



HAFRANNSÓKNASTOFNUN

Rannsókn- og ráðgjafarstofnun hafs og vatna

Can we use environmental DNA (eDNA), an emerging tool in conservation, in the context of aquaculture?

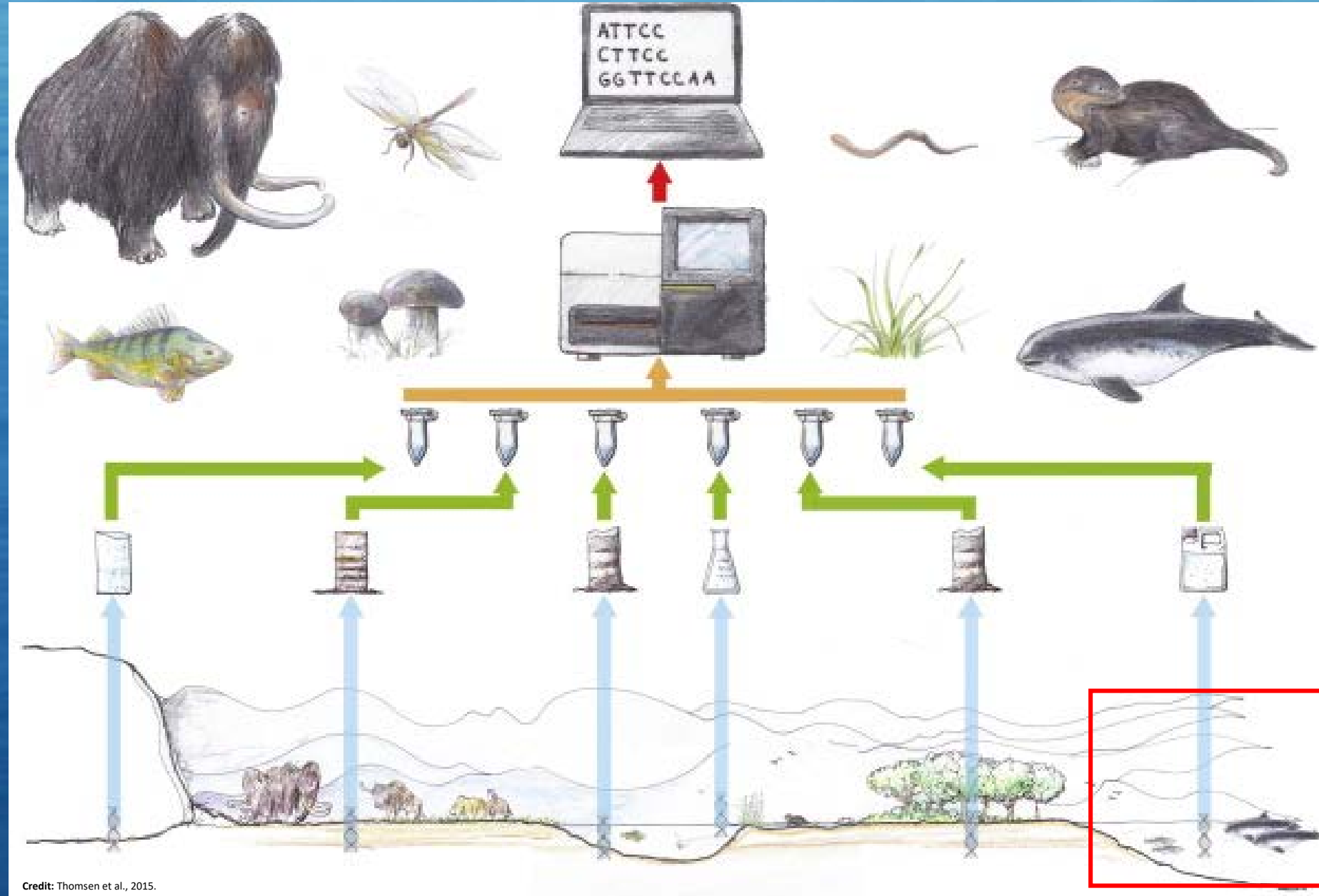


1. What is environmental DNA (eDNA)?
2. How can we a) collect and b) analyse it?
3. Can we apply it to aquaculture? What will be the objectives?

1. What is environmental DNA (eDNA)?



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Credit: Thomsen et al., 2015.

1. What is environmental DNA (eDNA)?



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Credit: Wildlife Bildagentur GmbH



© Eric Belleau



Credit: Know your meme-Blog



Credit: Kathrin Strickler



KARIM
ILYA

2. How to collect and analyse eDNA samples?



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Credit: Nathan Evans



Credit: Judith Bakker

In the water.

2. How to collect and analyse eDNA samples?

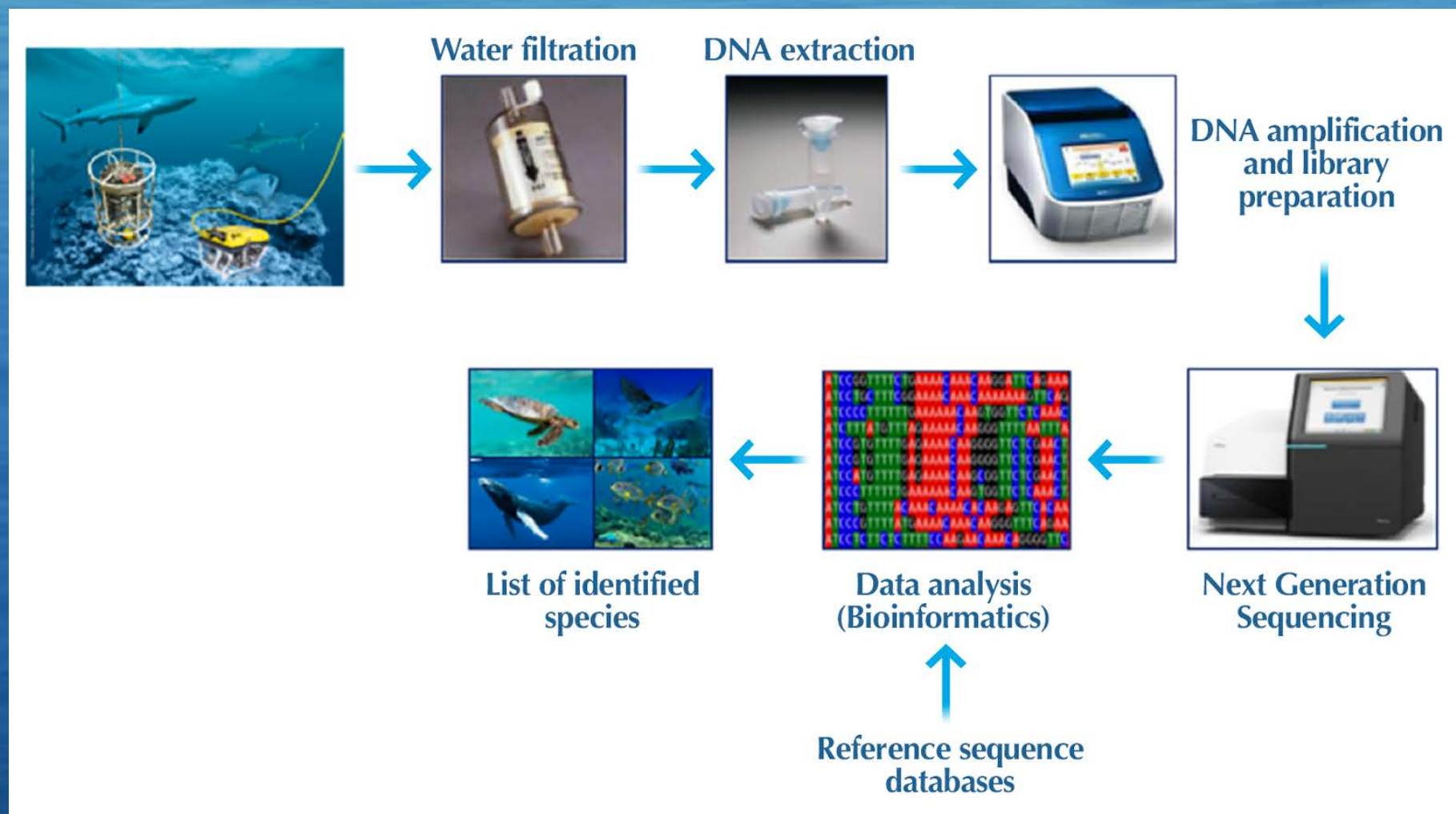


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Credit: EMBLAS project

2. How to collect and analyse eDNA samples?

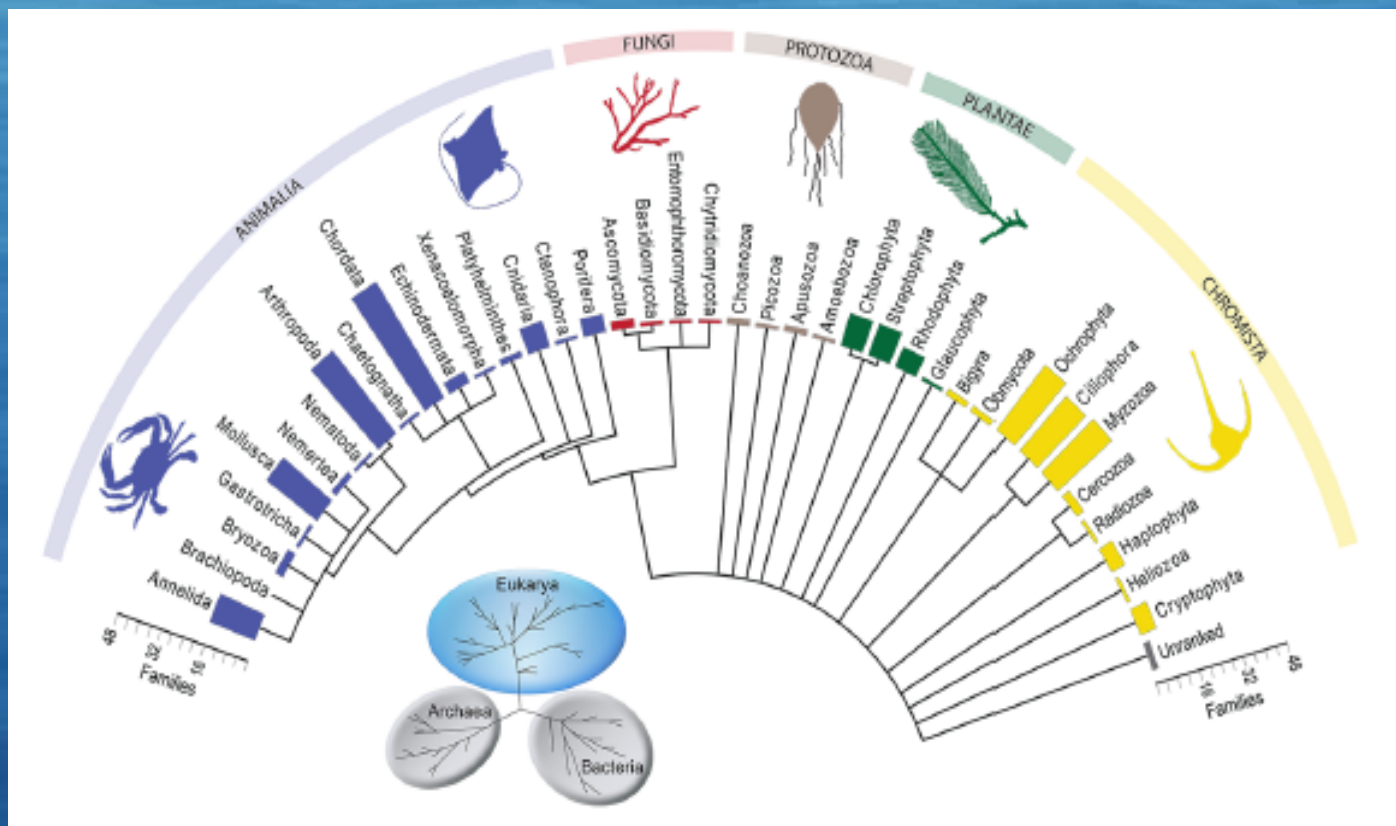


2. How to collect and analyse eDNA samples?



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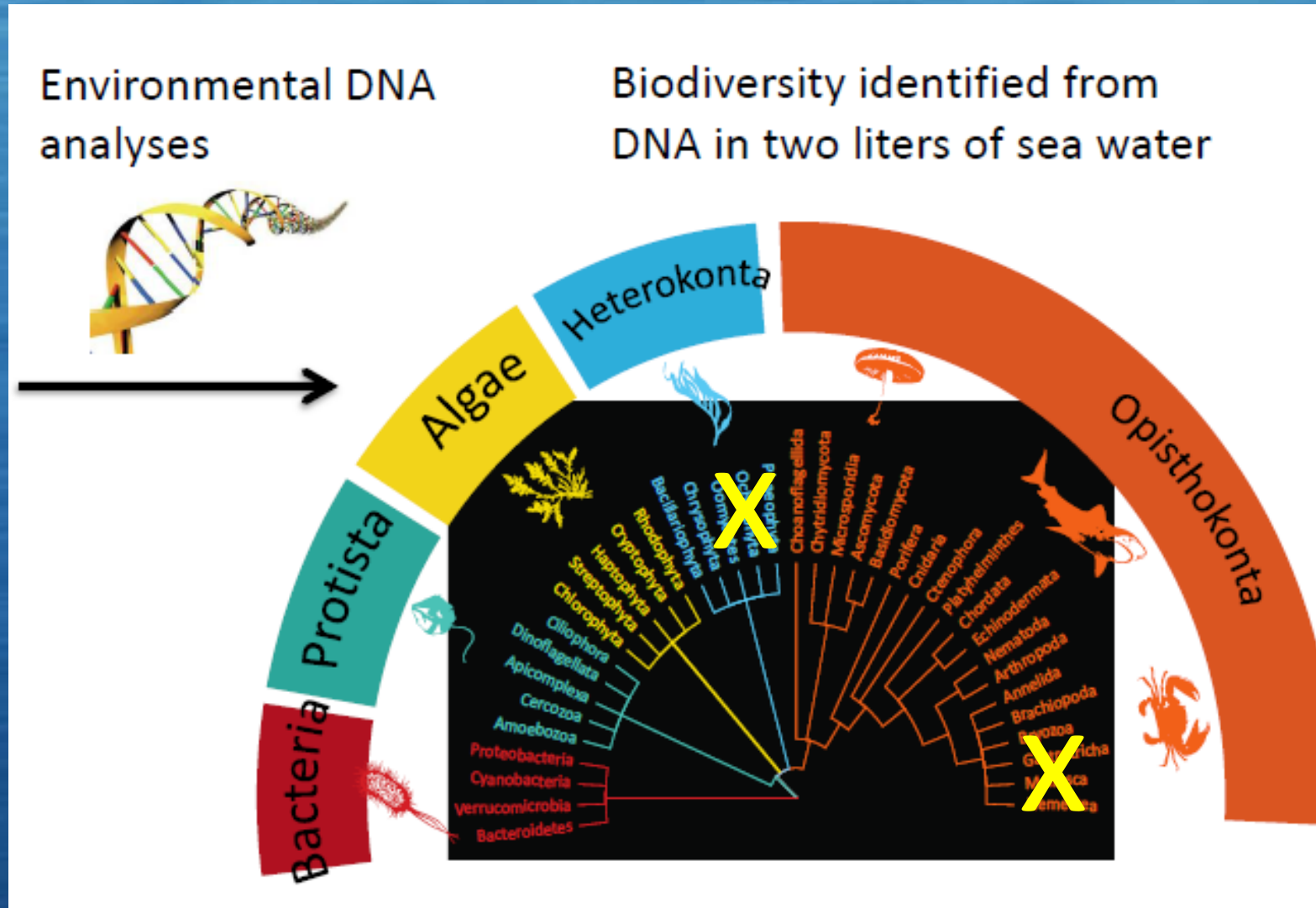
Stat et al., 2017.

3. Can we apply it to aquaculture? What will be the objectives?



a. Bio-diversity monitoring

Impact of farming at sea on the ecosystem



3. Can we apply it to aquaculture? What will be the objectives?



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b. Salmon farming in Iceland



Credit: Leó A. Guðmundsson

3. Can we apply it to aquaculture? What will be the objectives?



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3. Can we apply it to aquaculture? What will be the objectives?



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Farming in open-sea pen => there will be escapees

Escapees = several questions:

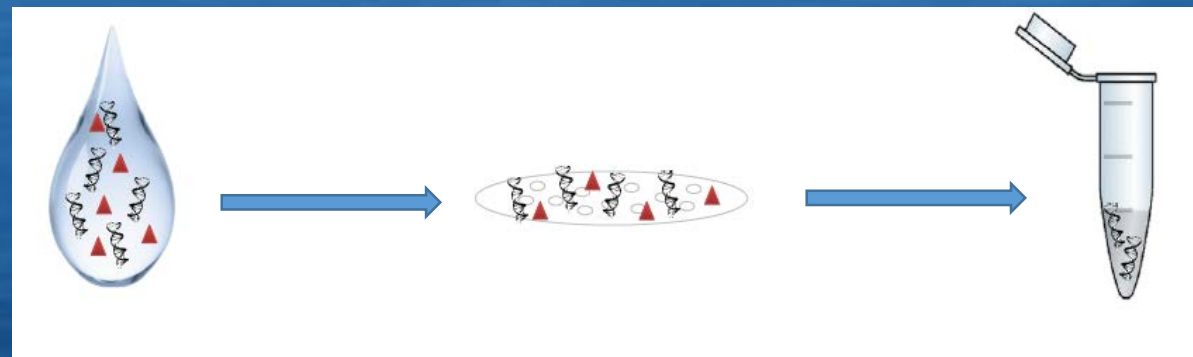
1. Where will they go?
2. Will they survive and reproduce with native populations?
3. If yes, how will they affect the genetic composition of native populations?

3. Can we apply it to aquaculture? What will be the objectives?



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a. Where will they go: eDNA monitoring



3. Can we apply it to aquaculture? What will be the objectives?



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a. Where will they go: eDNA quantification

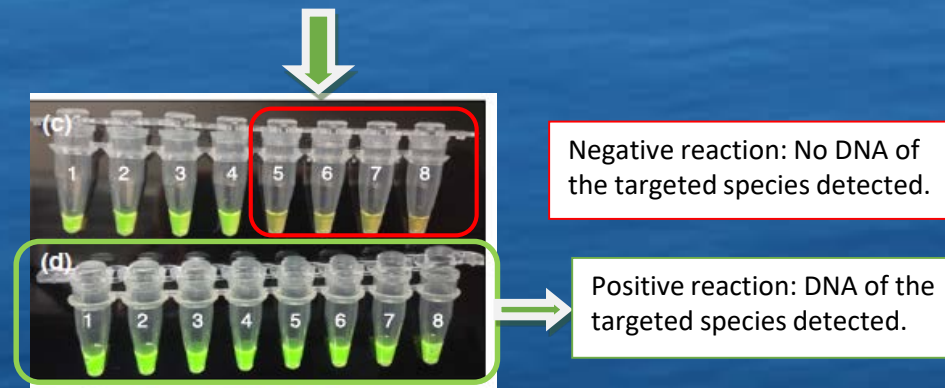
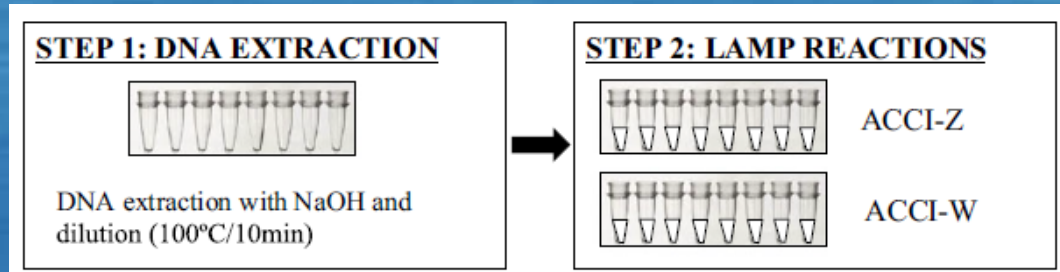


3. Can we apply it to aquaculture? What will be the objectives?



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a. Where will they go: LAMP system detection

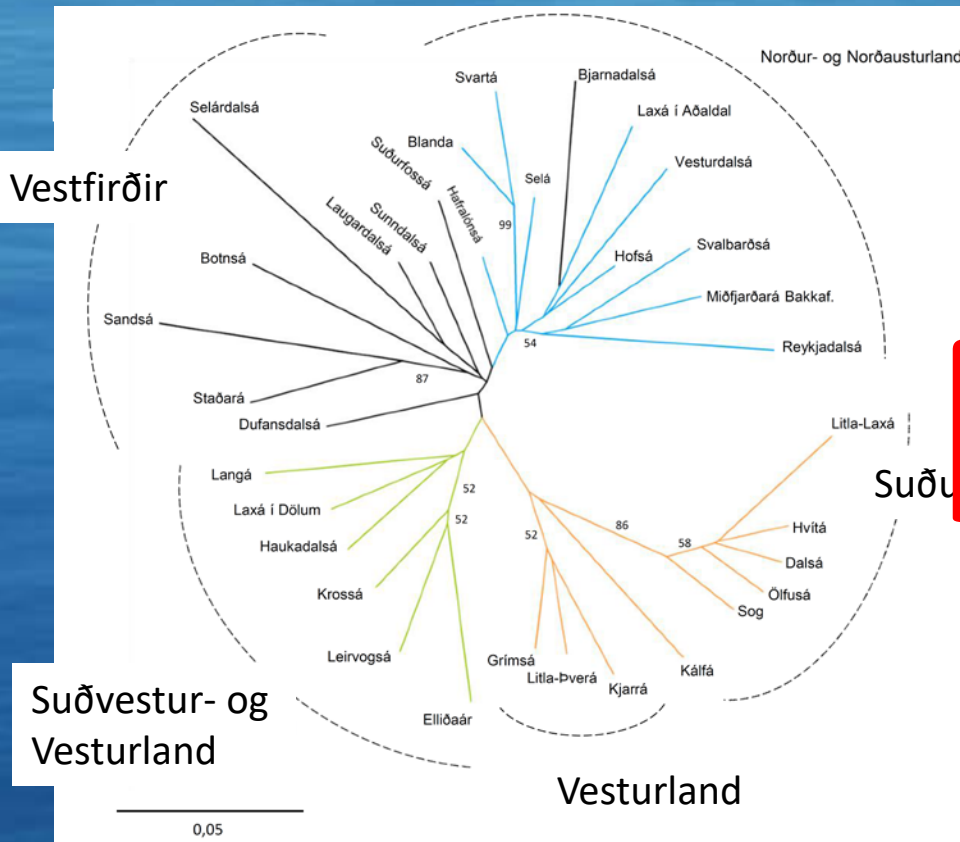


3. Can we apply it to aquaculture? What will be the objectives?

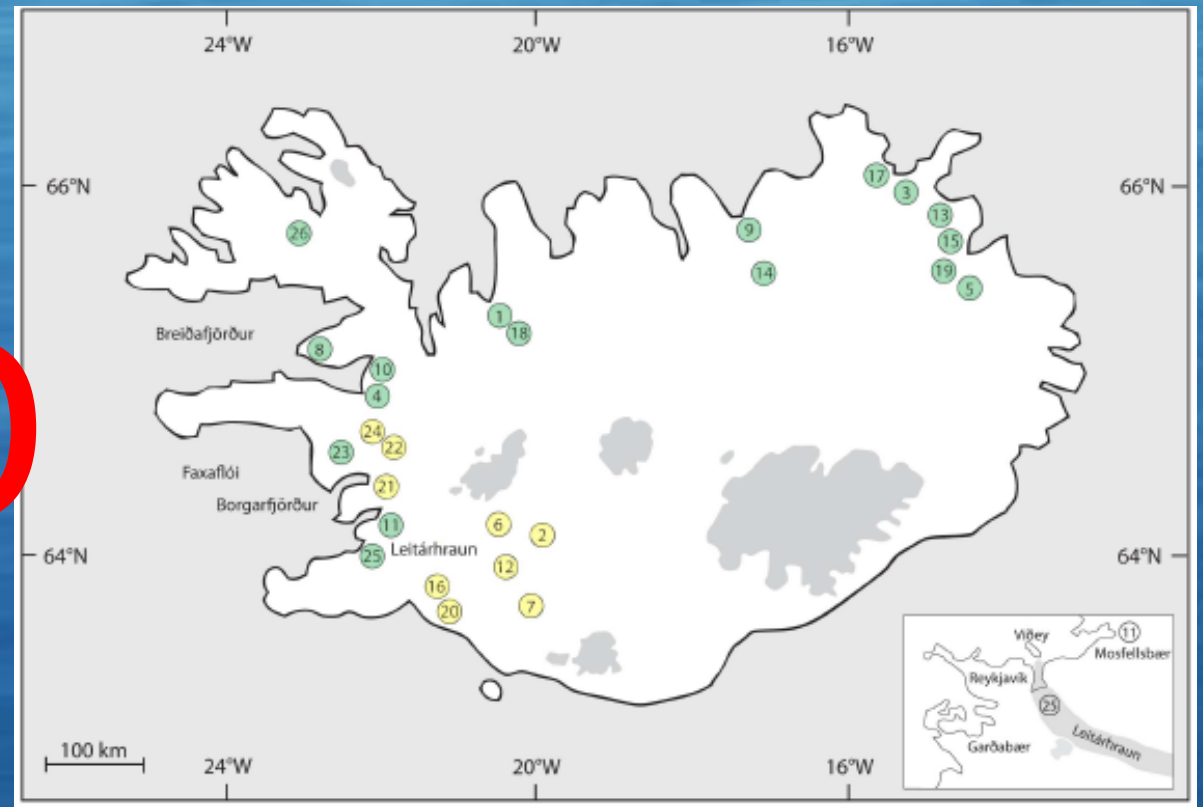


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b. Will they survive and reproduce with native populations?



NO



Credit: Ólafsson et al., 2014

D_A genetic distance (Nei et al., 1983)
Credit: Leó A. Guðmundsson

3. Can we apply it to aquaculture? What will be the objectives?



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c. eDNA monitoring: results

- Which rivers they have entered => where you find eDNA from farmed salmon.
- How many they were => quantification.
- If they interbred with native populations => more developed study.
- How were native populations affected => more developed study.
- Where do they come from.



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Thank you