

Annual HAB Task Imaging FlowCytobot

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Juliette Smith's Lab, Virginia Institute of Marine Science

Virginia's Annual HAB Task Force Meeting

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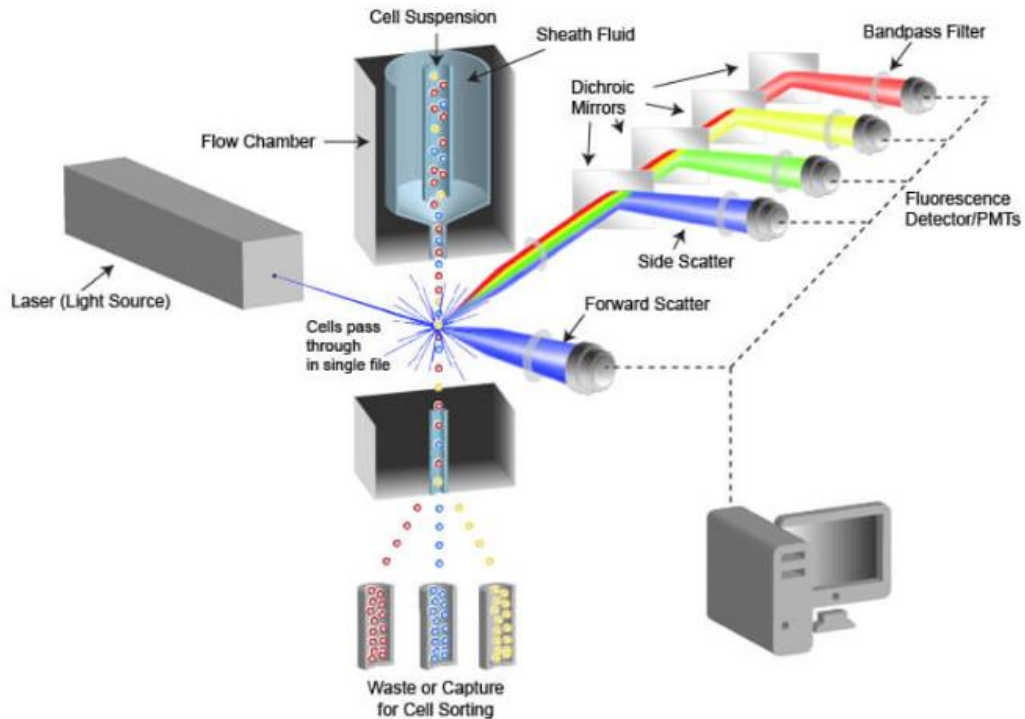


Plankton Identification

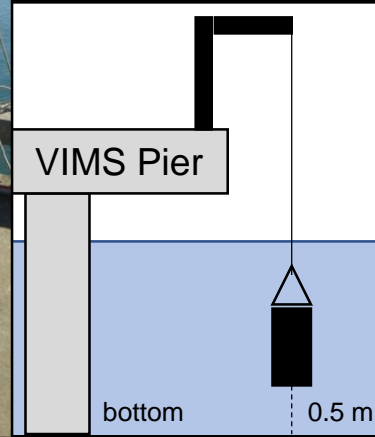
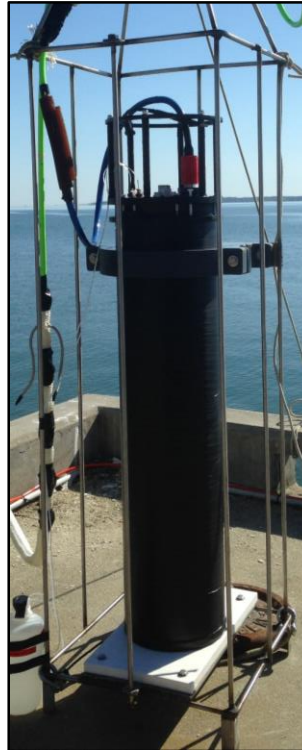


- No real-time monitor
- Required preserved samples
- Labor intense

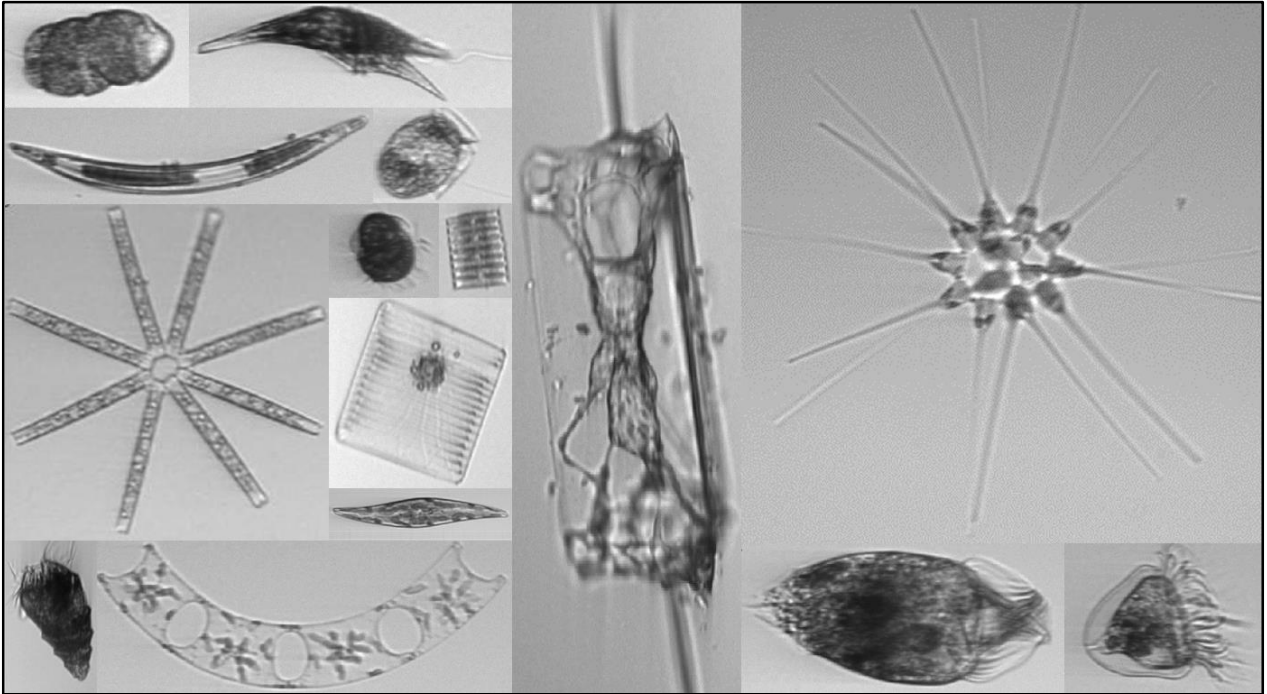
Flow Cytometer



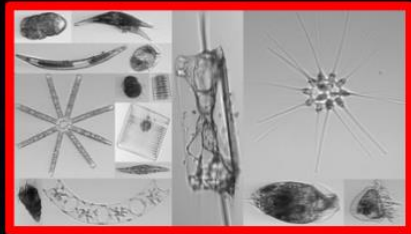
Imaging FlowCytobot



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Imaging FlowCytobot



Training



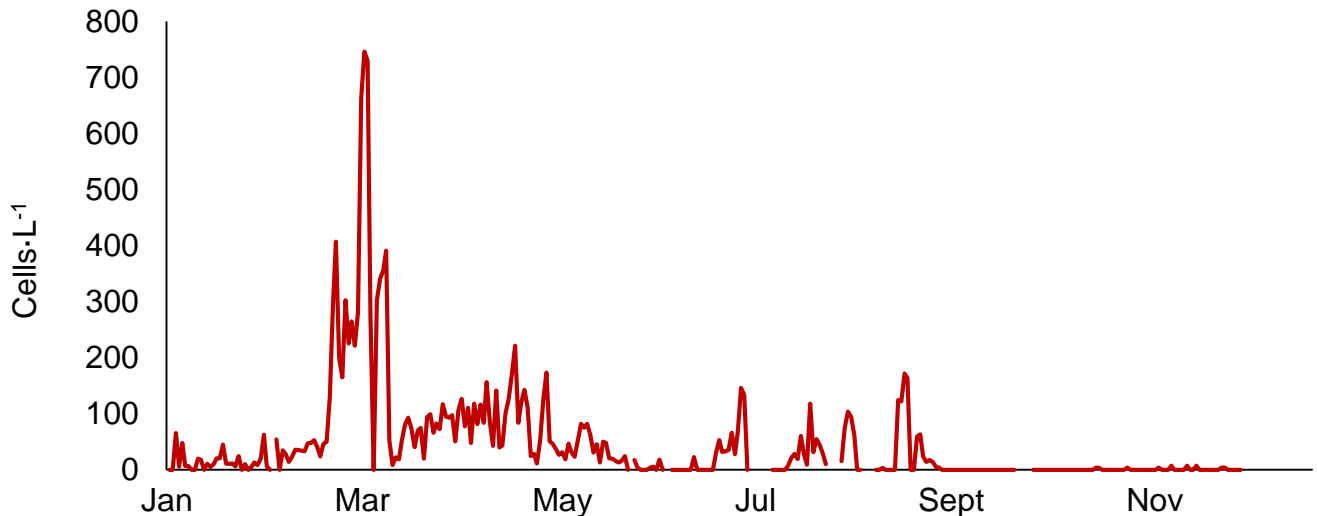
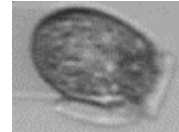
Predictive model

Dinophysis spp. population - 2020

Potential producer of:

Okadaic acid, including dinophysistoxins

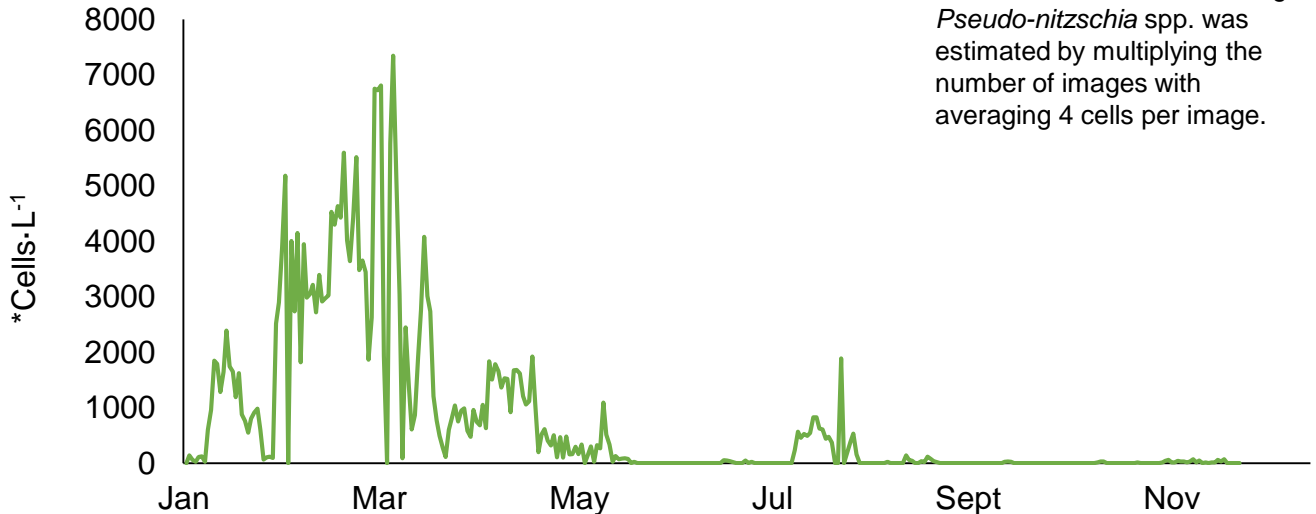
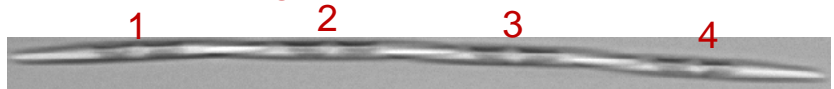
Pectenotoxins



Pseudo-nitzschia spp. Population - 2020

Potential producer of:
Domoic acid

Chain-forming

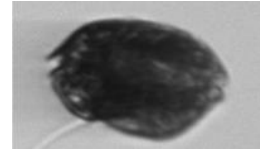


*Cell number of chain-forming *Pseudo-nitzschia* spp. was estimated by multiplying the number of images with averaging 4 cells per image.

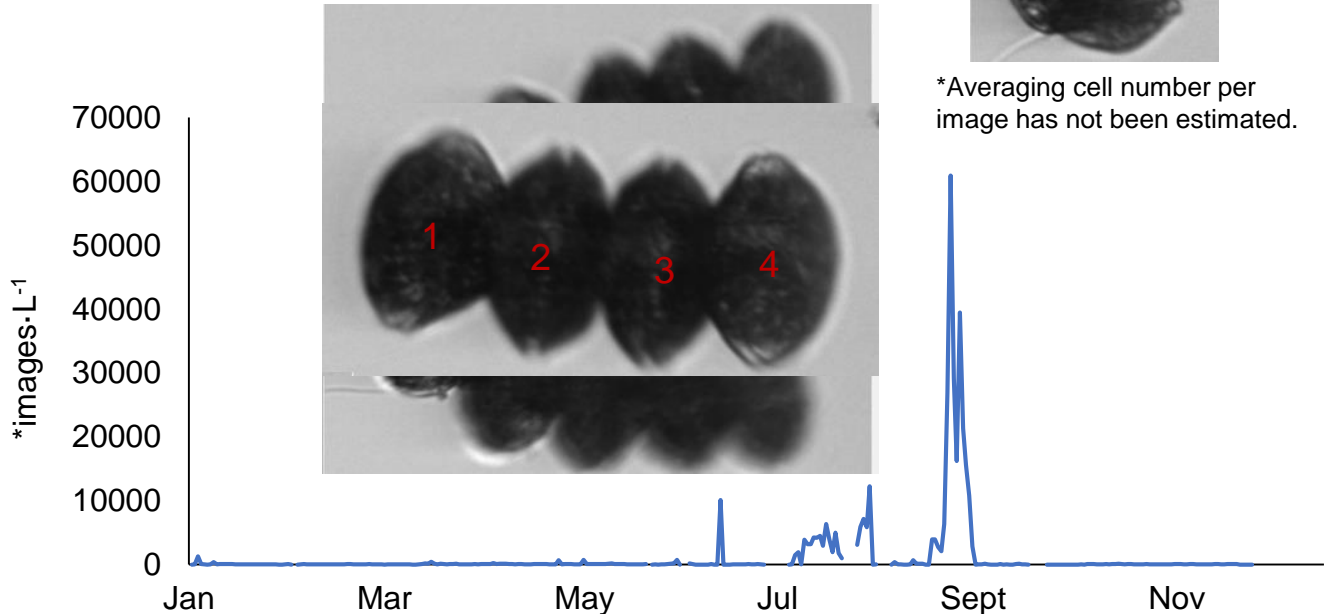
Alexandrium monilatum population - 2020

Potential producer of:
Goniodominin A

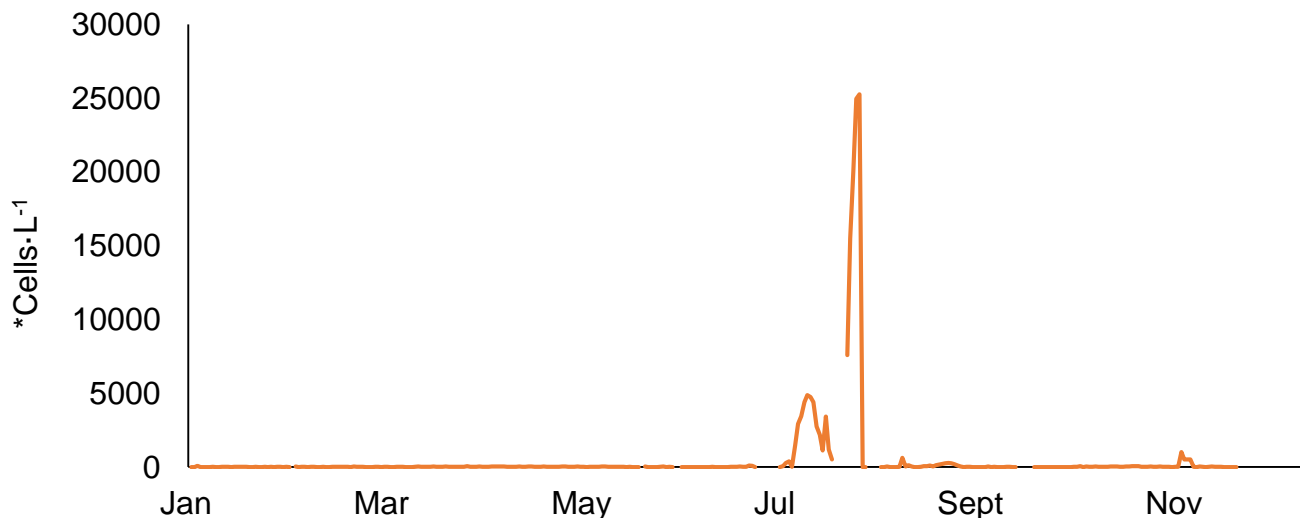
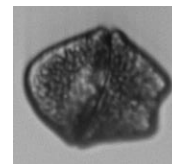
Chain-forming



*Averaging cell number per image has not been estimated.



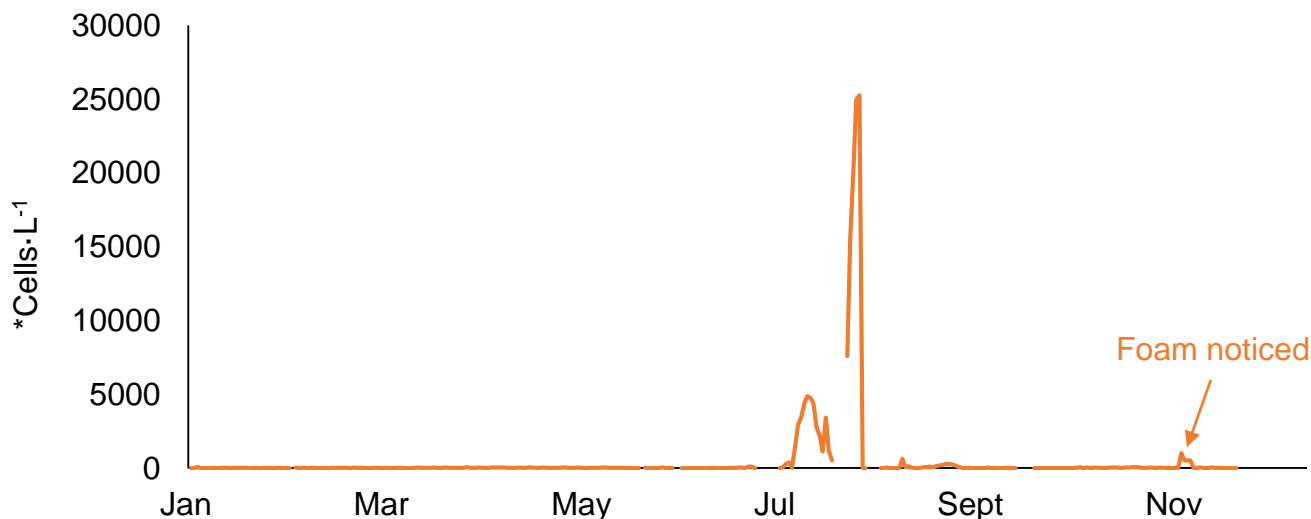
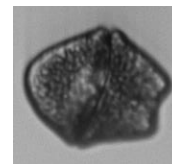
Akashiwo sanguinea Population – 2020 syn. *Gymnodinium sanguineum*



Lat (° N)	Site	Station ID	Date first observed	Initial <i>A. sanguinea</i> (cells L ⁻¹)
>47.5	S	Kalaloch	9/10/2009	960,000
>47.5	S	MocRocks	9/10/2009	282,000
>47.5	S	Copalis	9/10/2009	121,000
>47.5	S	La Push	9/17/2009	554,000
>47.5	O	Queets River	8/18/2009	3000
47.0-47.5	S	Quinalt	9/10/2009	1,553,000
47.0-47.5	O	Grays Harbor	8/17/2009	3000
46.5-47.0	S	Twin Harbors	8/19/2009	16,000
46.0-46.5	S	Long Beach	9/14/2009	315,000
46.0-46.5	S	Fort Stevens	8/24/2009	1000
46.0-46.5	S	Sunset	8/25/2009	1000
46.0-46.5	O	Columbia River	9/3/2009	98,000
45.5-46.0	S	Nehalem ^a	9/22/2009	4000
45.5-46.0	S	Seaside	9/8/2009	31,000
45.5-46.0	S	Barview ^b	9/22/2009	5000
45.5-46.0	S	Cannon	9/8/2009	2000
45.5-46.0	O	Cape Mearns	8/30/2009	10,000
45.0-45.5	S	Garibaldi ^c	11/4/2009	224,000
44.5-45.0	S	Lincoln	10/19/2009	17,000
44.5-45.0	O	Newport	6/10/2009	1000
44.5-45.0	O	Seal Rock	5/19/2009	1000
44.0-45.0	O	Strawberry Hill	9/10/2009	1000
<44.0	O	Heceta Head	Not observed	NA
<44.0	S	Coos Bay	Not observed	NA



Akashiwo sanguinea Population – 2020 syn. *Gymnodinium sanguineum*



51 classes

Dinoflagellates	<i>Ceratium, Gonyaulax, Margalefidinium, Prorocentrum, Scrippsiella</i>
Diatoms	<i>Chaetoceros, Cylindrotheca, Ditylum, Entomoneis, Eucampia, Licmophora, Rhizosolenia, Striatella, Thalassiosira</i>
Cyanobacteria	<i>Merismopedia</i>
Green algae	<i>Closterium</i>
Zooplanktons	<i>Didinium, Laboea, Leegaardiella, Mesodinium, Strobilidium, Strombidium</i>

Collaboration for more classes or data-mining!

Acknowledgement



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ECO HAB 19



Collaboration and Job hunting-
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