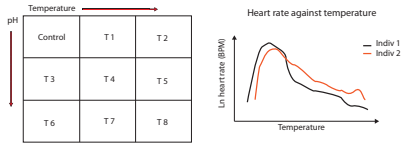


I will study whether marine invertebrate populations are locally adapted to regional pH and temperature, whether stressors have an interactive effect on organism performance, and whether local adaptation impacts an organism's response to interactive stressors.

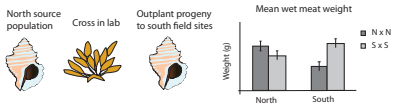
Methods and expected results

A.) *In situ* performance measurements

B.) Factorial laboratory experiment



C.) Reciprocal transplant



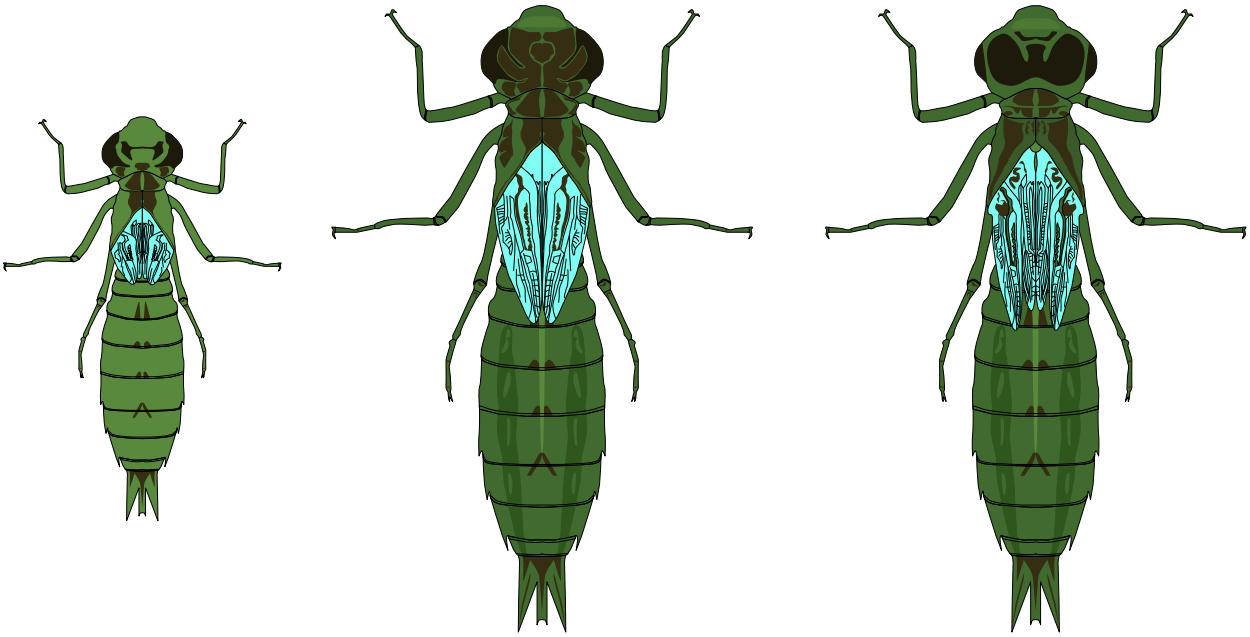
Hypotheses

(i.) Elevated temperature will increase snail heart, feeding, and growth rates;
(ii.) elevated acidity will increase shell dissolution rates and reduce growth via the effects of net calcification
(iii.) warmer water may help *Nucella lamellosa* deal with the physiological costs of acidification; and
(iv.) source populations will differ in their responses to stressors.

Discussion

My research will help to unpack the complex responses of coastal species to multiple climate-linked stressors, and will shed light on how local adaptation may impact species survival under changing ocean conditions. Gaining a better understanding of the adaptive potential of ecologically and economically important marine species can inform conservation policies, and further the accuracy of performance predictions for communities and ecosystems under future contexts of change.

Mini-poster from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department MSc student Fiona Beaty, utilizing the organism illustration from the previous page. Beaty is now a coordinator in the Marine Protected Areas stewardship network.



Young	Old	Oldest
Small size	Large size	Large size
Scarce head pigment	Heavy head pigment	Unified head pigment
Small/spreadout wingbud	Large/collapsed wingbud	Large/spreadout wingbud

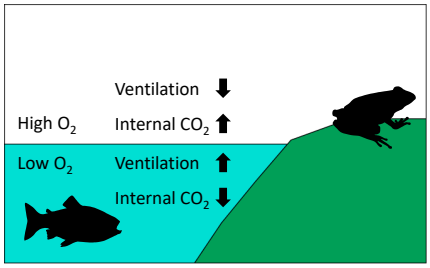
The variations are designed to show how *Anax junius* dragonfly nymphs change in appearance as they grow older. Specifically, the different illustrations show changes in overall body size/colouration, head pigmentation, and wingbud size and shape (in white).

Organism illustration from *BIOL548L: Visual and Oral Presentations*, fall 2017, by Zoology Department MSc student Daniel Lee. Students were asked to create a vector illustration of their study organism in their first assignment, which they would then use in each future assignment: a poster and talk.

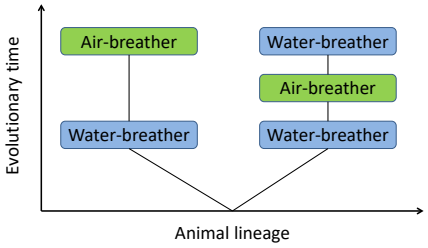
Changes in hemolymph T_{CO_2} across the water-to-air respiratory transition in Aeshnid dragonflies

Daniel J. Lee and Philip G.D. Matthews

Water-breathing vs. air-breathing

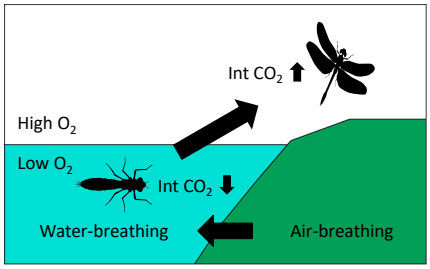


An unaddressed question

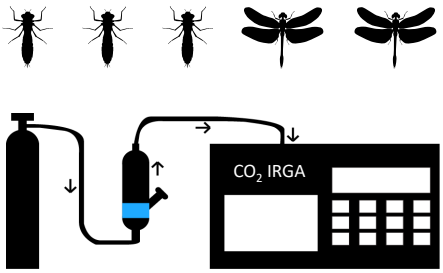


Could the internal CO_2 trend between water-breathing and air-breathing actually be a byproduct of evolution?

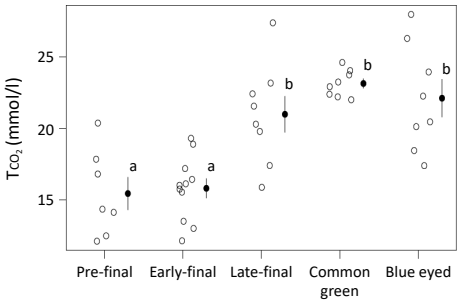
Dragonflies as a study group



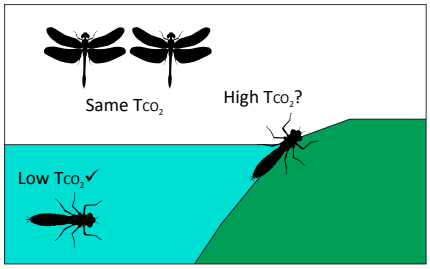
Measuring total internal CO_2 (T_{CO_2})



T_{CO_2} profiles across development



Overall pattern in dragonflies



Thank you

Dr. Philip G.D. Matthews
Anna Robertson
Alex Chang
Ramandeep Ubhi

NSERC CRSNG

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