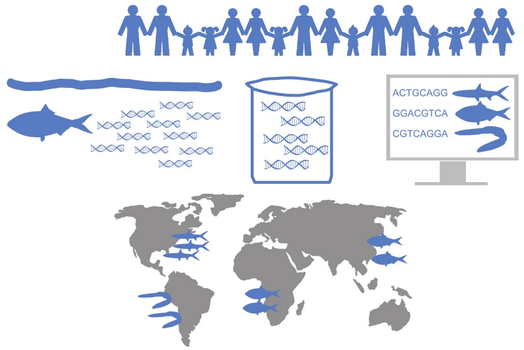
The National Academies of SCIENCES ENGINEERING MEDICINE

GREAT GLOBAL FISH COUNT

Jesse H. Ausubel, Mark Y. Stoeckle

Program for the Human Environment, The Rockefeller University, New York, New York, USA



Information on species diversity & abundance from DNA in 1 liter of water is comparable to information from 66 million liters trawled by a net.

Time for the Great Global Fish Count!

1 liter  =

66M liters fills football field above goal posts

Acknowledgement: Monmouth-Rockefeller Marine Science & Policy Initiative

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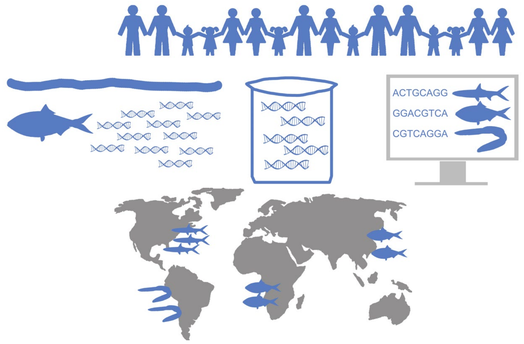
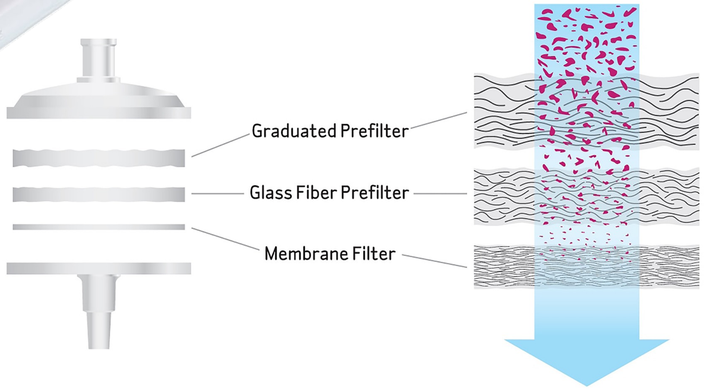


The Idea



What's new:

scale -

millions of samples

Collect water and metadata…filter water…save filter with sediment…email data to app…mail filter to lab

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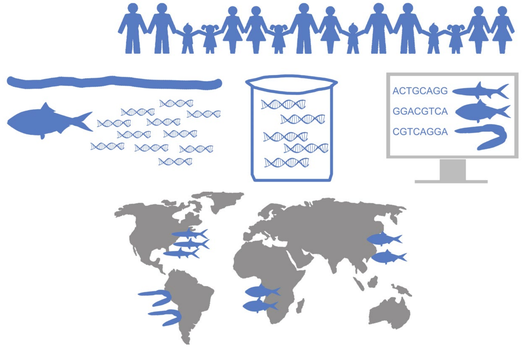

• The Process

2021: Form small team, raise funds for feasibility phase, draft decadal plan, find lead sponsor to develop GGFC for approval in Berlin June ’22 as Project or Programme; gain partners

2022: Develop management, governance, brand; develop cost estimates ($100 m at $50 per sample?), make budget, win key funding commitments including in-kind

2023: set standards, protocols, web interface; pilot project; choose tech, order supplies;

2024: Great Global Fish Count (World Ocean Day), pool & analyze data, data into OBIS

2025: Publish findings, maps; hold science conference; global engagement

If successful so far: plan time series and more taxa

2026: Repeat GGFC, consider GGC for other vertebrates, molluscs, crustaceans…

2027, 2028, 2029…repeat, refine, expand…2030 full program evaluation

Partners: In US government, NOPP federal agencies; also state agencies

Nations with largest EEZs (France) and coastlines but all can participate

Suppliers of biotech goods and services; coastal enterprises; drone operators

International organizations: POGO, SCOR, SCAR, ICES, PICES, UN/FAO…

Aquariums and natural history museums; schools; members of environmental NGOs

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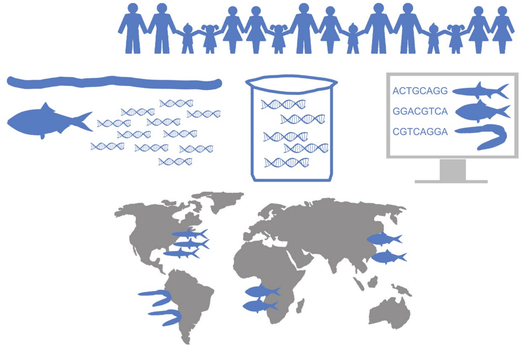

• The Outcomes

Adoption of genomics in many organizations and programs
Cheaper, quicker, more reliable eDNA technologies
Useful info for fisheries and aquaculture, harbors, sanctuaries, coastal restoration, e.g., smarter boundaries for protected areas and identification of new hot or trouble spots
Enhanced marine genomic reference libraries
Entrepreneurial companies and job creation providing eDNA services
Trained people, informed and inspired citizens
Surprises

- Easy-to-measure most forms of progress
- Can benefit people of all ages, everywhere
- No collection of organisms or stress on animals

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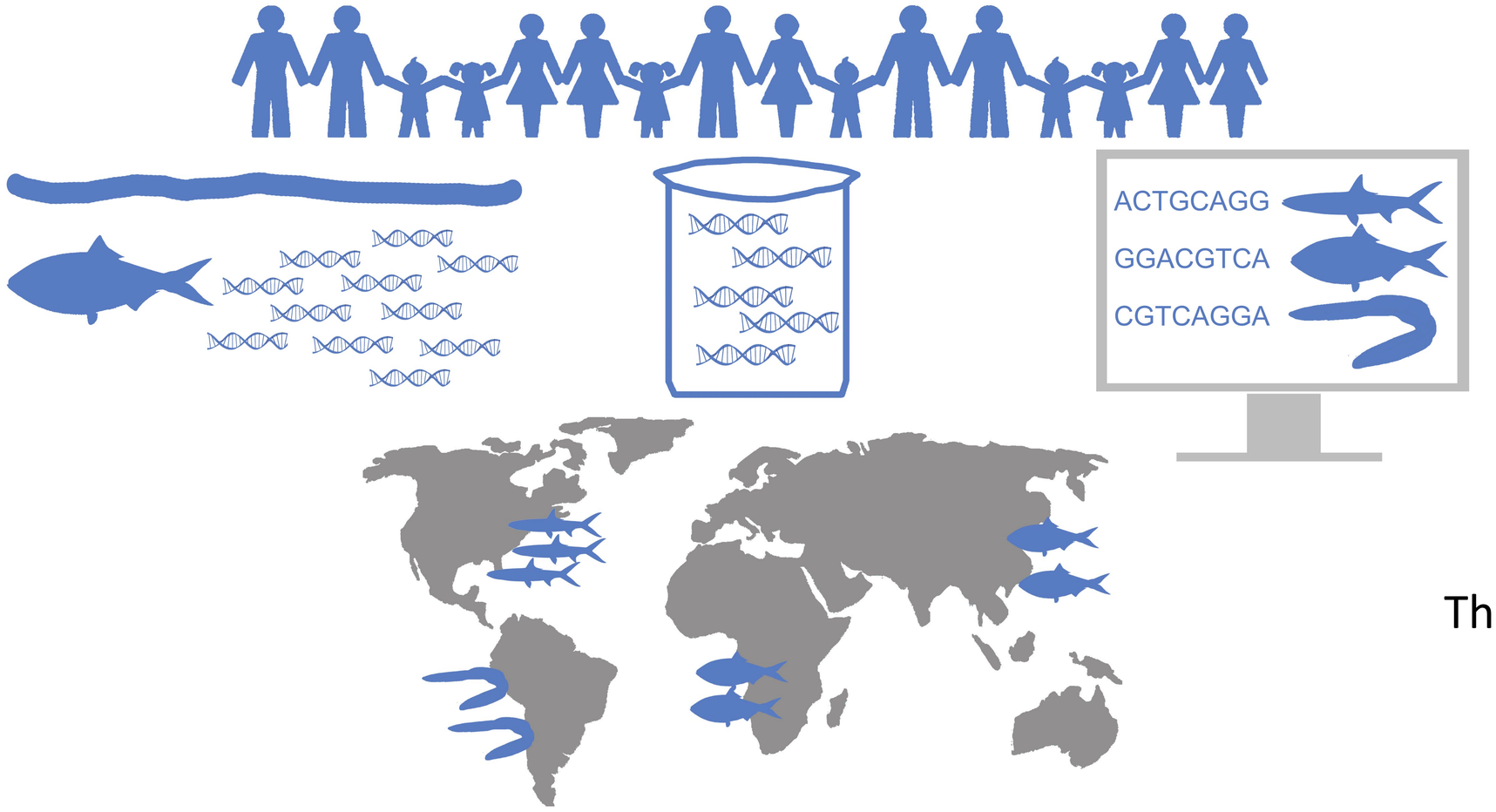
The Ocean Decade: Time for the Great Global Fish Count!

Concept Paper https://phe.rockefeller.edu/wp-content/uploads/2021/01/GFFC-V2.pdf



Thanks