

# No Pump, No Problem

Evaluating passive eDNA sampling for marine biomonitoring

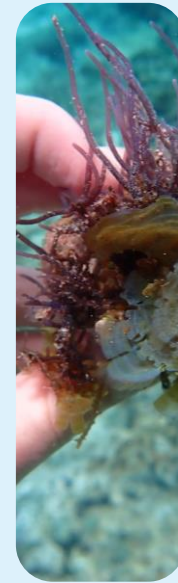
*Patrick K. Nichols*  
*University of Hawai'i at Mānoa*





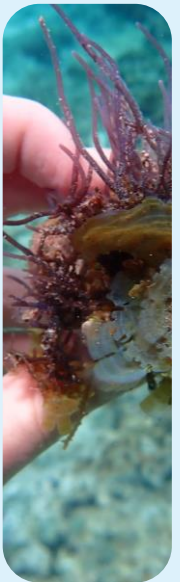
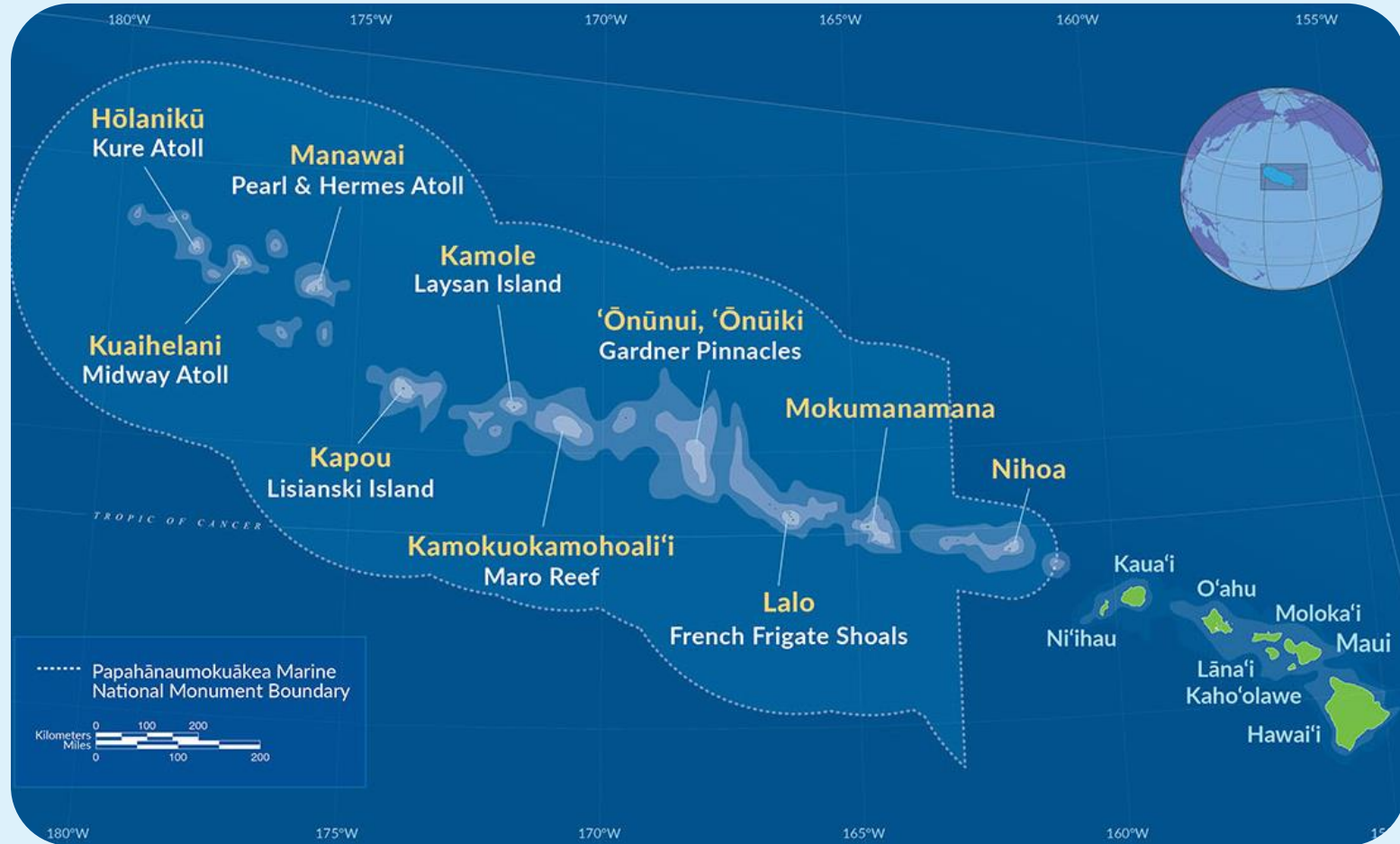
# Where's waldo

Nuisance species edition



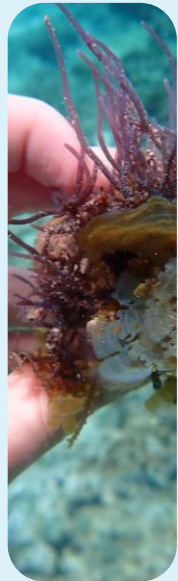
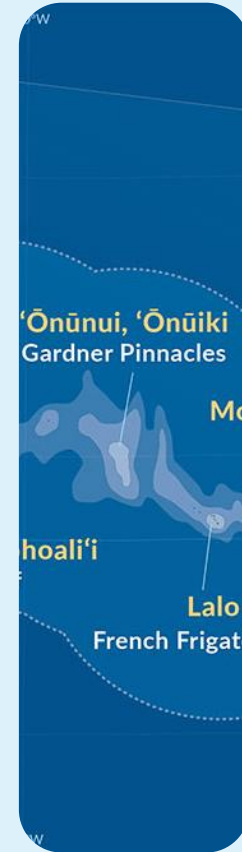
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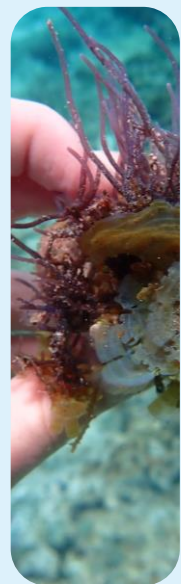
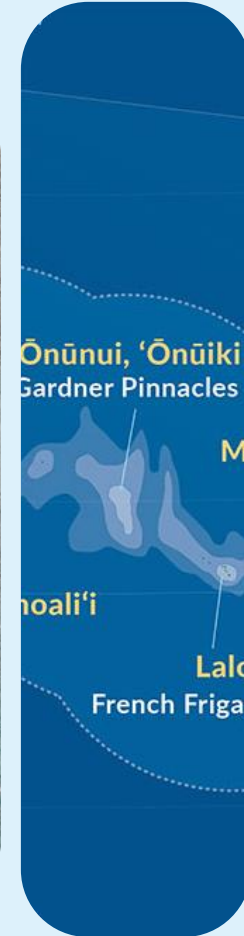
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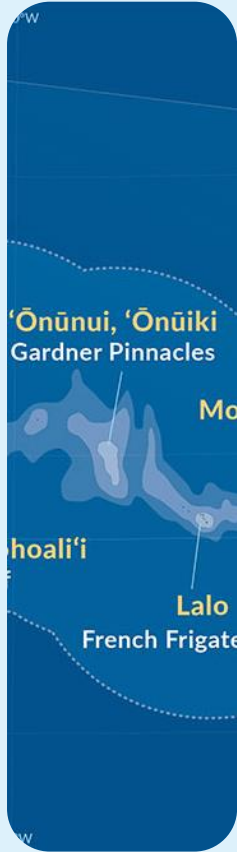
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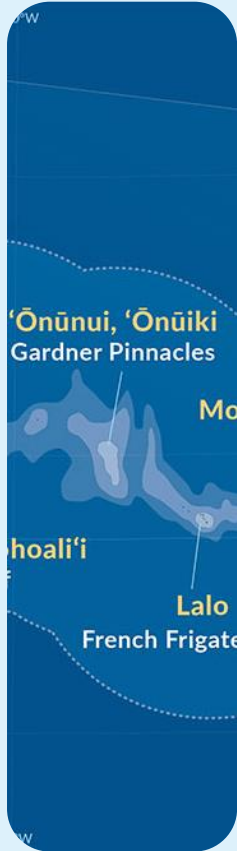
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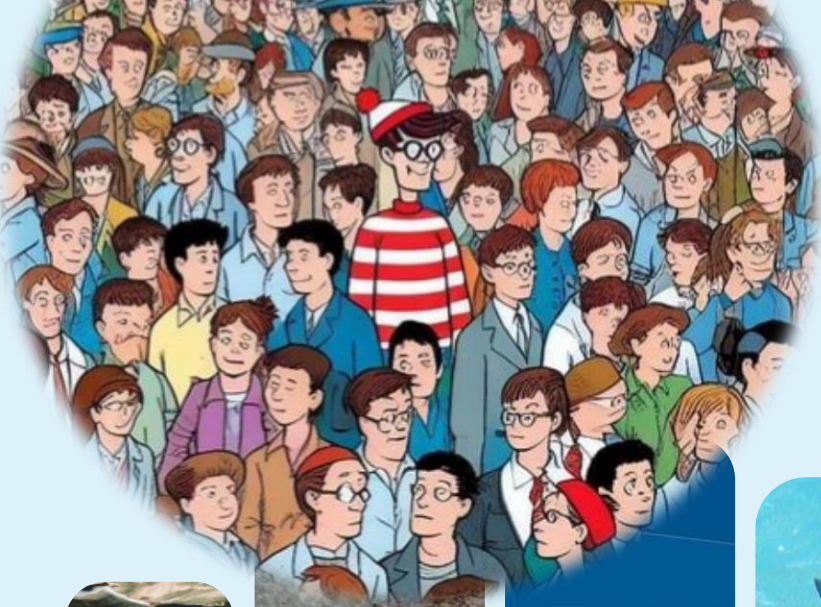
Nuisance species edition



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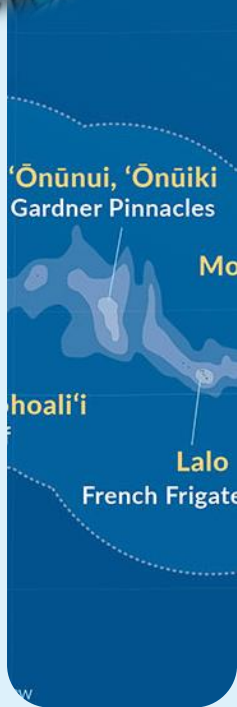
Nuisance species edition



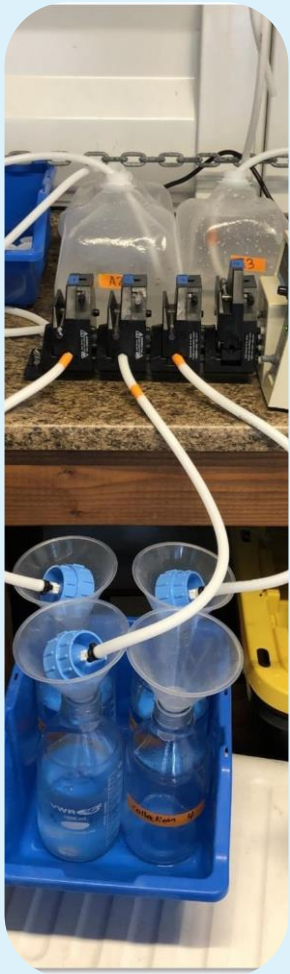
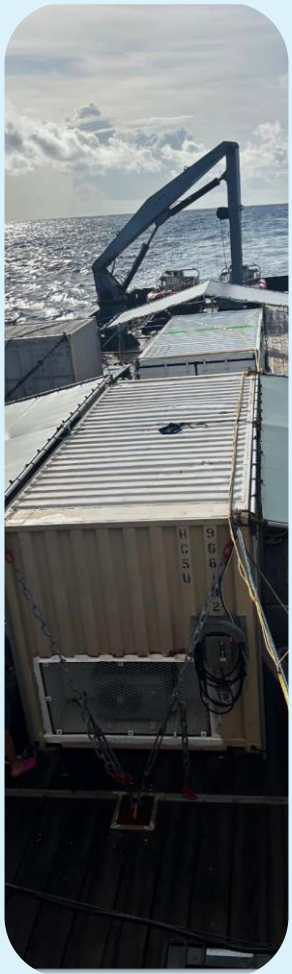


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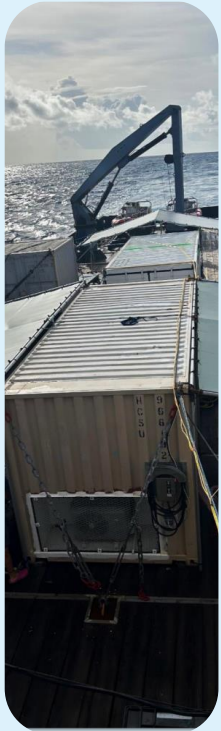
Nuisance species edition













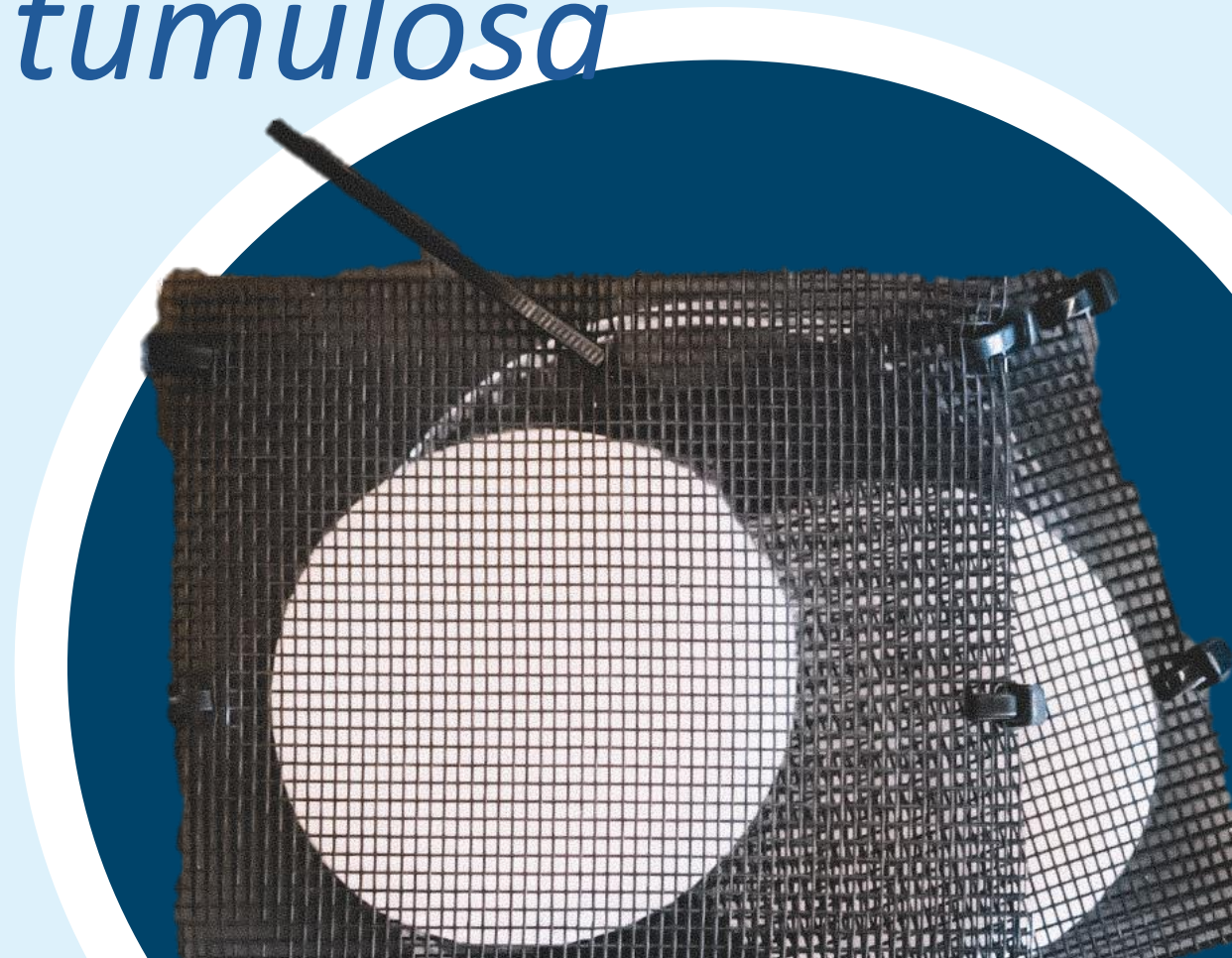


# Where's waldo

Nuisance species edition

## Finding *Chondria tumulosa*

**Passive Collection**





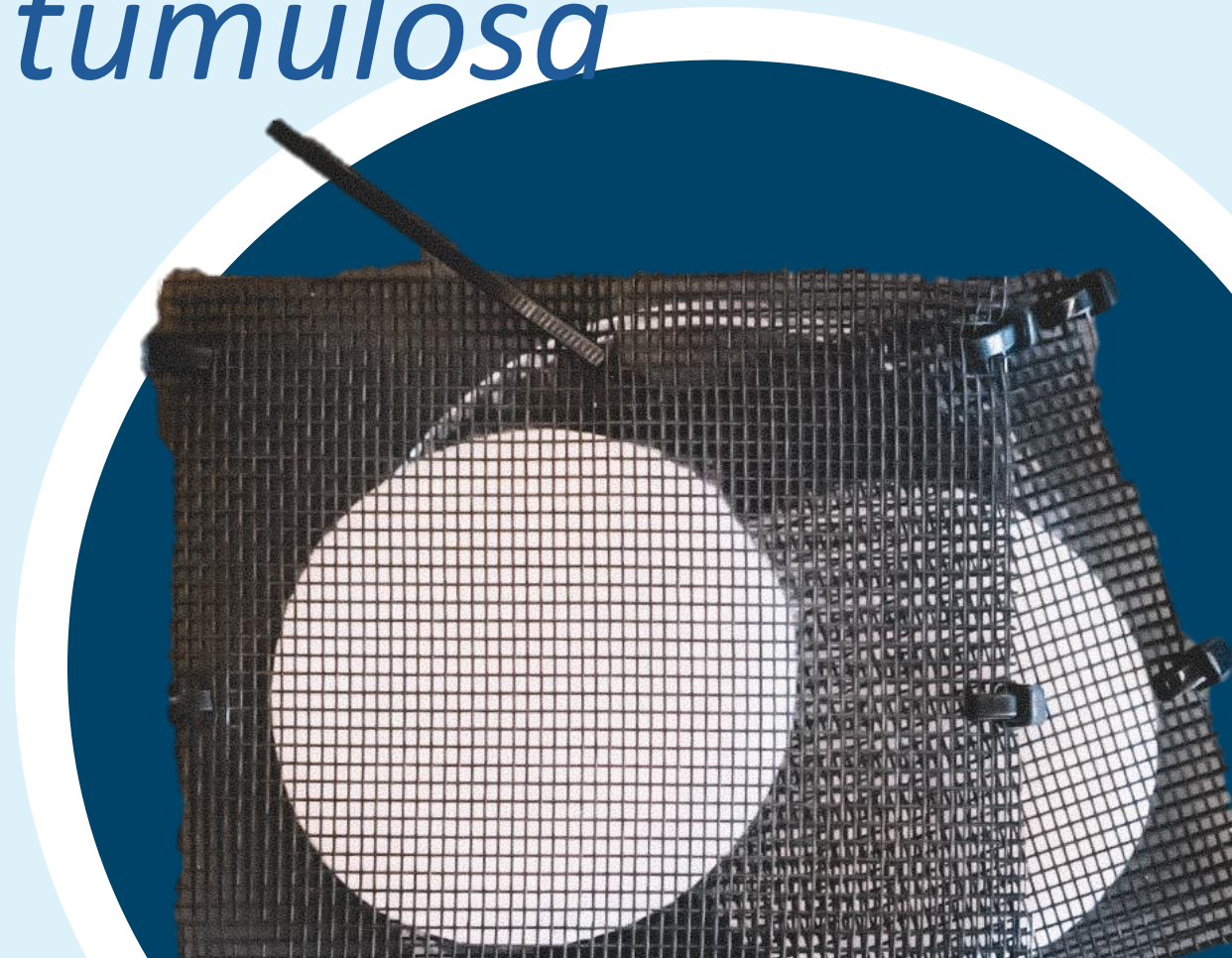
# Where's waldo

Nuisance species edition

## Finding *Chondria tumulosa*

**Passive Collection**

**15 minute duration**





# Where's waldo

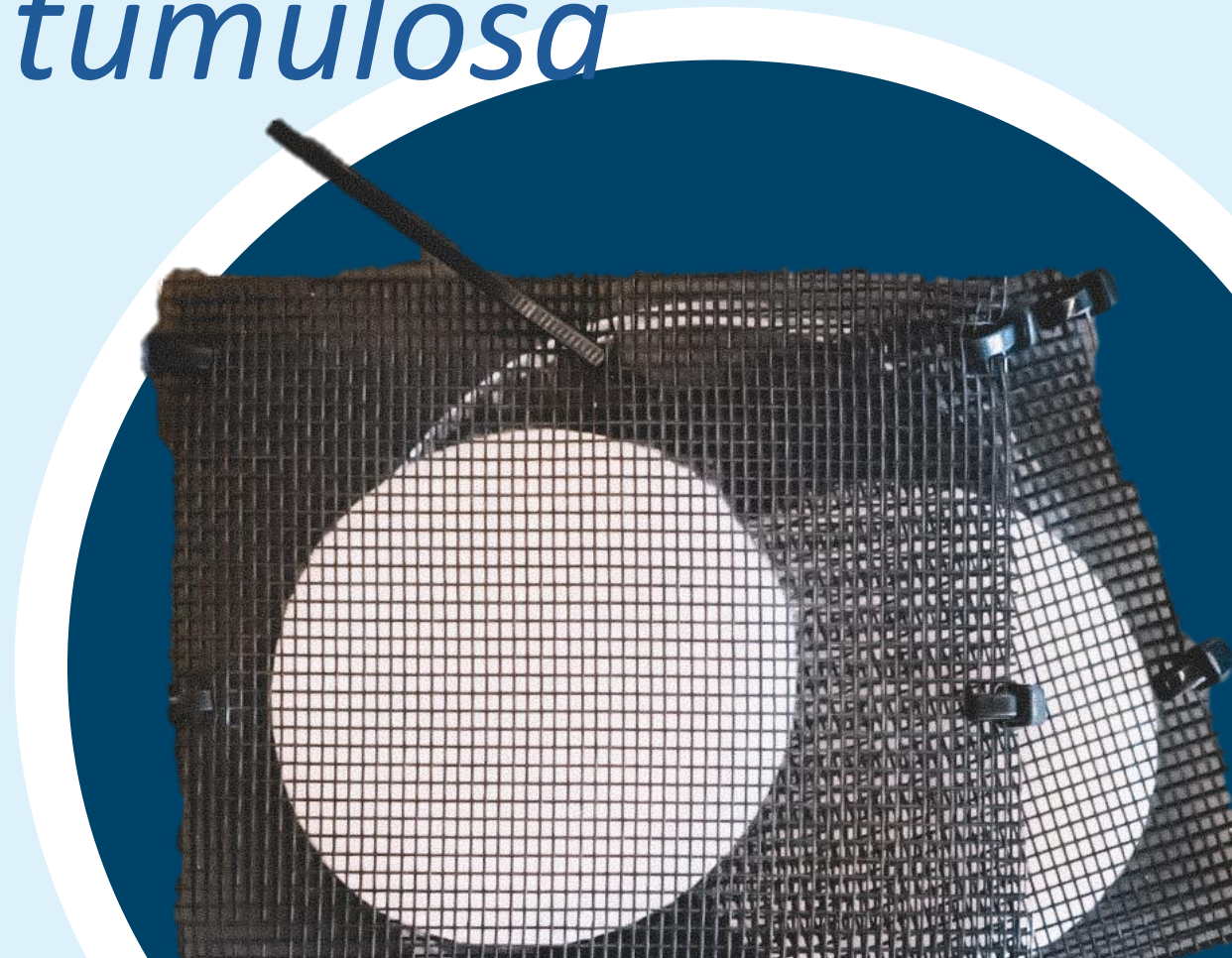
Nuisance species edition

## Finding *Chondria tumulosa*

### Passive Collection

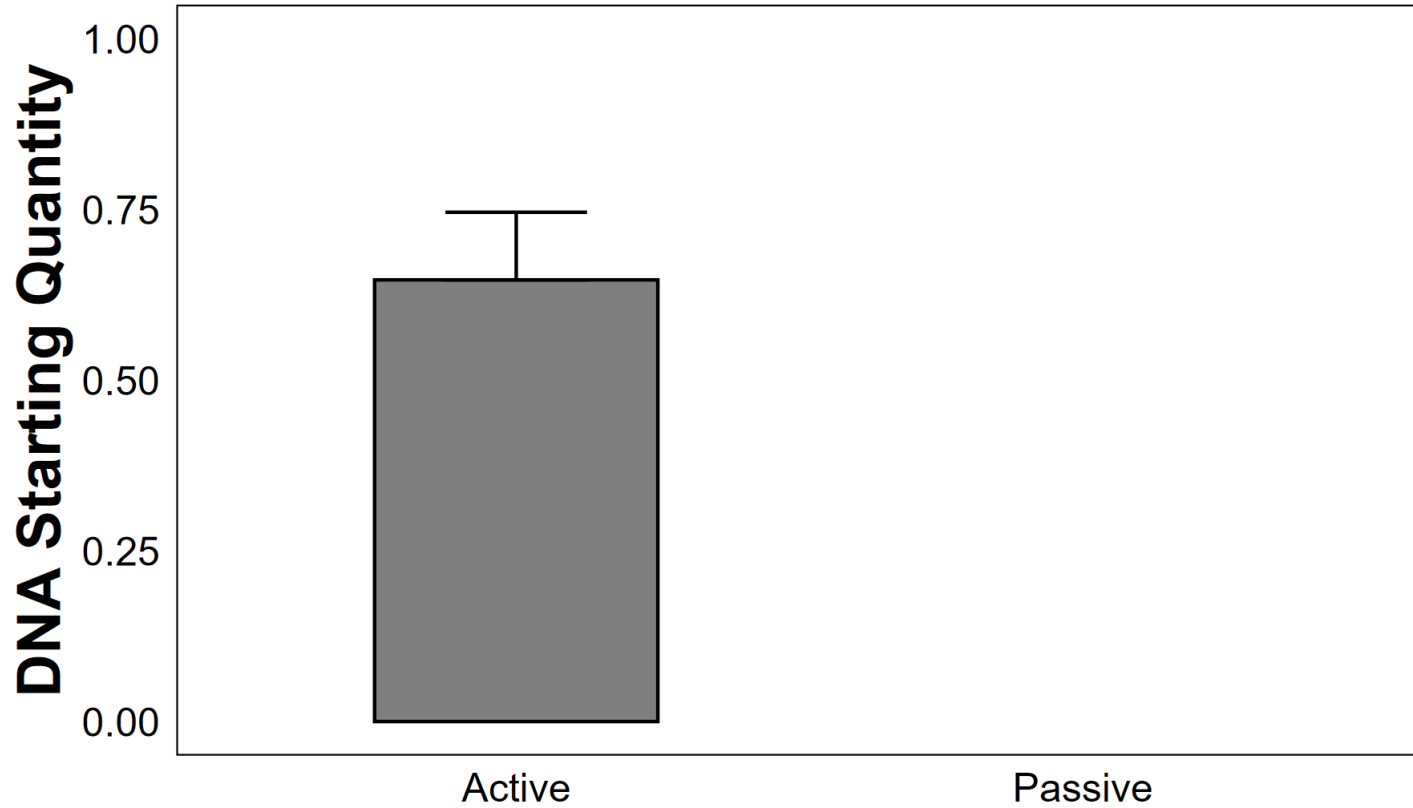
15 minute duration

Detections down to  $< 1\%$   
relative abundance



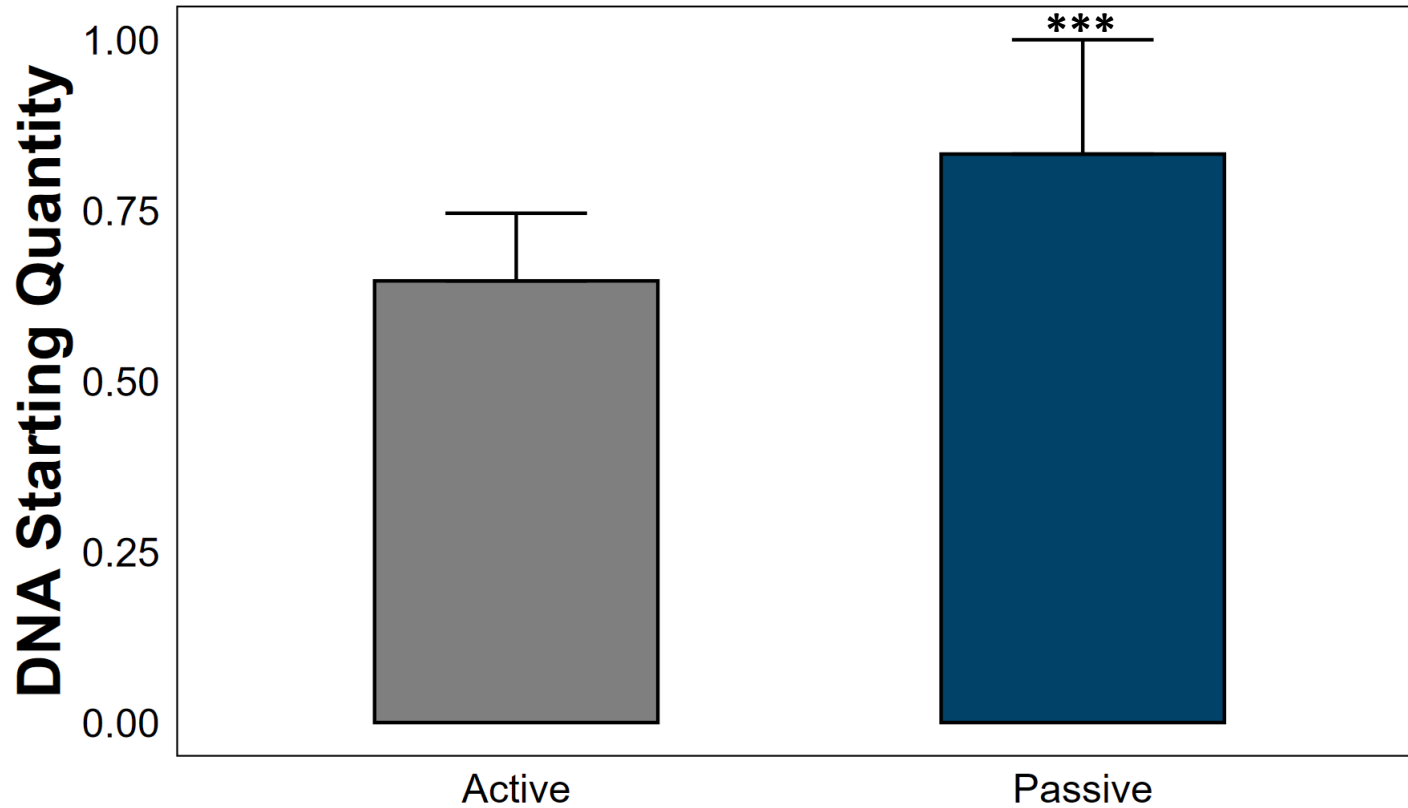
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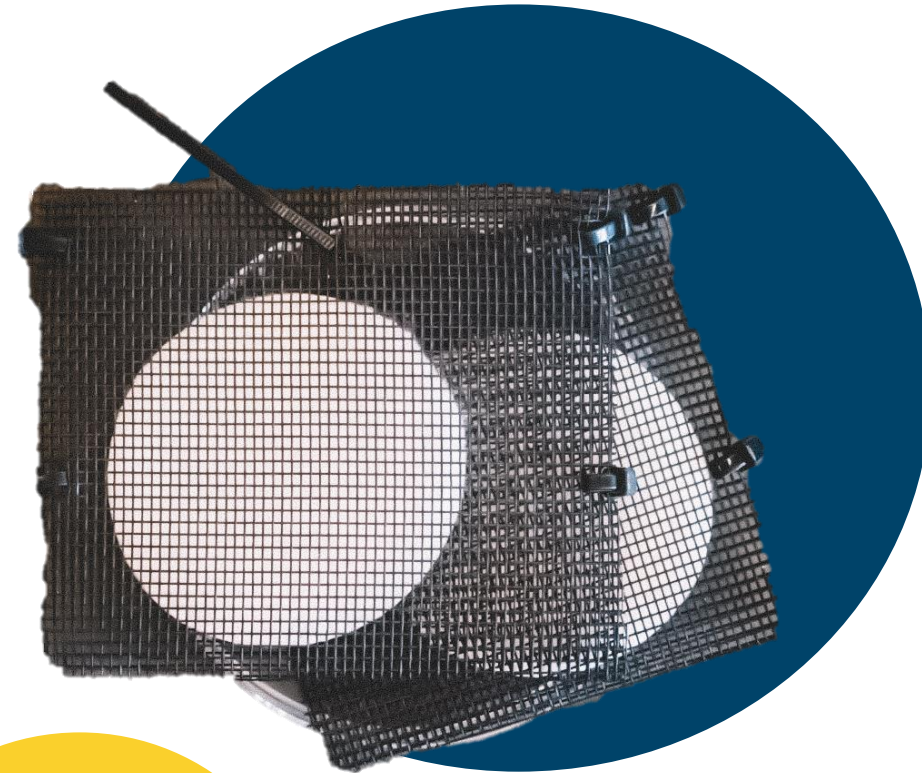


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Nuisance species edition

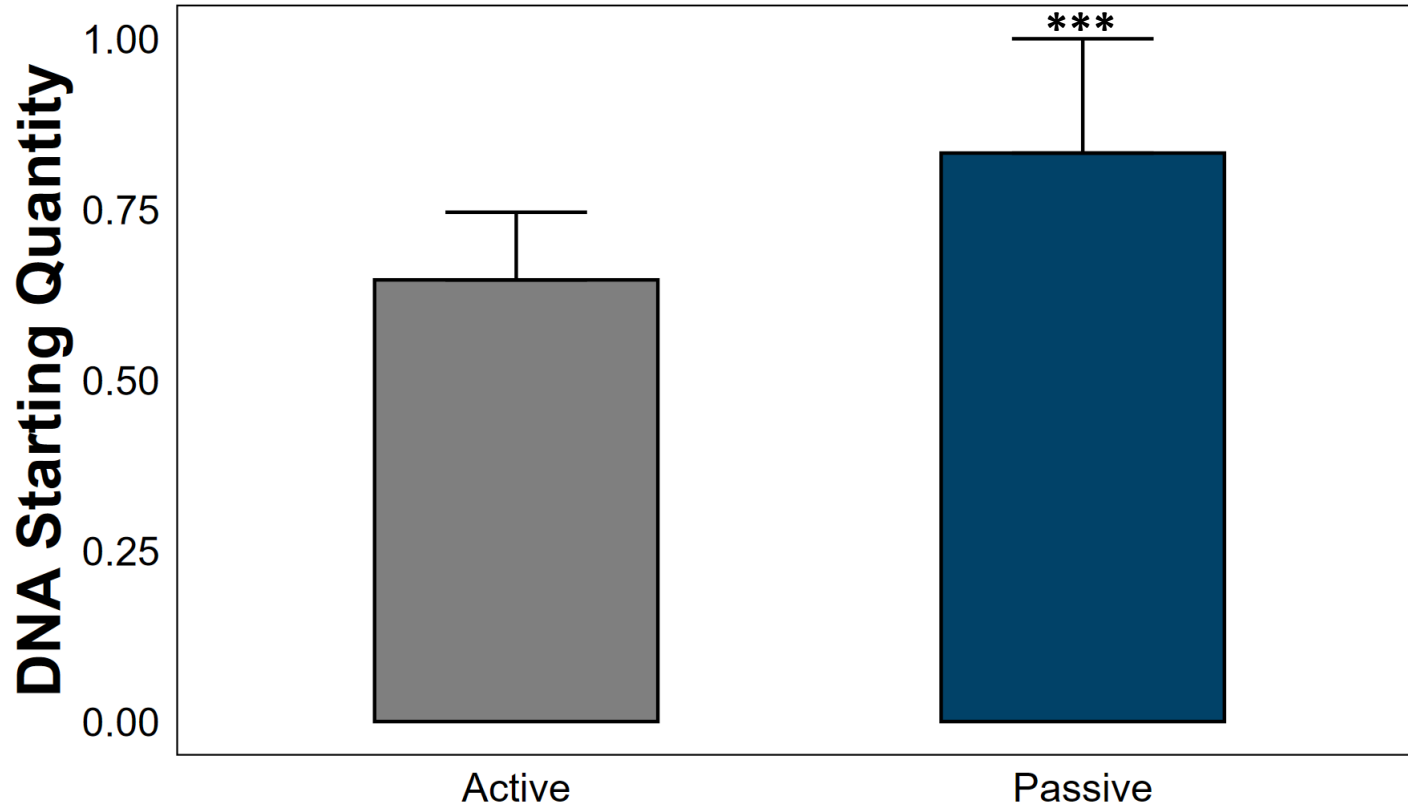


Wilcoxon Rank-Sum:  $W=16049$ ,  $p<0.001$



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Nuisance species edition



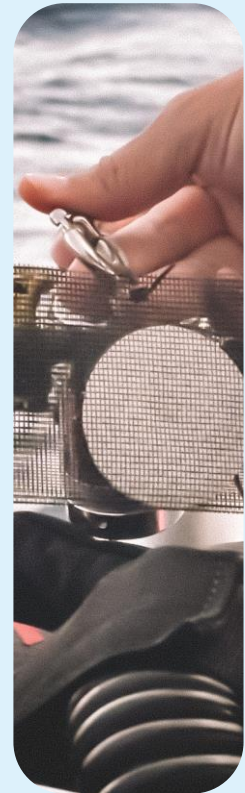
Slight reduction  
in Detection Sensitivity

**Increase qPCR replicates**



# Where's waldo

Nuisance species edition



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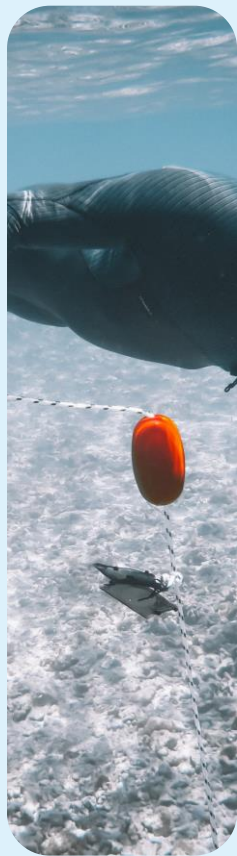
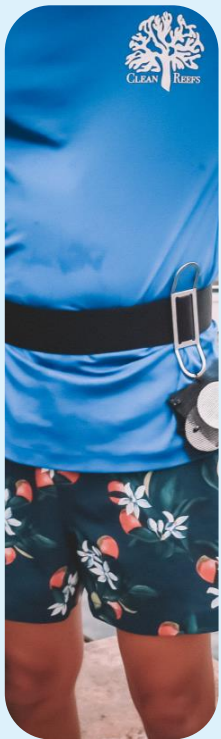
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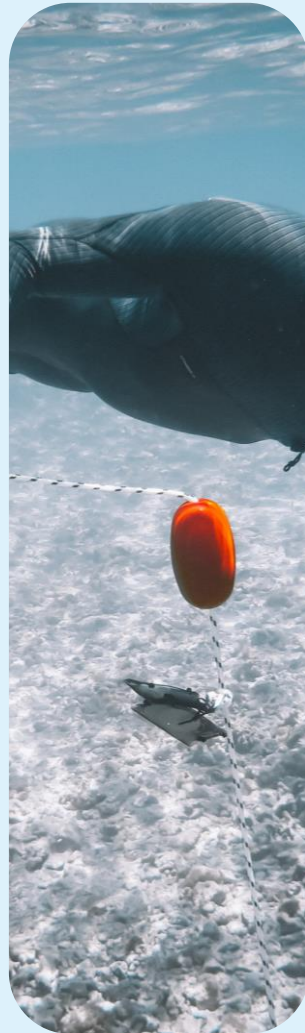
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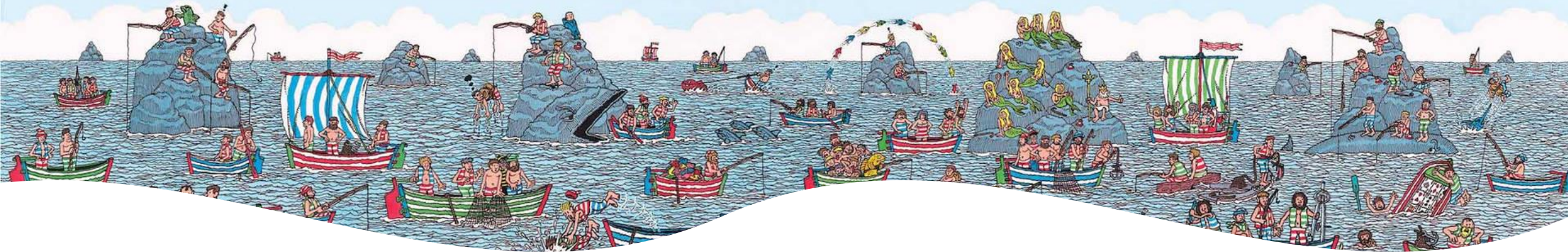
Nuisance species edition



# Where's waldo

Nuisance species edition





THANK YOU





THANK YOU



Patrick Nichols

