Distribution of Phycotoxins and Associated Harmful Algae in the Fjords and Channels of the Tierra del Fuego Archipelago, South America

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[3]Instituto de Fomento Pesquero
[4]Instituto Argentino de Oceanografía

HAB species & associated phycotoxins

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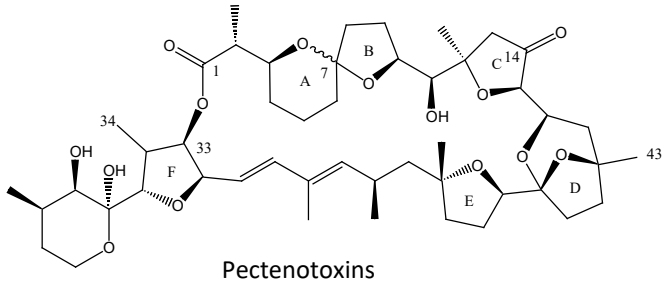
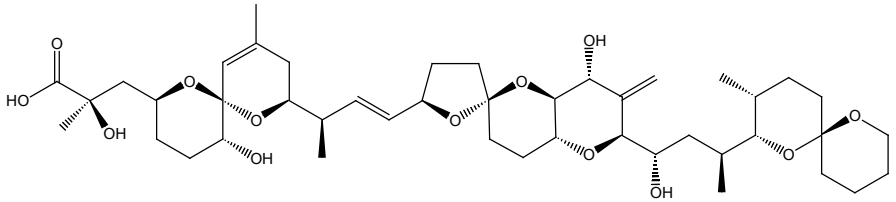
Dinophysis spp.



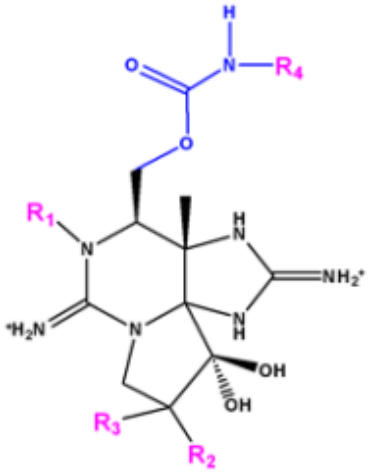
Pectenotoxins



Okadaic acid, Dinophysistoxins

Alexandrium ostenfeldii

Cycloimines



PSP toxins

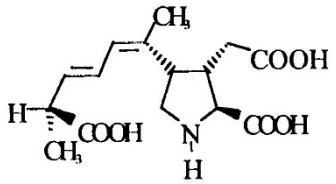
Alexandrium catenella

Protoceratium reticulatum

Lingulodinium polyedra

Yessotoxins

Pseudo-nitzschia spp.



Domoic acid

Substutions	R1=H	R1=OH
R2=H, R2=H, R3=H, R4=CO-NH_2	STX	NEO
R2=H, R2=OH, R3=H, R4=CO-NH_2	GTX2	GTX1
R2=H, R2=H, R3=OH, R4=CO-NH_2	GTX3	GTX4
R2=H, R2=H, R3=OH, R4=CO-NH-$SO3^-$	B1	B2
R2=H, R2=OH, R3=H, R4=CO-NH-$SO3^-$	C1	C3
R2=H, R2=H, R3=OH, R4=CO-NH-$SO3^-$	C2	C4

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Study area

ANS. INST. PAT., Punta Arenas (Chile), Vol. VI, N.os 1 - 2, 1975

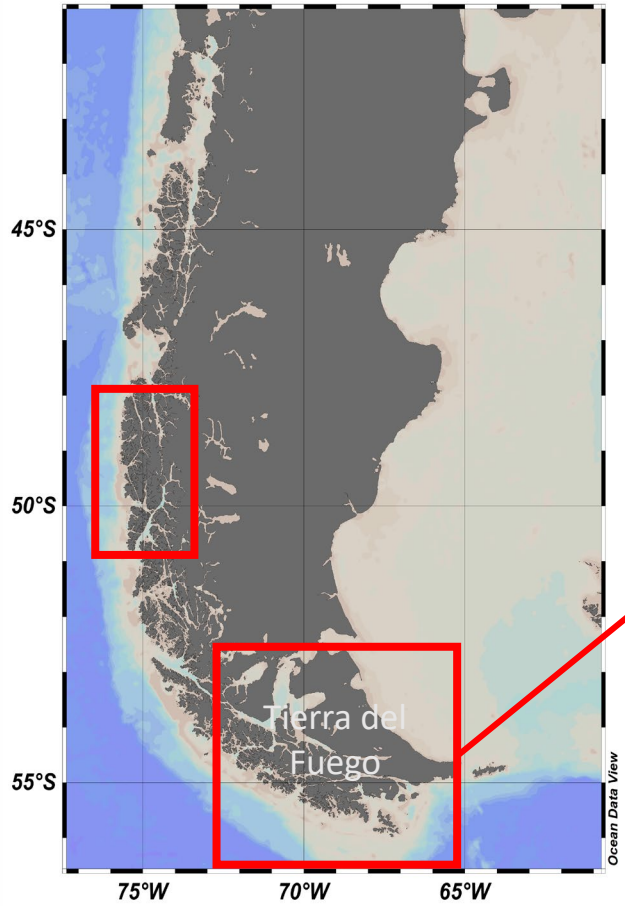
ESTUDIOS SOBRE UN FLORECIMIENTO TOXICO CAUSADO POR *GONYAULAX CATENELLA* EN MAGALLANES. II.— Algunas condiciones hidrográficas asociadas.

LEONARDO GUZMAN M. y GEORGINA LEMBEYE V.**

SUMARIO

Se informa acerca de algunas condiciones hidrográficas (temperatura, salinidad, densidad y estabilidad) asociadas a un florecimiento tóxico causado por *Gonyaulax catenella* en Bahia Bell en la primavera de 1972. Se plantean algunos hechos que explicarían la estructura de la columna de agua en el sector terminal de esta localidad.

A fines de noviembre de 1972, el sector terminal de esta bahía presentó una marcada estratificación termohalina, la cual habría estado asociada a un período con alta insolación y calmas. A mediados de enero de 1973, en cambio, aunque persistía la misma estructura de la columna de agua, la estabilidad era notoriamente inferior.



FjordFlux
Jan/Feb 2022

Study Area

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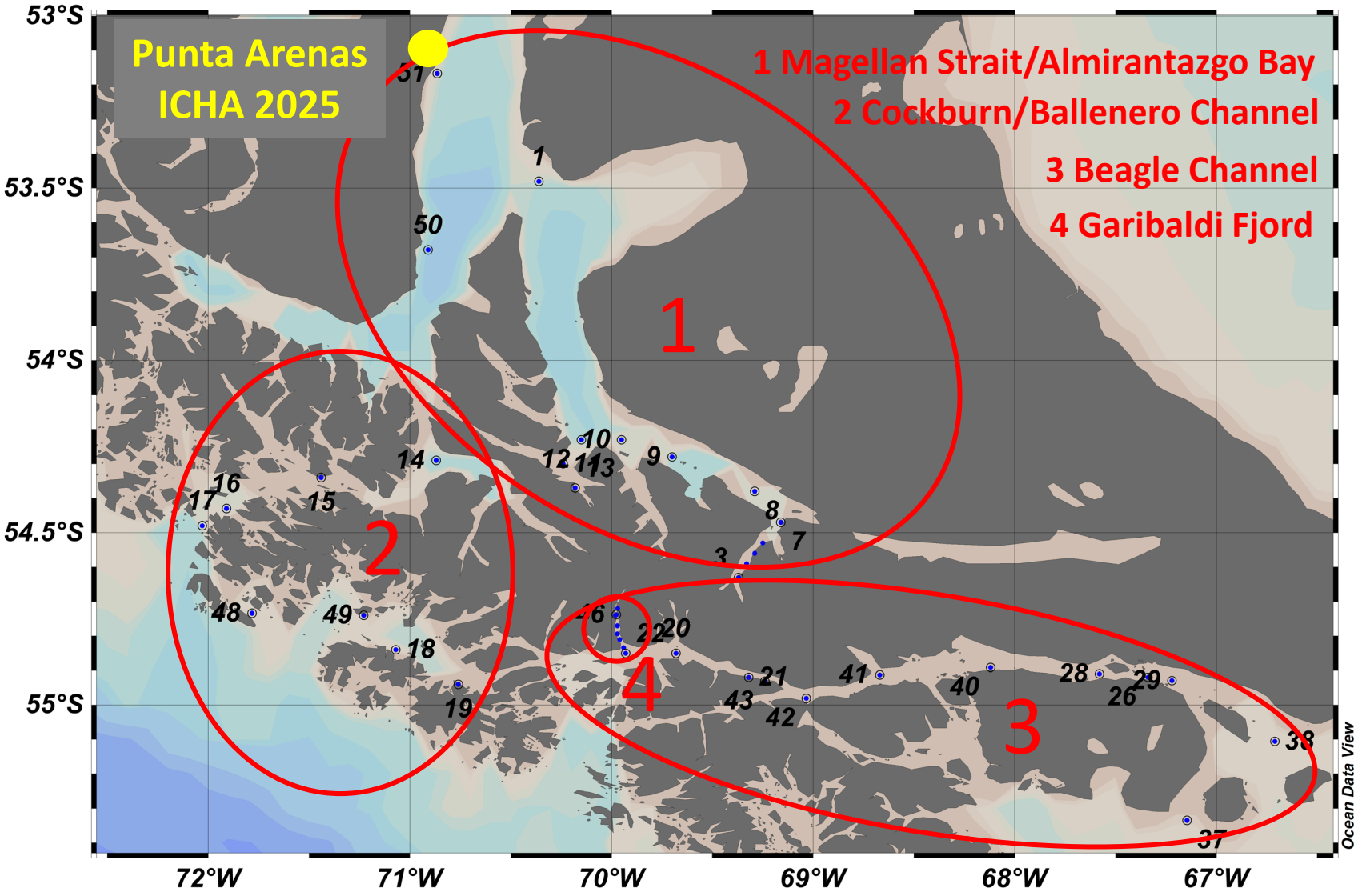
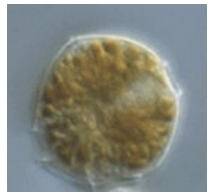


PSP Toxins (*Alexandrium catenella*)



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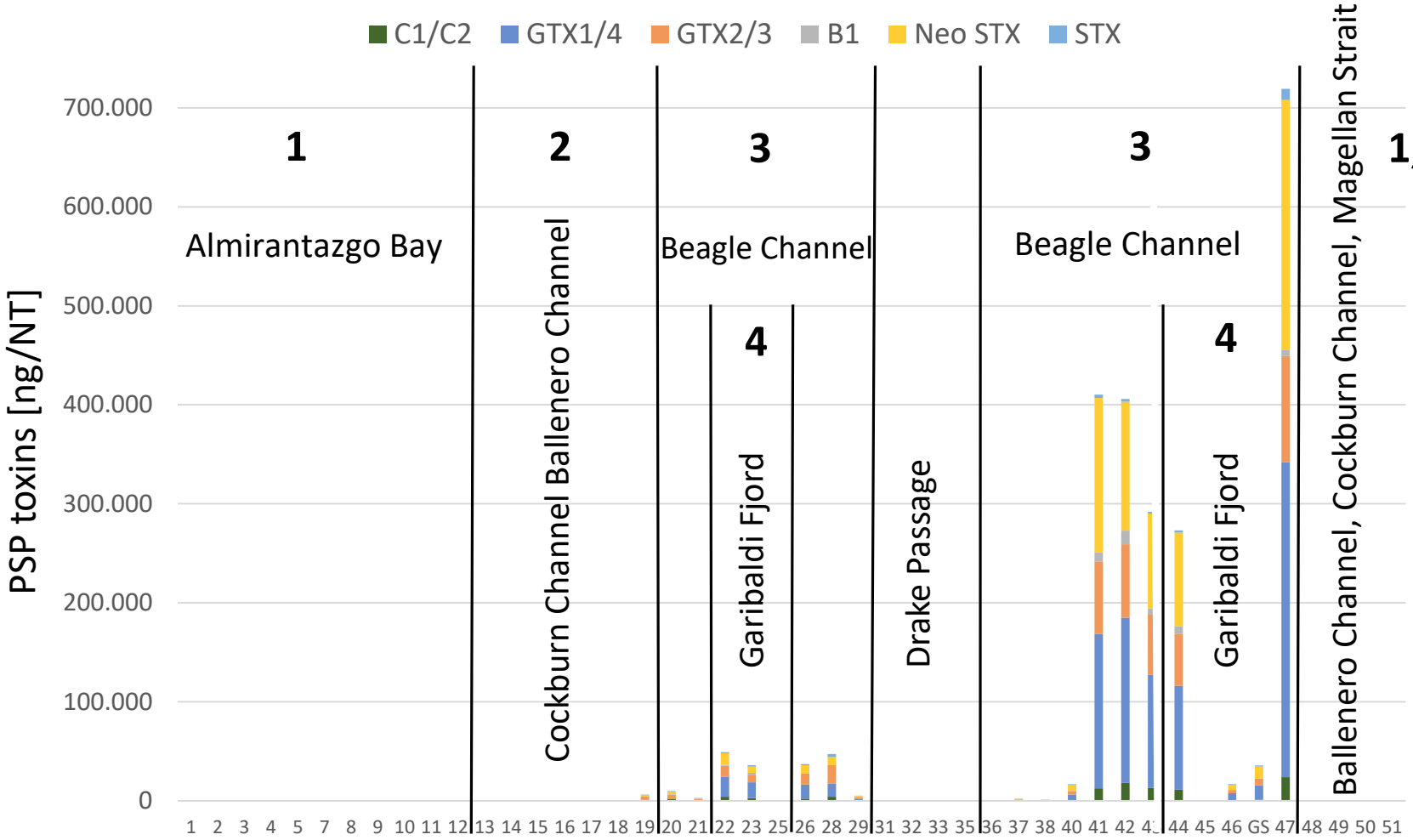
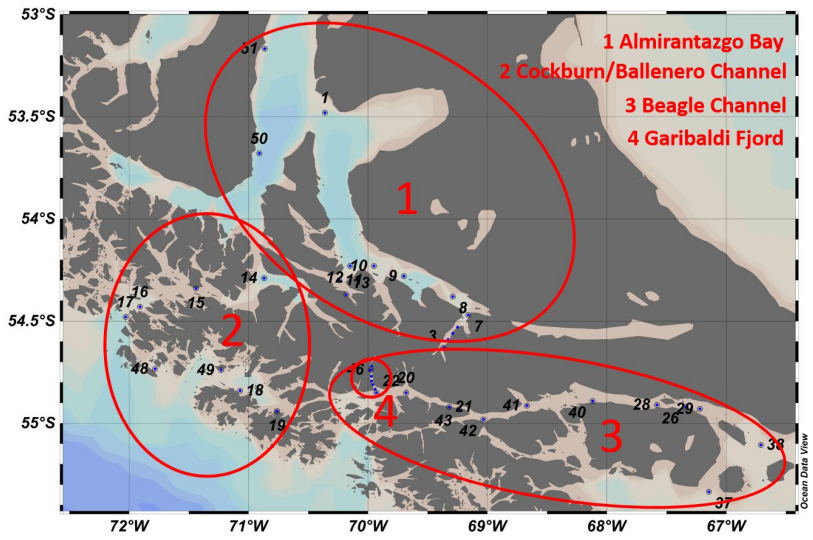


Net tow samples



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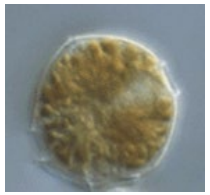
PSP Toxins (*Alexandrium catenella*)



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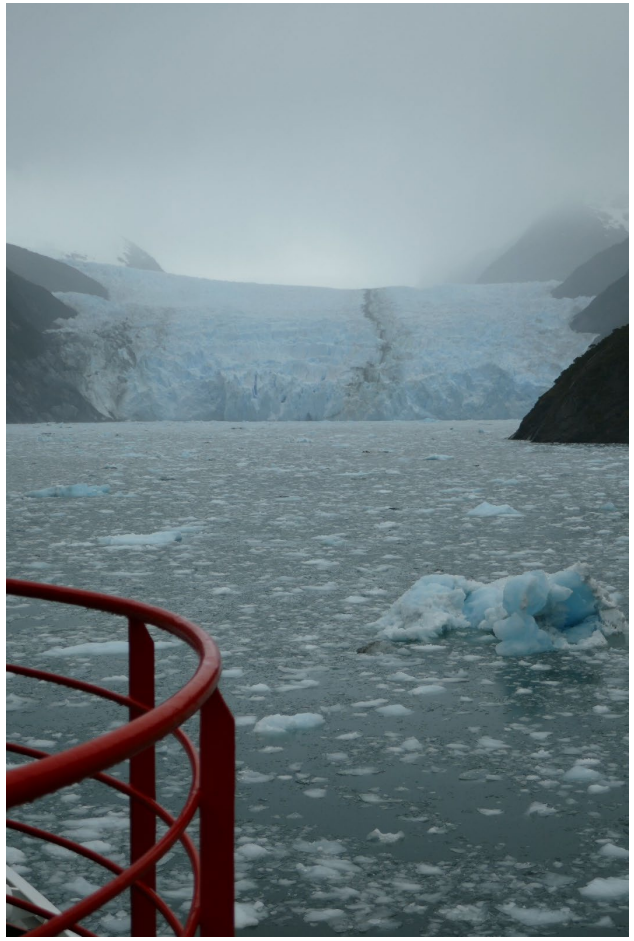
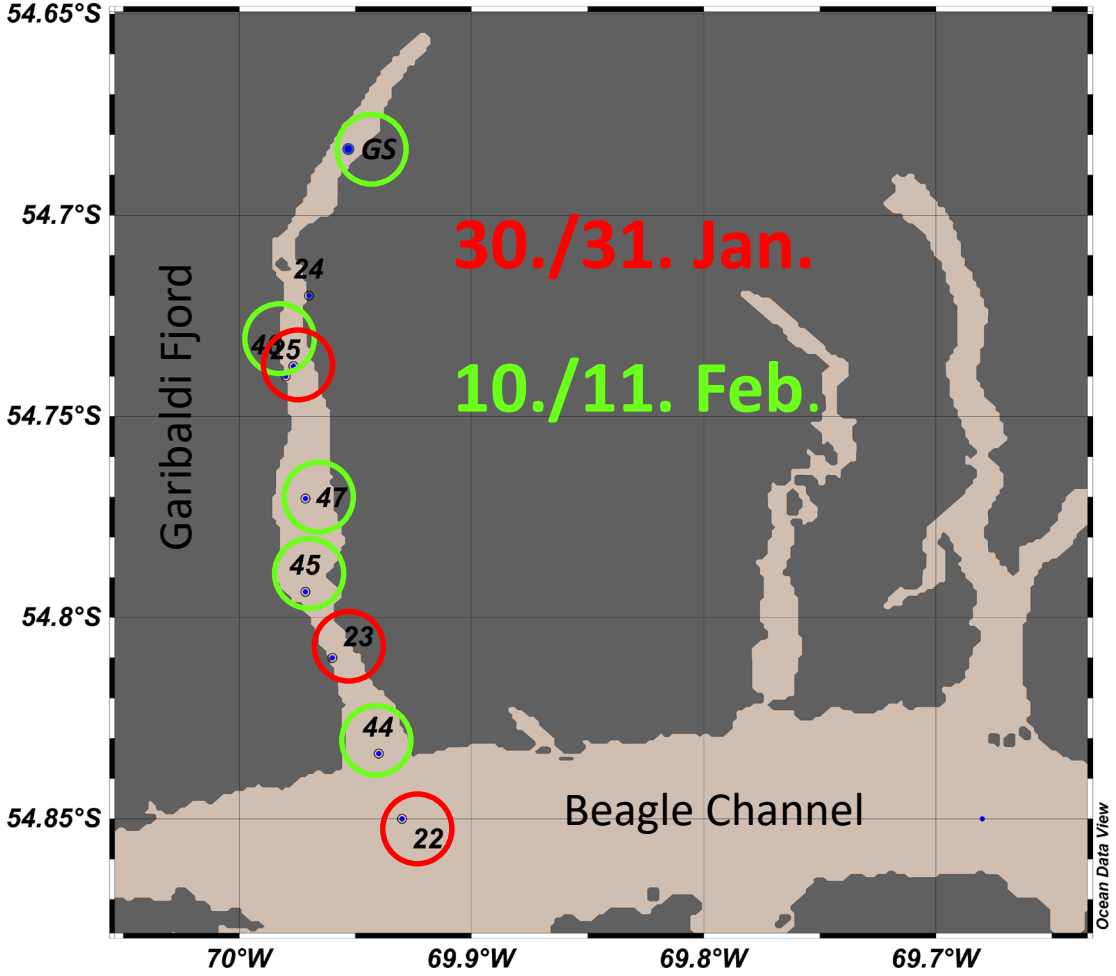
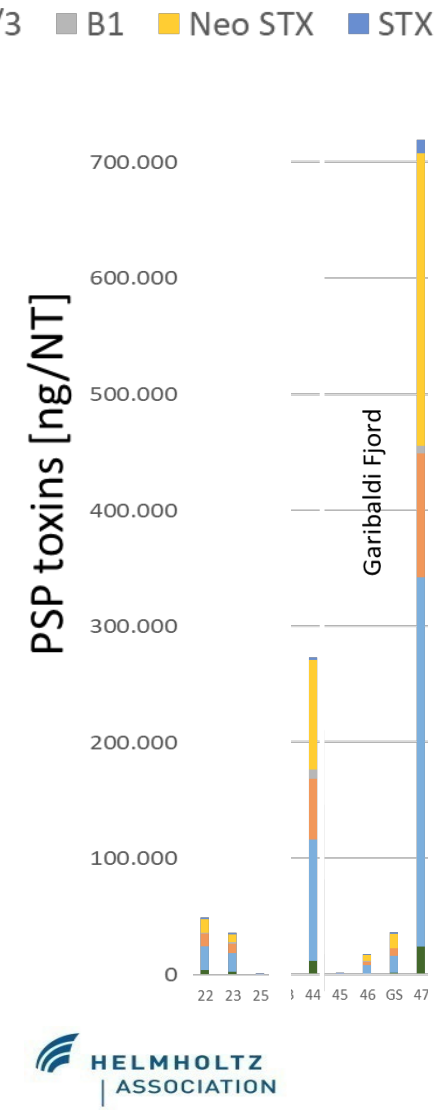


Garibaldi Fjord





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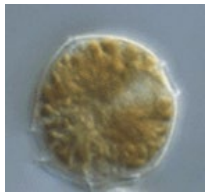

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Canal Wilde

PF5

PF8

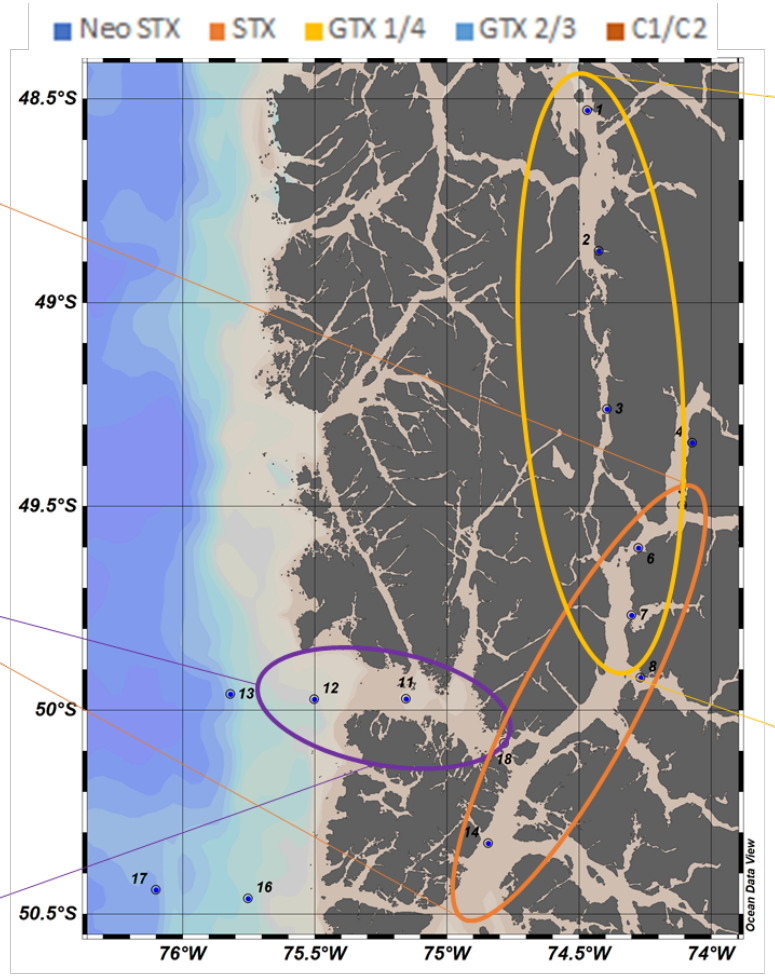
PF14

Canal Trinidad

PF11

PF12

PF18



PF1

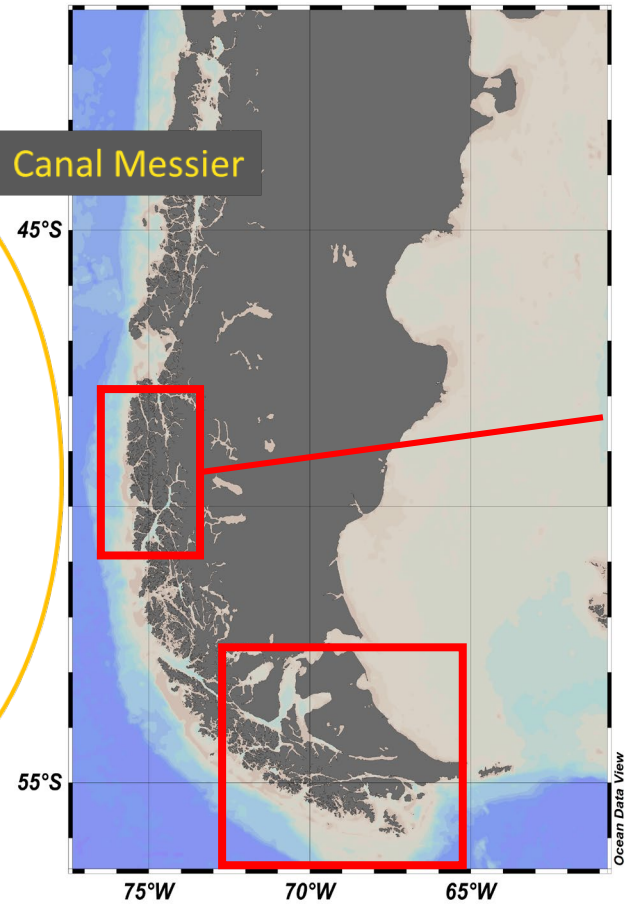
PF2

PF3

PF6

PF7

Canal Messier



PROFAN
Nov 2019

Möller, K. et al. (2022) Progr. Oceanogr 206: 102851.

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Lipophilic Toxins

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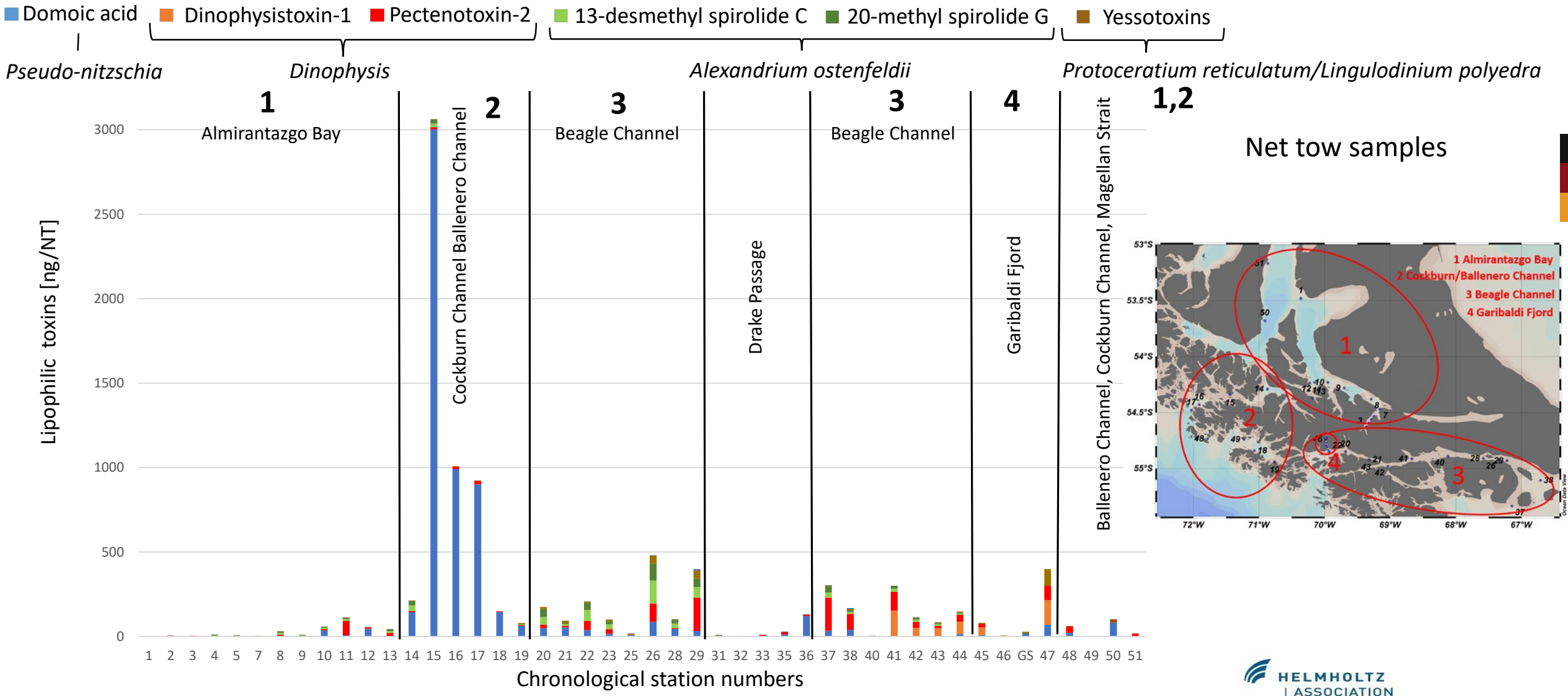

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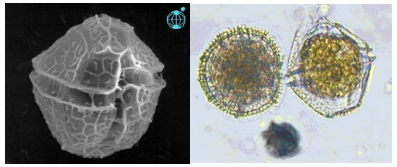
Yessotoxins (*P. reticulatum/L. polyedra*)



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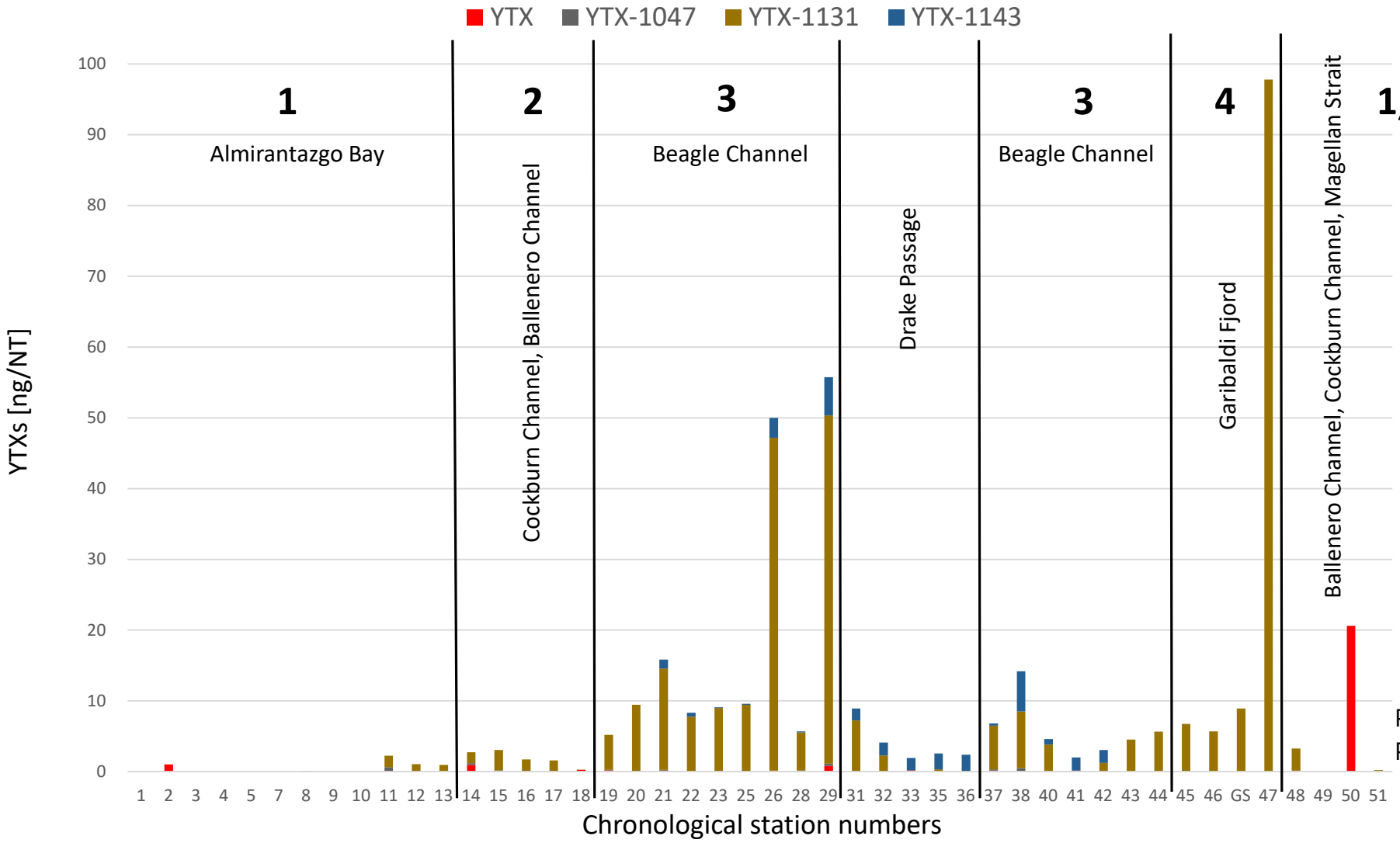
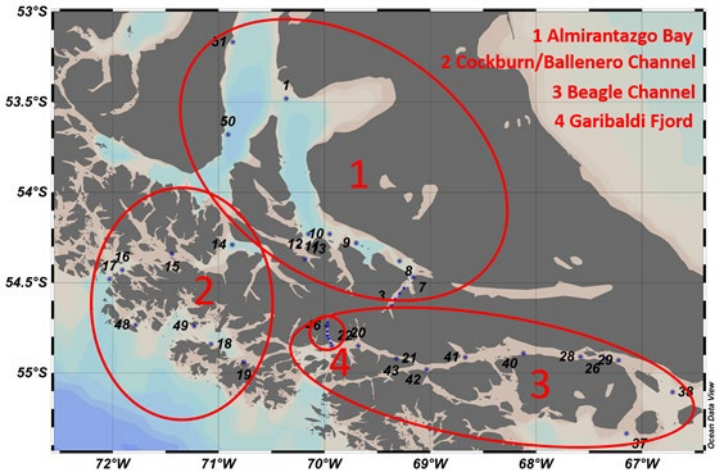


Net tow samples



Pistocchi, R. et al. 2012. Mar. Drugs 10(1): 140-162.
Peter, C. et al. 2018. Harmful Algae 78: 9-17.

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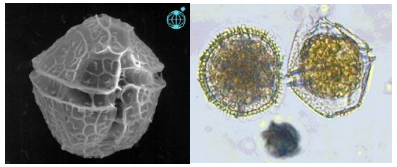
Yessotoxins (*P. reticulatum*/*L. polyedra*)



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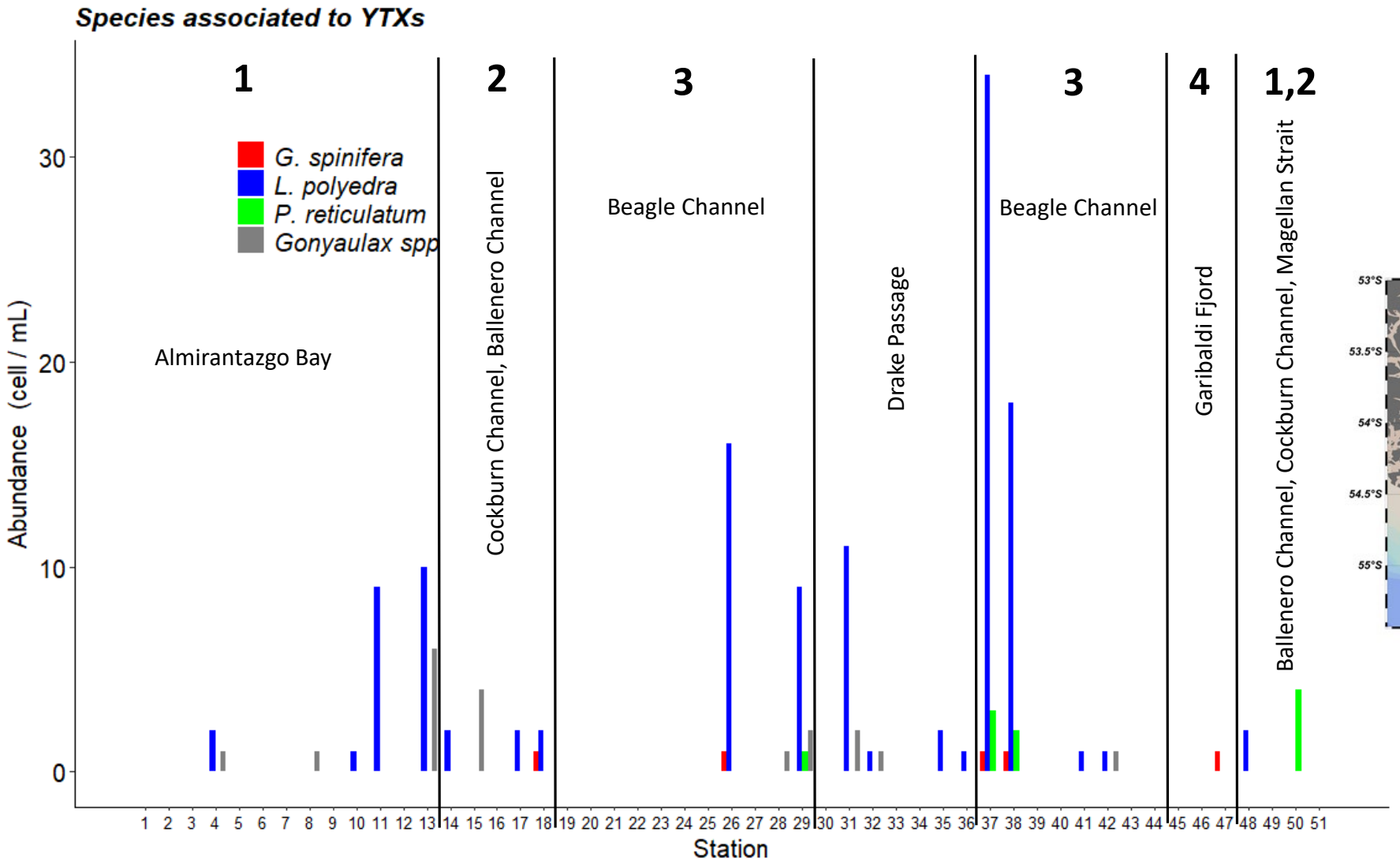
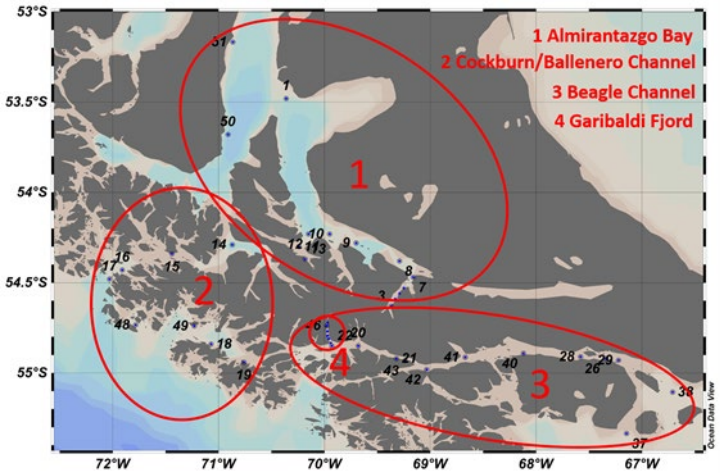


Water samples



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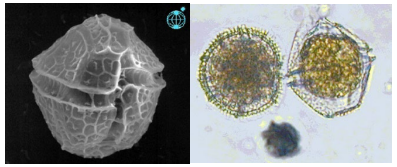
Yessotoxins (*P. reticulatum/L. polyedra*)



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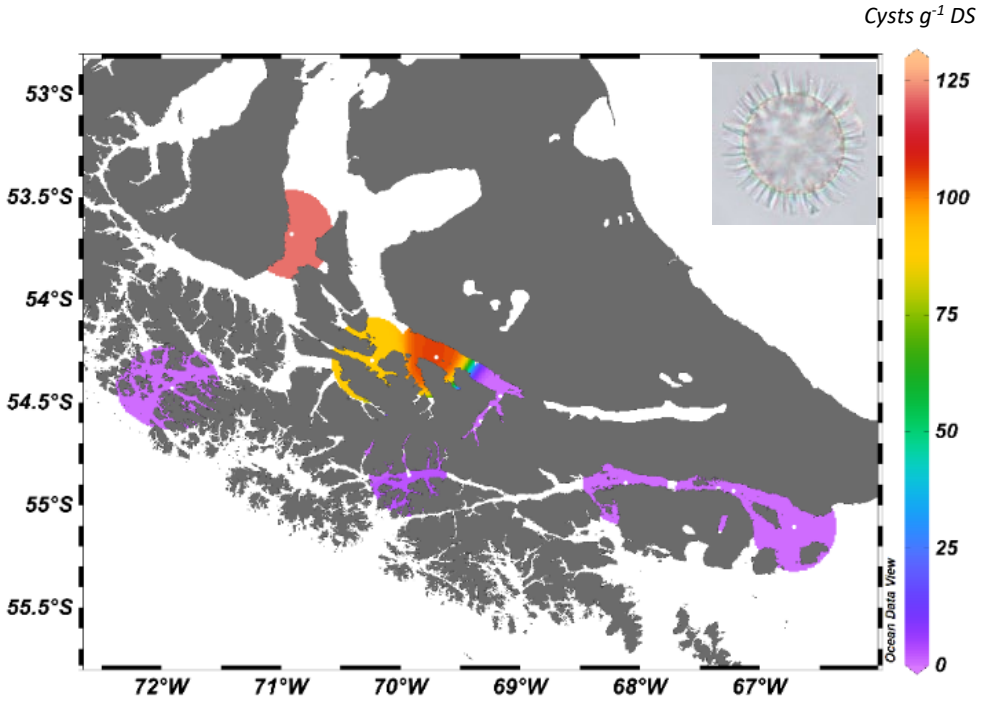
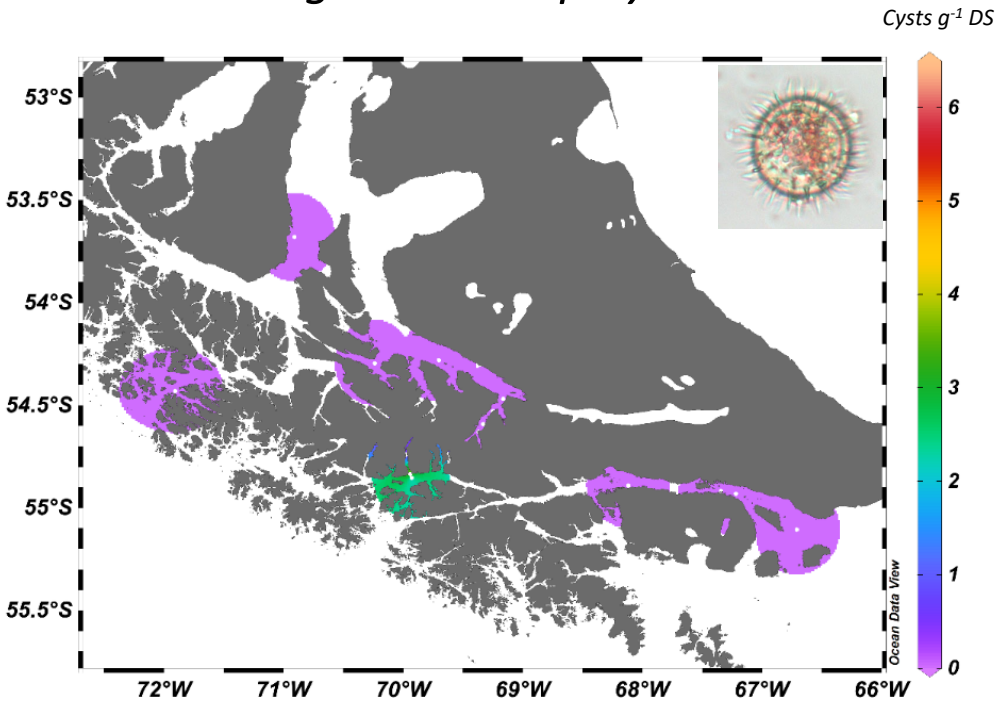
Cyst abundances of *P. reticulatum/L. polyedra*

Protoceratium reticulatum



Lingulodinium polyedra



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Take home messages

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1. PSP toxins/*Alexandrium catenella* almost exclusively present in the Beagle Channel with a conserved toxin profile across all stations

2. Detection of a locally restricted *A. catenella* bloom in Garibaldi Fjord on 10th February with an extremely high PSP toxin load

3. Domoic acid/*Pseudo-nitzschia* mostly present in more open waters (Cockburn and Ballenero Channels) and to a lesser extent in the Drake Passage

4. Spirolides/*Alexandrium ostenfeldii* (as *A. catenella*) mostly present in the Beagle Channel but in lower abundances

5. Yessotoxin profiles confirm the presence of two species:
   1) *Lingulodinium polyedra* in the Beagle Channel and
   2) *Protoceratium reticulatum* in Almirantazgo Bay and Magellan Strait

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Any Questions?
Thanks for Your Attention!