

Which Fish?

**DNA Barcoding Enables Broad Participation in
Understanding Species Dynamics in a Warming Ocean**



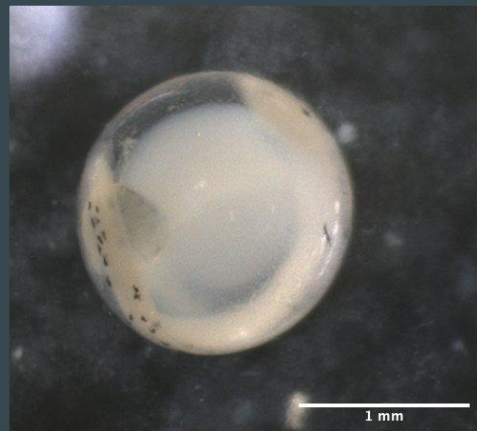
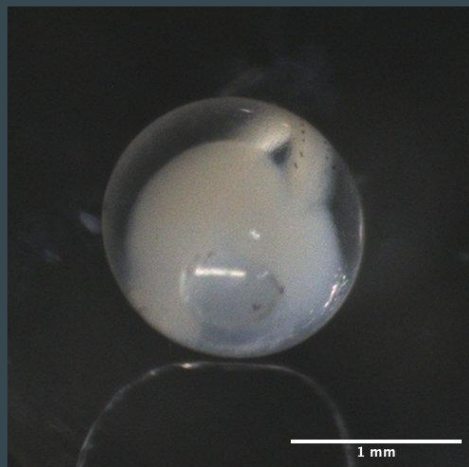
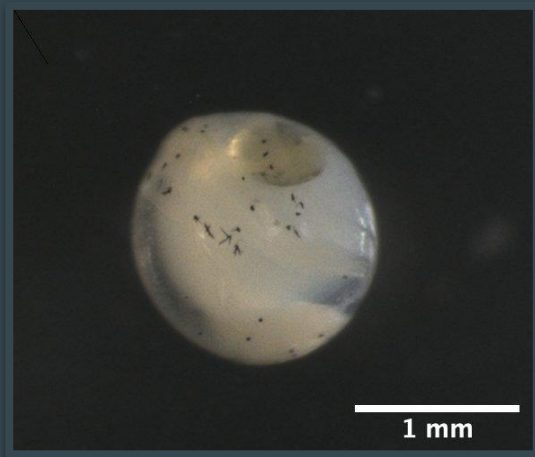
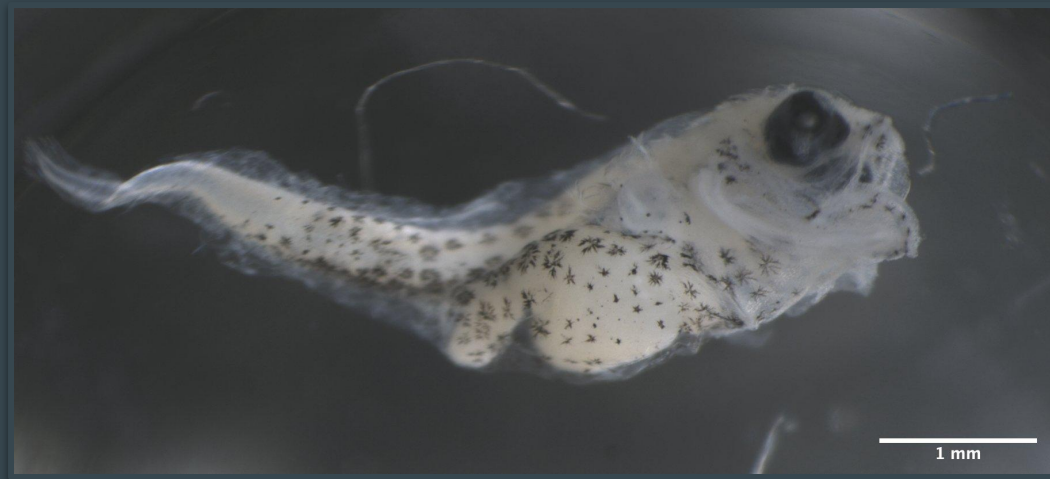
Sarah Weisberg

Kailey Charles

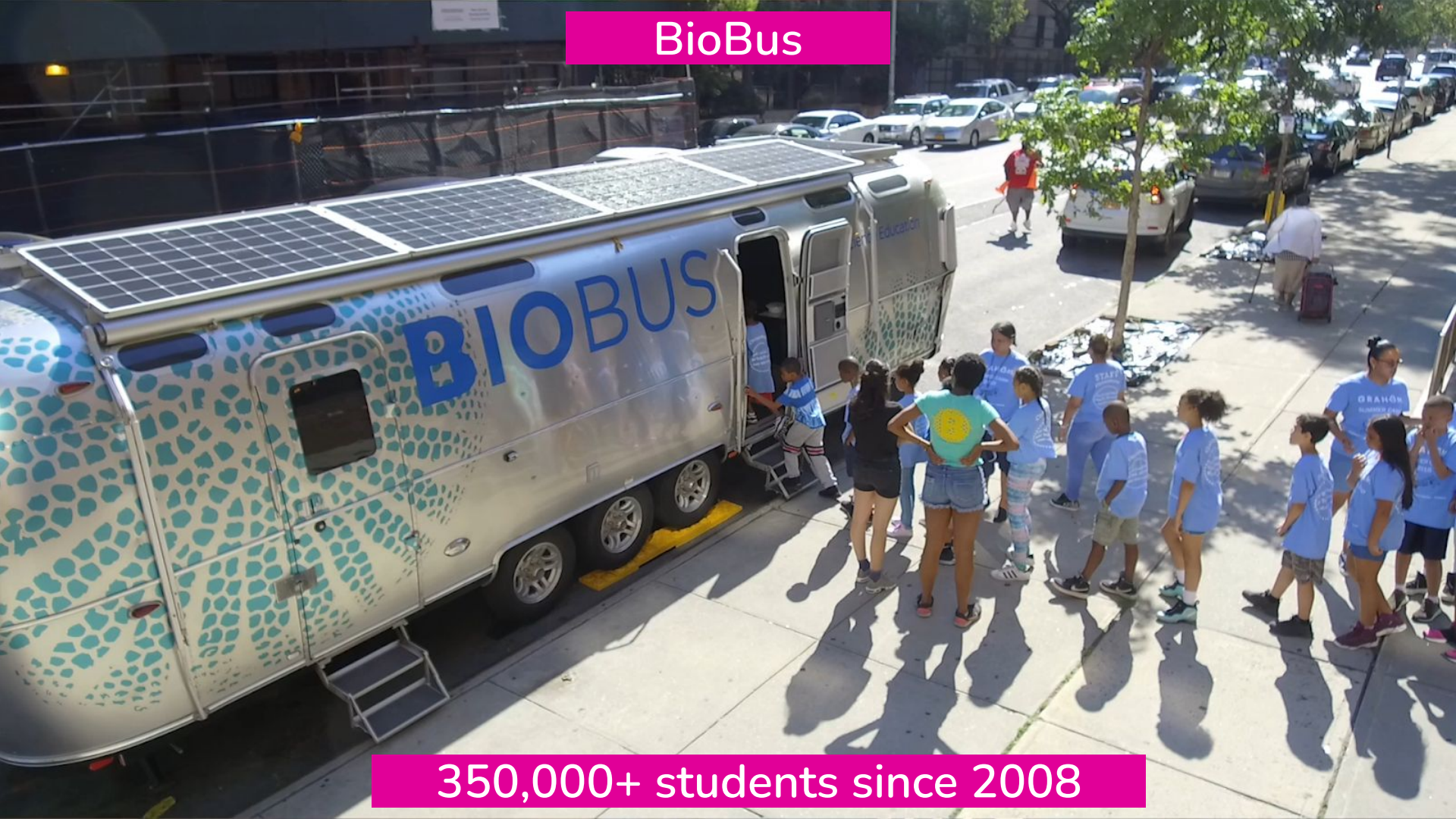
Brianna Brookes

Mariah King





BioBus



350,000+ students since 2008





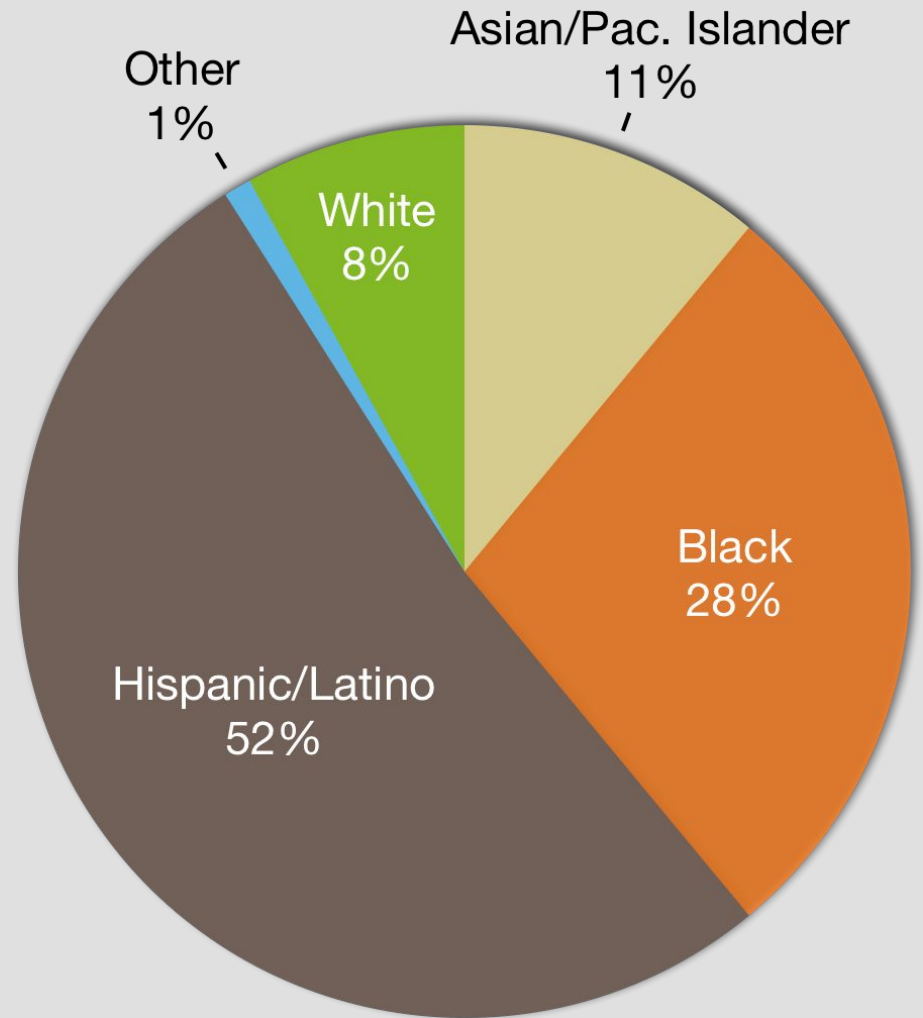


BioBus Mission

The BioBus mission is to support young people as they **discover, explore, and pursue science.**

We focus on students **excluded from the scientific community** due to factors such as race, gender, economic status, and physical access.

How BioBus students identify





**“I didn’t think scientists
looked like you!”**

BUT

“...it’s not that Education and Outreach is an afterthought, it’s just the last thing I do before I submit my proposal”

Anthropogenic impacts on fish early life stages

Stressors having direct or indirect/ecosystem effects on early life stages

Temperature change

Harvesting

Ocean acidification/
high CO₂

Changing physics
(currents,
stratification)

Habitat degradation

Ecosystem components

Predator abundance and distribution

Zooplankton abundance and time/space distribution

Life-stage-specific processes affected

Egg quantity and quality

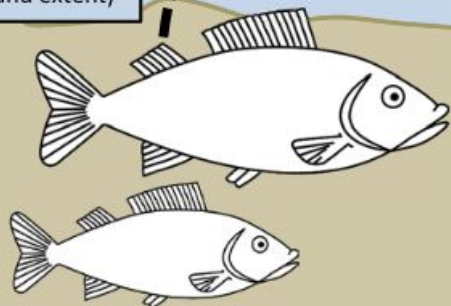
Larval growth and survival

Reaching juvenile habitat

Larval dispersal and population connectivity is a function of all five early-life related processes here, and thus potentially impacted by all stressors

Spawning timing and location (avg. and extent)

Post-settlement survival



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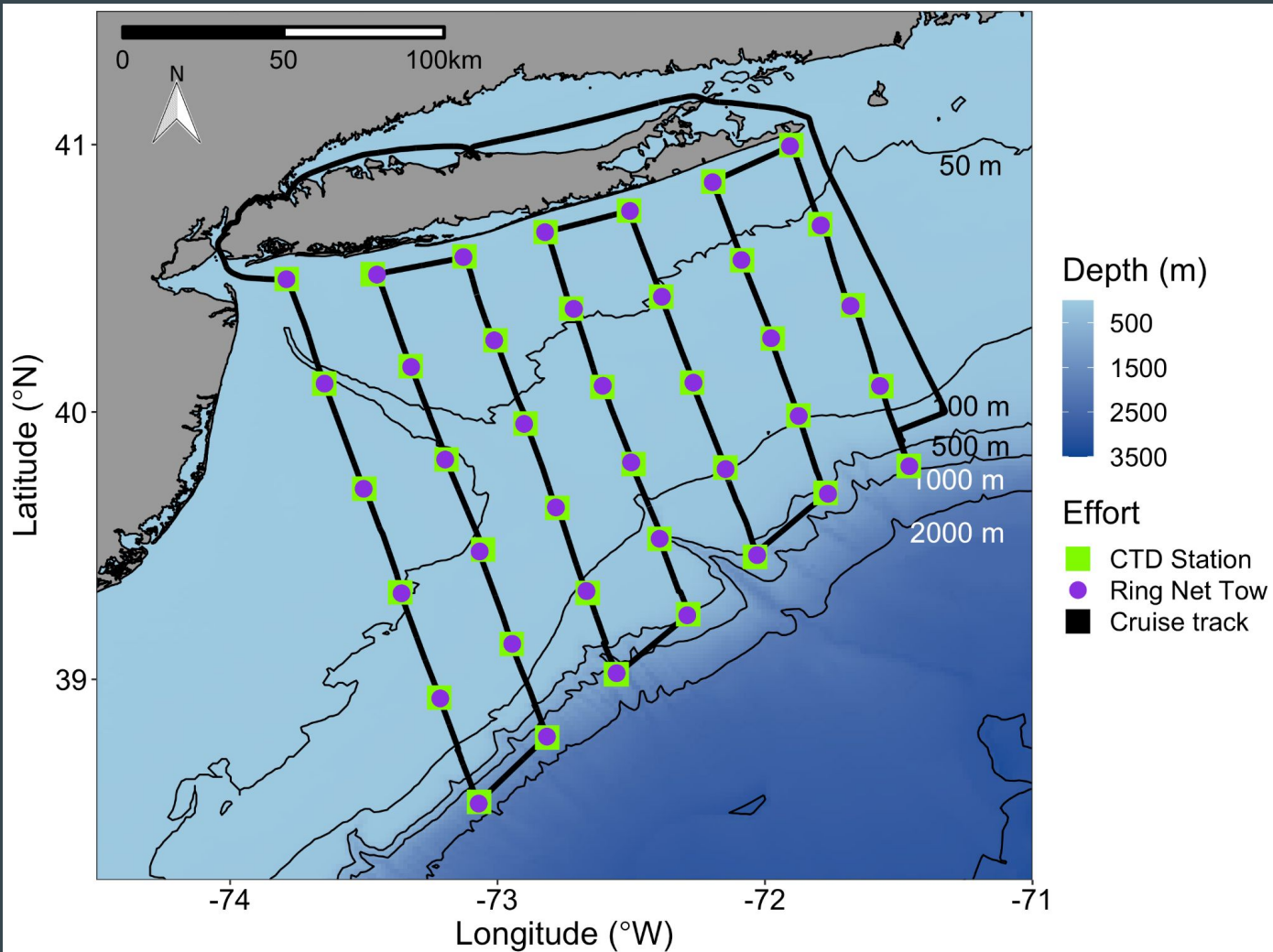
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Sampling a Slice of Ocean

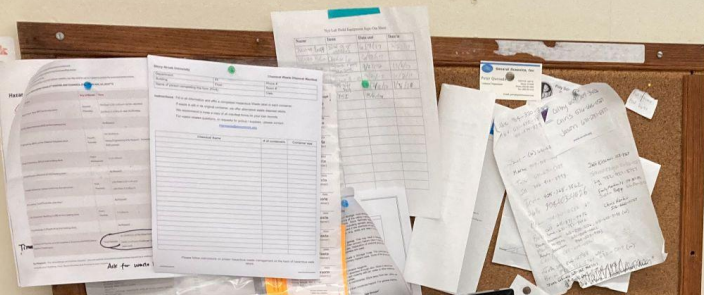
May 2021







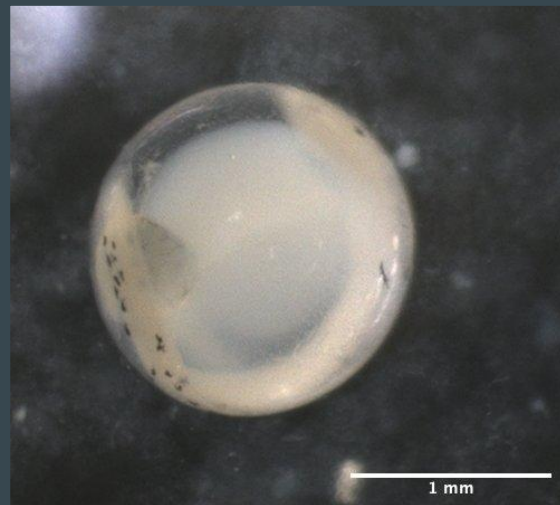
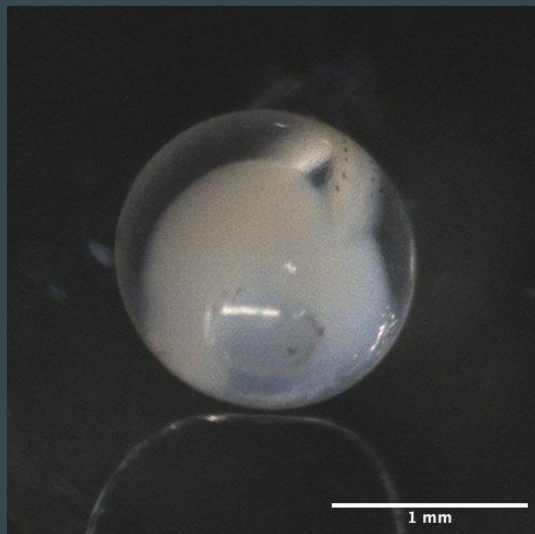
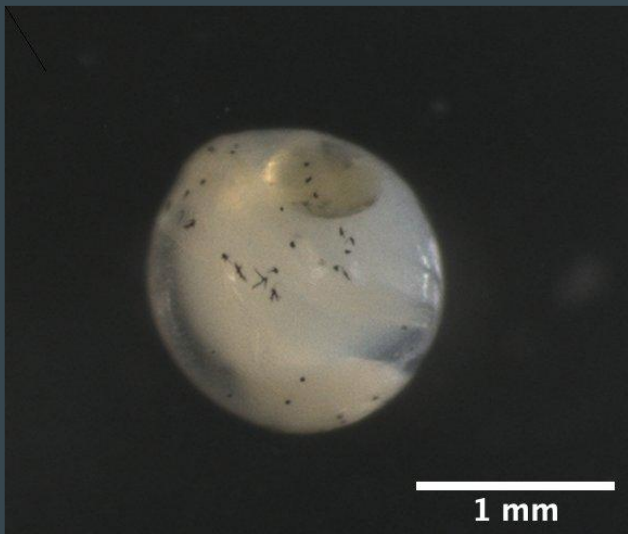
Stony Brook
PLEASE HELP
CONSERVE ENVI
RETURN LEAVING THIS
1. CLOSE ALL WINDOWS
2. TURN OFF ALL
3. CLOSE THE DOOR



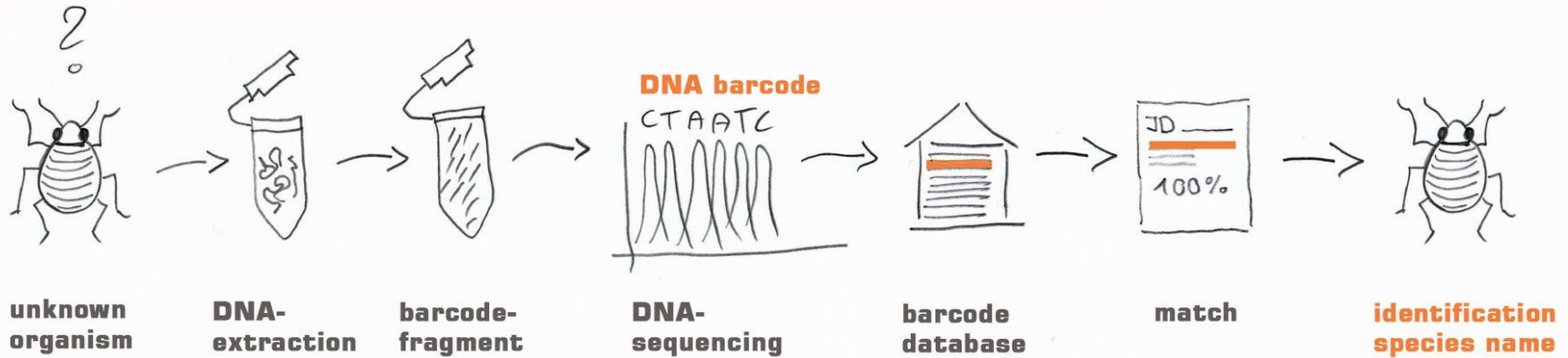


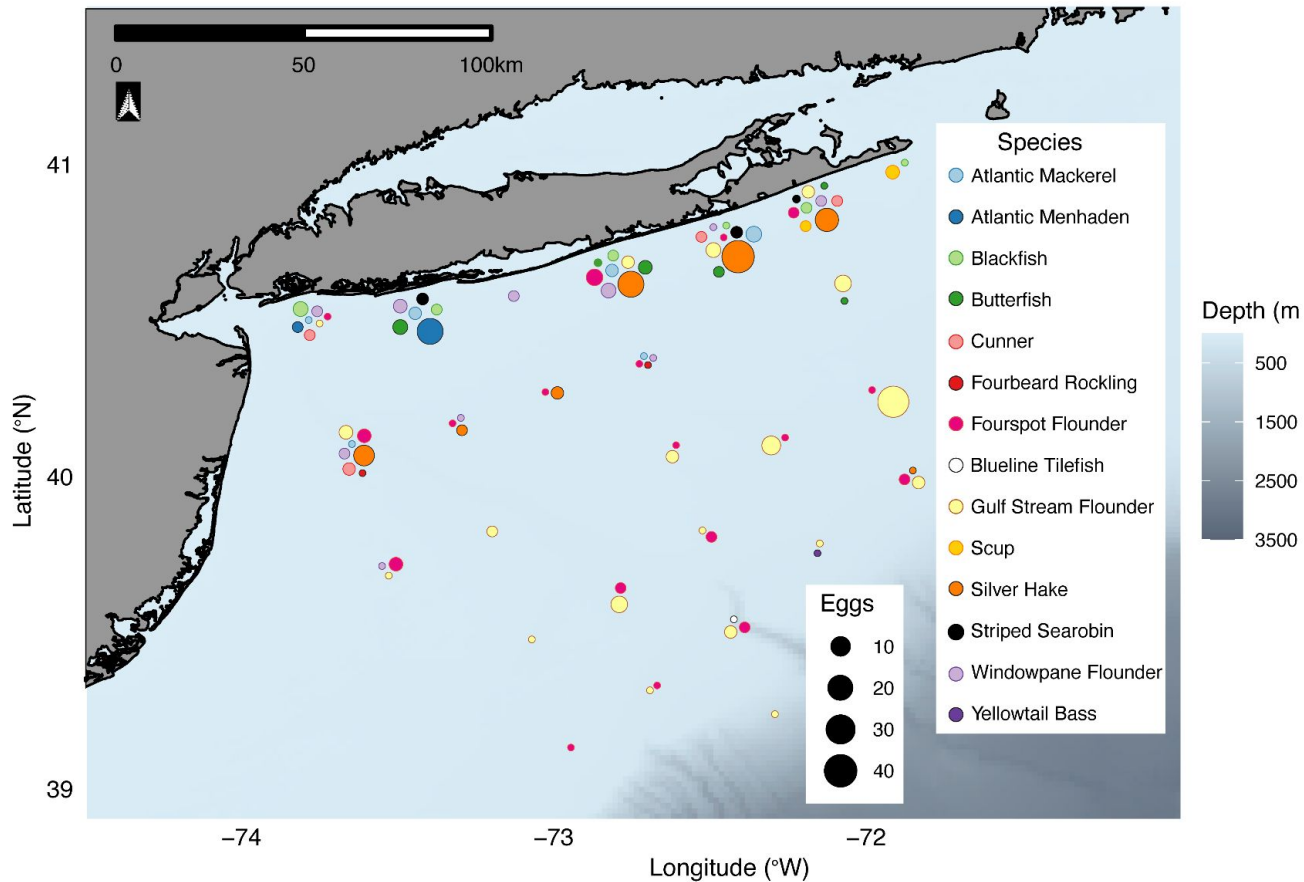
Ichthyoplankton Isolation





How does DNA Barcoding work ?





Science Does Not Happen without People

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Design Research to Lower Barriers

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Design Research to Lower Barriers

Lower Barriers are Necessary not Sufficient





Questions?

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