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About Maine eDNA

Maine EPSCoR

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Maine eDNA (<https://umaine.edu/edna/>)

Suddenly, after thousands of years, it's like we have new nets: With cutting-edge Environmental DNA methods the Maine-eDNA program aims to revolutionize monitoring and ecological understanding of our coastal ecosystems.

Collecting eDNA samples will be as simple as filling a bottle with water — no nets needed.

August 21, 2019

Run Time : 00:04:53

<https://youtu.be/Q7qVLt3joo>

Transcript is machine generated, unedited, in English.

TRANSCRIPT:

00:00

[Ocean waves]

00:04

eDNA is short for environmental DNA

00:07

an environmental DNA is the small DNA

00:11

fragments that are available in the

00:13

water soil air all around us this

00:17

environmental DNA comes from a number of

00:20

sources in some cases it's the whole

00:22

organism when we're dealing with

00:23

microbes but one of the really

00:26

interesting areas for environmental DNA

00:28

that's expanded the field a lot in

00:29

recent years is now we know we can also

00:32

detect this environmental DNA from other
00:35
types of organisms macro organisms like
00:37
fish and invertebrates and so on edie na
00:40
is a big deal because in a single sample
00:43
you can actually not just learn
00:46
something about one particular species
00:48
there's probably dozens of species in
00:50
this environmental sample that are
00:52
telling you something about how they
00:55
live where they live how abundant they
00:57
are in the ecosystem and up until this
01:00
point it would take a team of dozens of
01:04
researchers to try to address all these
01:07
questions
01:12
main a DNA is a multi-institutional
01:15
partnership that will position main as a
01:18
national leader in the understanding and
01:20
sustainable use of coastal ecosystems it
01:24
addresses the statewide workforce needs
01:26
in critically important areas including
01:29
biotechnology ecology environmental and
01:33
data sciences if you want to go off into
01:35

the Gulf of Maine and track you know say
01:37
ground fish you know how do you do that
01:39
you're typically dragging a net across
01:42
the Gulf of Maine and there's a bike
01:44
catch you know you're killing unintended
01:47
species by going after that target
01:49
species now with environmental DNA we
01:52
have a totally new independent approach
01:54
to allow us to quantify and detect these
01:57
organisms it's like suddenly after
01:59
thousands of years we have new nets and
02:01
these new nets are capturing DNA it will
02:05
be transformative for our state it not
02:08
only is a really big deal in terms of
02:10
being able to train new workers and
02:12
retrain existing workers to ready them
02:14
for 21st century jobs but this project
02:17
also has the potential to help us
02:19
understand how marine ecosystems are
02:21
connected to our lakes and our rivers
02:23
and to the people who depend on all of
02:27
those ecosystems here in Maine Maine
02:29

EDMA and Maine EPSCoR will support
02:32
Native students here at the University
02:34
of Maine as well as Native communities
02:35
across the state through student
02:38
research public education and projects
02:41
that are really important to the tribes
02:44
and our Native students here in the
02:47
state the results of Maine EDMA will
02:51
help tribes make decisions about plant
02:54
and animal communities well into the
02:56
21st century a track1 grant is twenty
02:59
million dollars of federal funds coming
03:01
into the state these grants touched the
03:03
entire state they're statewide by design
03:05
and intent
03:09
we'll be doing outreach to about 18,000
03:11
students over the five years total and a
03:14
principal focus of the outreach will be
03:17
delivery of curriculum toolkits that
03:19
will be developed by you Maine
03:20
Cooperative Extension working closely
03:22
with the Maine EPSCoR office I think the
03:27

most exciting thing about Maine EDA is
03:29
that it finally brings together
03:31
institutions that have similar
03:33
aspirations to learn more about the
03:36
environment learn how the organisms are
03:40
changing over time how all of this
03:42
biological diversity contributes to
03:45
ecosystem stability contributes to
03:47
healthy ecosystems this is a real
03:49
opportunity to adopt the technology to
03:52
build capacity within the state and to
03:55
essentially train up a whole new
03:58
generation of dna-based researchers I
04:00
think Maine's the perfect site for this
04:02
kind of work first of all our coastline
04:04
is phenomenal and quite varied which
04:06
means that we'll have the chance to look
04:08
at a host of different environments
04:09
around the state secondly we have the
04:11
research horsepower to do this here in
04:13
Maine both at the University of Maine
04:14
with our partner at Bigelow and
04:16

elsewhere because we have researchers

04:18

who are skilled in everything from

04:19

genetics to marine science to artificial

04:22

intelligence and we'll need all of those

04:24

areas in order to put things together

04:25

and make this work for the state of

04:27

Maine I'm especially excited too about

04:29

the potential for partnership with the

04:31

private sector because we have a lot of

04:32

businesses and industries in Maine that

04:34

are interested in the kind of data and

04:36

research that we'll be able to conduct

04:37

with this project

04:38

[Music]

04:44

[Applause]

04:46

[Music]