Matthew LH. Cheng

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EDUCATION

University of Alaska Fairbanks, College of Fisheries and Ocean Sciences 2021 - Present
PhD., Fisheries Science (GPA: 4.0/4.0) Juneau, AK

University of New Hampshire, College of Life Sciences and Agriculture 2017 - 2021
BS., Marine Estuarine and Freshwater Biology (GPA: 3.75/4.0) Durham, NH

PUBLICATIONS

Published:

1. Stasse, A., **Cheng, M. L. H.**, Meyer, K., Bumbera, N., Van Volkom, K., Laferriere, A. M., Dijkstra, J. A., Brown, B. (2022). Temporal Dynamics of Eastern Oyster Larval Abundance in Great Bay Estuary, New Hampshire. **Journal of Shellfish Research**, 40(3). https://doi.org/10.2983/035.040.0303

2. **Cheng, M. L. H.**, Lippmann, T. C., Dijkstra, J. A., Bradt, G., Cook, S., Choi, J.-G., Brown, B. L. (2021). A baseline for microplastic particle occurrence and distribution in Great Bay Estuary. **Marine Pollution Bulletin**, 170, 112653. https://doi.org/10.1016/j.marpolbul.2021.112653

3. **Cheng, M. L. H**., Hinch, S. G., Juanes, F., Healy, S. J., Lotto, A. G., Mapley, S. J., Furey, N. B. (2022). Acoustic Imaging Observes PredatorPrey Interactions between Bull Trout and Migrating Sockeye Salmon Smolts. North American Journal of Fisheries Management, nafm.10833. https://doi.org/10.1002/nafm.10833

In review:

1. **Cheng, M. L. H**., Rodgveller, C.J., Langan, J.A., Cunningham C.J., Development of Fishery-dependent Abundance Indices for Alaska Sablefish (*Anoplopoma fimbria*)" *(In review - ICES Journal of Marine Science)*

In preparation:

1. **Cheng, M. L. H**., Vajda, Z., Brammer, D., Harris. L.G., Monitoring of Temperature in the Benthic Zone of the Gulf of Maine and Assessment of the Effects of Temperature on Disease Incidence of *Strongylocentrotus droebachiensis* and *Henricia sanguinolenta (Plan to submit to Northeastern Naturalist)*

2. **Cheng, M. L. H**., Goethel, D.R., Cunningham C.J., What do we when a new fishery emerges? Investigating the treatment of fleet structure in a rapidly developing pot fishery for the Alaska sablefish (Anoplopoma fimbria) stock assessment model" *(Plan to submit to ICES Journal of Marine Science)*

Techincal reports:

1. Goethel, D.R., Rodgveller, C.J., Echave, K.B., Shotwell, S.K., Siwicke, K.A., Malecha, P.W., **Cheng, M.L.H**, Williams, M., Omori, K., and Lunsford, C.R. 2022. Assessment of the Sablefish Stock in Alaska. 182.

EXPERIENCE

Research Assistant University of New Hampshire
Supervisor: Bonnie L. Brown May 2019 - May 2021

- **A baseline for microplastic particle occurrence and distribution in Great Bay Estuary**

    * Identified, optimized, and designed physical and chemical methods for separating microplastics from sediment cores.
    * Quantified microplastics using confocal microscopy, and analyzed data to prepare reports.
- **Evaluation of Eastern oyster larval abundance in Great Bay Estuary, New Hampshire**
    * Collected zooplankton via larval tows, deployed and retrieved spat collectors to quantify settling rates of oyster spat
    * Quantified larval abundance via microscopy, and analyzed data to prepare reports.

Research Coordinator University of New Hampshire
Supervisor: Elizabeth Craig Jan 2021 - May 2021

- **Evaluating regurgitated pellets as indicators of microplastic ingestion by New Hampshire breeding seabirds**
    * Conducted literature reviews, optimized, and designed methods for separating microplastics from regurgitated pellets cores.
    * Coordinated project logistics and mentored two undergraduates.
        · Provided reading material, introduced R software for statistical analyses, assisted with coding.

Research Assistant University of New Hampshire
Supervisor: Nathan B. Furey May 2020 - May 2021

- **Using acoustic imaging to assess predator-prey interactions between migrating juvenile Sockeye Salmon smolts and Bull Trout in British Columbia**
    * Analyzed DIDSON (acoustic sonar) videos from Chilko Lake, British Columbia to investigate predatory-prey dynamics between Bull Trout and migrating Sockeye Salmon smolts

Research Capstone University of New Hampshire
Supervisor: Larry G. Harris Aug 2019 - May 2020

- **Monitoring of Temperature in the Benthic Zone of the Gulf of Maine and Assessment of the Effects of Temperature on Disease Incidence of Strongylocentrotus droebachiensis and Henricia sanguinolenta**
    * Designed a microcosm experiment to investigate the impacts of warming temperature on green sea urchins and blood stars.
    * Developed survivorship models to elucidate wasting disease onset in response to warming temperatures.

ADDITIONAL EXPERIENCE

Field Technician University of New Hampshire
Supervisor: Nathan B. Furey Summer 2021

- Coordinated field logistics, conducted habitat mapping, cataloged invasive knotweed, collected stream macroinvertebrates in Northern New Hampshire
- Recaptured PIT tagged knotweed bundles to understand knotweed dispersal
- Conducted electrofishing surveys to capture Brook Trout

Wildlife Intern USGS Northeast Climate Adaptation Science Center
Supervisor: Alexej Sirén Aug 2020 - May 2021

- Collated wildlife and snow data into a central database
- Responsible for data management and proofing of database

NSF REU Intern University of Delaware
Supervisor: Joanna York Summer 2020

- In-person projects cancelled due to COVID-19, but relevant distance learning in topics such as scientific communication, current research at UD, science ethics, technical writing, and data visualization.

Intern New Hampshire Community Seafood
Supervisor: Andrea Tomlinson Jul 2019 - Dec 2020

- Engaged fishers to coordinate and collaborate with academics on future research projects
- Directed public outreach efforts on sourcing sustainable and local seafood, and fishery related topics
- Solicited potential customers to join our community supported fishery program

OUTREACH & TEACHING

CFOS NSF GRFP Workshop University of Alaska Fairbanks
Workshop Co-lead Fall 2022

- Co-led a workshop covering application components for the NSF GRFP, pairing up applicants with mentors to develop a fellowship application.

BIOL 492; Biology Seminar University of Alaska Southeast
Guest Lecturer Spring 2022

- Presented a lecture on predator-prey interactions between sockeye smolts and bull trout and catch-per-unit-effort standardization methods.

NSF Tamamta Graduate Fellowship University of Alaska Fairbanks
Teaching assistant Fall 2021

- Provided personalized tutoring for graduate students(s) taking Calculus I.

BIOLG 541; General Ecology Teaching Assistant University of New Hampshire
Supervisor: James Haney Spring 2020

- Assisted with lab and field instruction, helping refine and engage students in ecological concepts

PRESENTATIONS

***Best student presentation/poster award**

Cheng MLH, Rodgveller CJ, Langan JA, Goethel, DR, Cunningham CJ, Standardizing sablefish catch-per-unit-effort (CPUE) across gear types and data sources. (2022) September Groundfish Plan Team Meeting

Cheng MLH, Rodgveller CJ, Cunningham CJ, Development of Fishery-dependent Abundance Indices for Alaska Sablefish (Anoplopoma fimbria). (2022) NOAA CPUE Discussion Group

Cheng MLH, Rodgveller CJ, Langan JA, Cunningham CJ, Development of Fishery-dependent Abundance Indices for Alaska Sablefish (Anoplopoma fimbria). (2022) 152nd Annual American Fisheries Society Meeting, Oral Presentation

***Cheng MLH**, Rodgveller CJ, Cunningham CJ, Development of Fishery-dependent Abundance Indices for Alaska Sablefish (Anoplopoma fimbria). (2022) 25th Annual American Fisheries Society Student Symposium (UAF CFOS), Oral Presentation

Cheng MLH, Rodgveller CJ, Cunningham CJ, Development of Fishery-dependent Abundance Indices for Alaska Sablefish (Anoplopoma fimbria). (2022) American Fisheries Society Alaska Chapter Meeting, Oral Presentation

Stasse. A, Meyer. K, **Cheng MLH**, Brown BL. Evaluation of Oyster Larval Abundance in the Great Bay Estuary. (2022) Aquaculture, Poster Presentation

Cheng MLH, Lippmann TC, Dijkstra JA, Bradt G, Cook S, Choi JG, Brown BL. A deposition baseline for microplastic particle distribution in an estuary (2021) College of Life Sciences Agriculture Undergraduate Research Conference, Oral Presentation

Cheng MLH, Mapley SJ, Lotto AG, Hinch SG, Juanes F, Furey NB. Assessing predator-prey interactions between migrating juvenile sockeye salmon smolts and bull trout in British Columbia (2021) College of Life Sciences Agriculture Undergraduate Research Conference, Poster Presentation

Stasse. A, Meyer. K,**Cheng MLH**, Brown BL. Evaluation of Oyster Larval Abundance in the Great Bay Estuary. (2021) New Hampshire Sea Grant Symposium, Poster Presentation

*McDowell L, Wardinski C, **Cheng MLH**, Caldwell AE, Craig, E. Evaluating regurgitated pellets as indicators of microplastic ingestion by NH-breeding seabirds. (2021) College of Life Sciences Agriculture Undergraduate Research Conference, Poster Presentation

Brammer D, **Cheng MLH**, Derrick. M, Dunn. T, Orzech. E Vajda. Z. Monitoring of Temperature in the Benthic Zone of the Gulf of Maine and Assessment of the Effects of Temperature on Disease Incidence of Strongylocentrotus droebachiensis and Henricia sanguinolenta. (2020) College of Life Sciences & Agriculture Undergraduate Research Conference, Poster Presentation

SERVICE

University of Alaska Fairbanks Justice, Equity, Diversity, and Inclusion Committee
University of Alaska Fairbanks Student Well-being Committee
2022 Alaska American Fisheries Society Student Symposium Organizer (UAF CFOS)
Executive Member of Lambda Chi Alpha Fraternity

AWARDS, GRANTS, AND HONORS

2022 American Fisheries Society Marine Fisheries Section Student Travel Award ($500)
2022 Alaska EPSCoR NSF Travel Award ($2500)
2022 National Science Foundation Graduate Research Fellowship Program (Award offered)
2022 Alaska American Fisheries Society Student Symposium Best Long Talk
2021 National Science Foundation Graduate Research Fellowship Program (Honorable Mention)
2019 Rutman Scholars Initiative ($1500)
2019 John and Katharyn Williams Scholarship ($3500)

SKILLS

Programming languages: R, LATEX, ADMB, TMB
Statistical methods: regression methods, maximum likelihood estimation, Generalized Additive Models, Bayesian statistics, age-structured models

REFERENCES

Curry J. Cunningham: University of Alaska Fairbanks, Assistant Professor of Fisheries Science
cjcunningham@alaska.edu

Bonnie L. Brown: University of New Hampshire, Professor of Biological Sciences
Bonnie.Brown@unh.edu

Nathan B. Furey: University of New Hampshire, Assistant Professor of Biological Sciences
Nathan.Furey@unh.edu

Larry G. Harris: University of New Hampshire, Professor Emeritus
Larry.Harris@unh.edu