



Circumpolar Biodiversity Monitoring Programme (CBMP)

June 25, 2019 – Second PAME conference on EA in the Arctic – Bergen, Norway

Monitoring and reporting changes in the Arctic Biodiversity Status and next steps

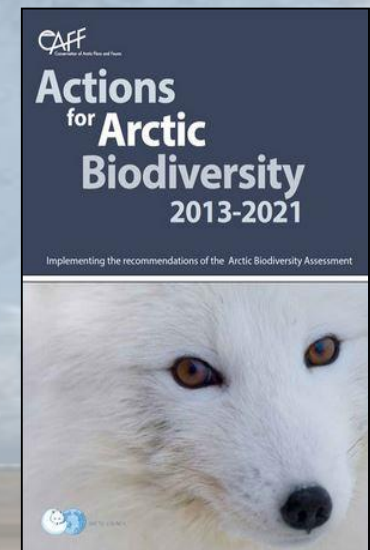
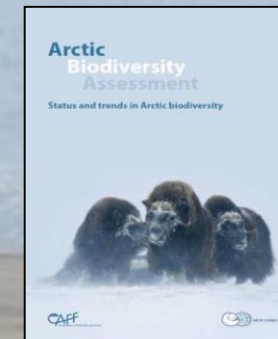
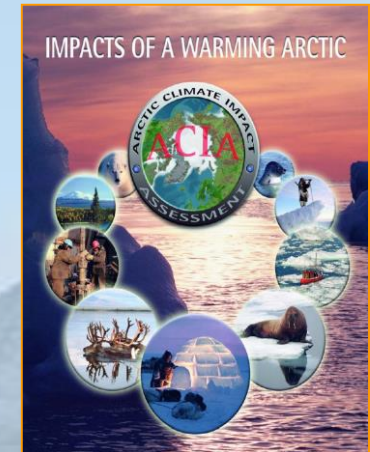
Tom Christensen, Tom Barry, Kari Fannar Lárusson,

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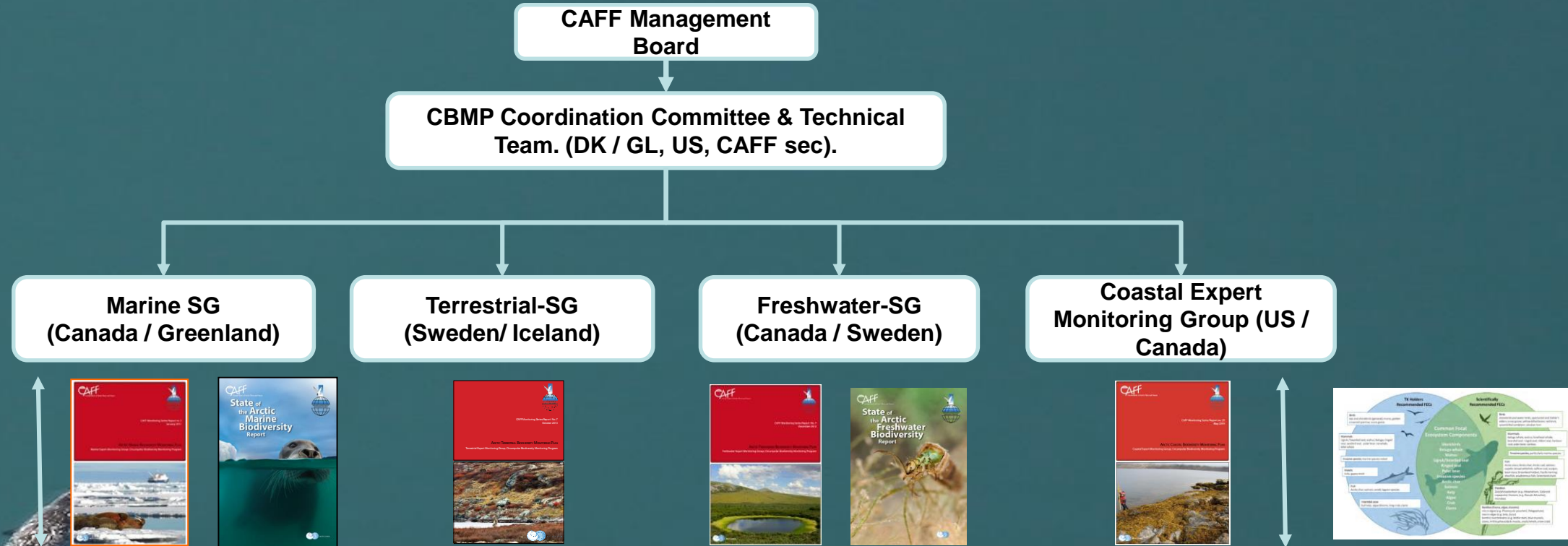
- CAFF's biodiversity monitoring programme
- Started as response to Arctic Council recommendations on biodiversity and ecosystem monitoring (ACIA)
- Now also a tool for CAFF to implement ABA Action Plan.

www.cbmp.is

www.ABDS.is



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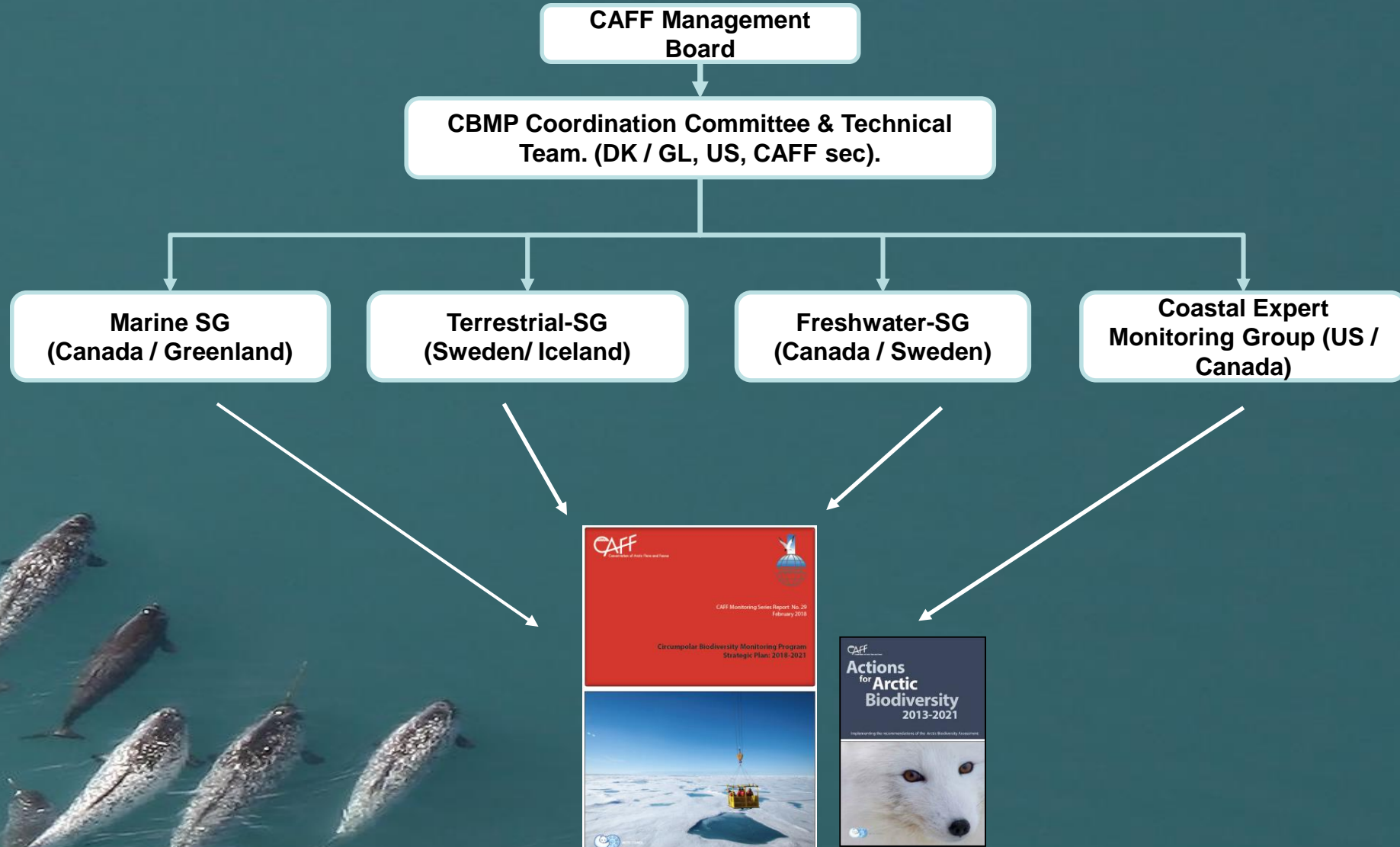
Expert Networks:

- Plankton
- Benthos
- Fish
- Seabird
- Marine Mammal
- Sea Ice

Coastscapes:

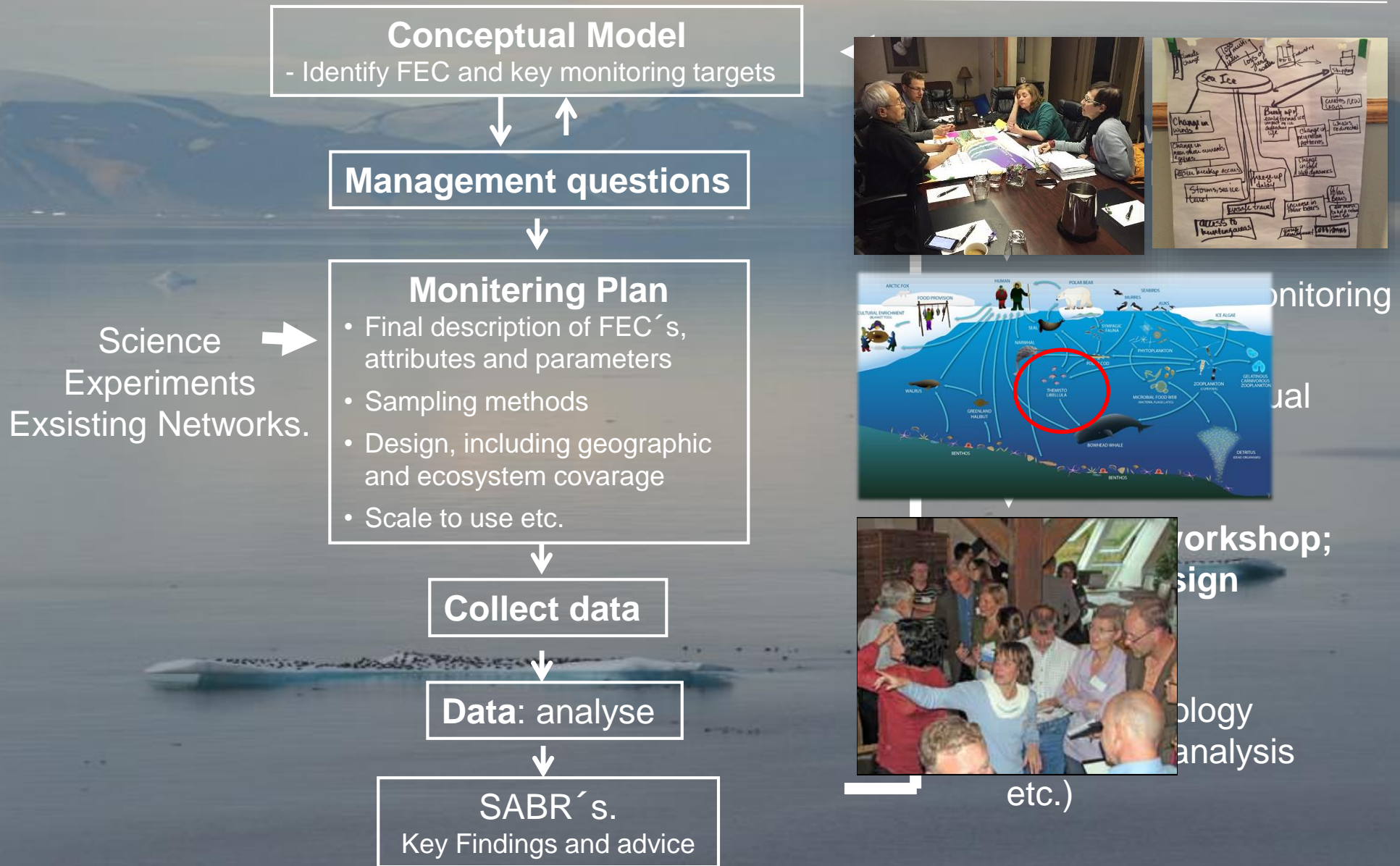
- Fjords
- Eroding Shores
- Lagoon and Barrier Island
- Rocky Shores
- Low Gradient Soft Shores
- Ice Front

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CBMP ecosystembased adaptive monitoring

(Strategic Plan and monitoring plans inspired by Lindenmayer & Likens)



Conceptual Model
- Identify FEC and key monitoring targets

Management questions

Monitoring Plan

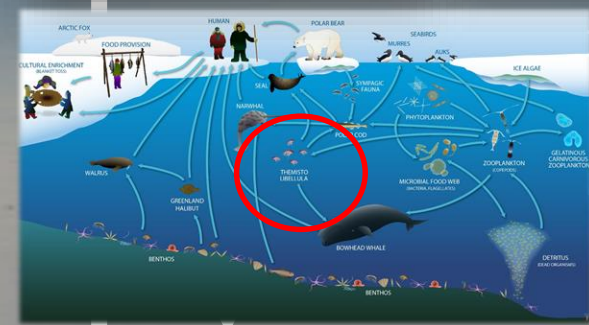
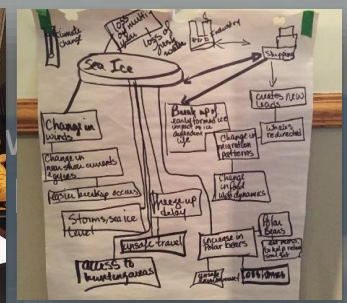
- Final description of FEC's, attributes and parameters
- Sampling methods
- Design, including geographic and ecosystem coverage
- Scale to use etc.

Collect data

Data: analyse

SABR's.
Key Findings and advice

Science Experiments Existing Networks. →



Monitoring Plan



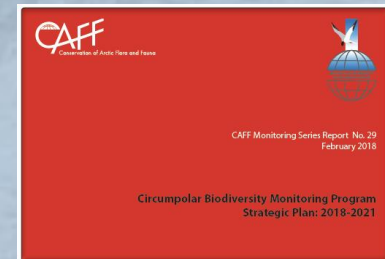
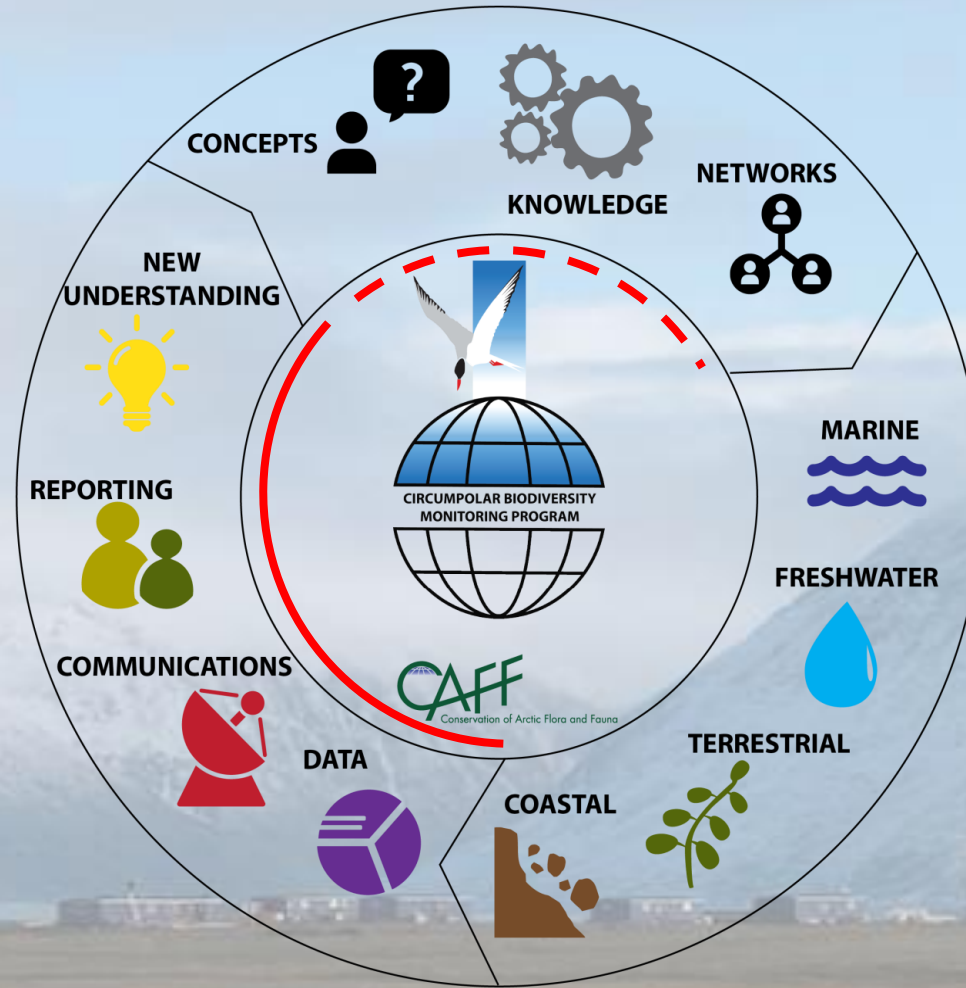
Workshop; Design

Biology analysis (etc.)

CBMP ecosystembased adaptive monitoring

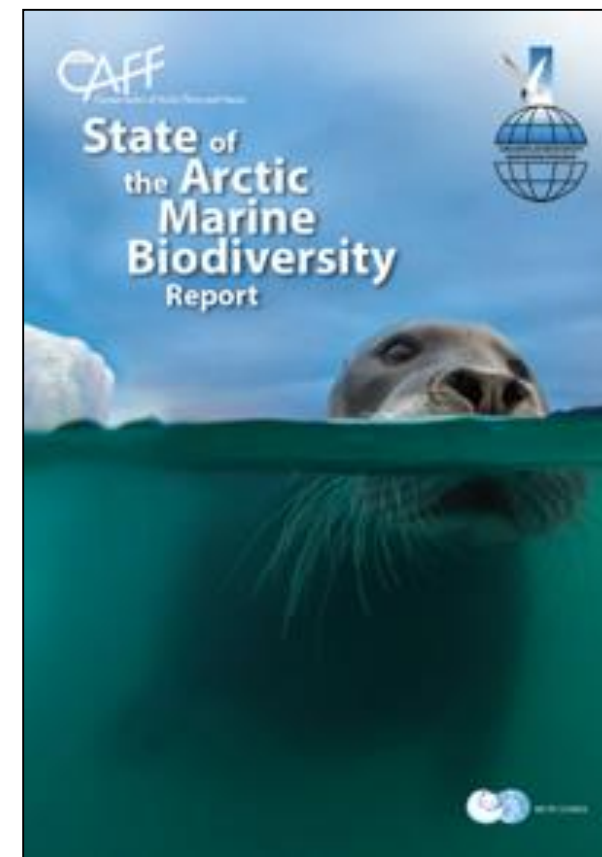
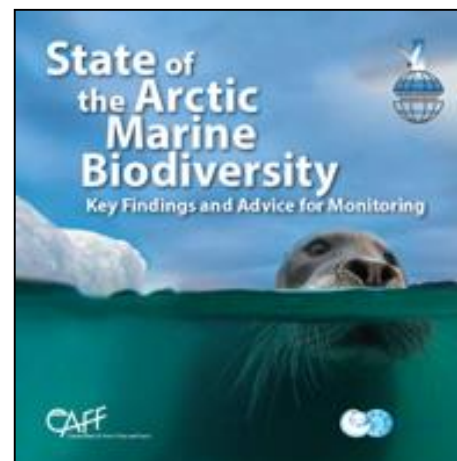
(Strategic Plan and monitoring plans inspired by Lindenmayer & Likens)

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CIRCUMPOLAR BIODIVERSITY MONITORING PROGRAM

- Published May 2017
- More than 70 authors
- Tells us what existing monitoring programs are able to say about changes in Arctic biodiversity and ecosystems
- Provides key trends on biodiversity AND advice for future monitoring, directed towards policy and decision makers
- <https://www.arcticbiodiversity.is/index.php/marine>



Focal Ecosystem Components: Key elements, changes in the status of which likely indicate changes in the overall marine environment.

Sea Ice Biota:

- Microbes
- Ice algae
- Ice meiofauna
- Ice macrofauna

Plankton:

- Phytoplankton and larger protists
- Microbial Eukaryotes
- Bacteria and Archaea
- Zooplankton

Benthos:

- Macrofauna (organisms larger than 1 mm)
- Megafauna (organisms that can be identified on photo/or caught by trawl)

Fish:

- Capelin
- Polar Cod
- Greenland halibut

Birds:

- Black-legged kittiwake
- Common murre
- Thick-billed murre
- Ivory gull
- Common eider
- Glaucous gull
- Least auklet
- Dovekie

Marine mammals:

- Walrus
- Ringed seal
- Bearded seal
- Ribbon seal
- Harp seal
- Hooded seal
- Spotted seal
- Narwhal
- Beluga
- Bowhead whales
- Polar bear

The 6 FEC group subchapters and one overall chapter describe status and trends on a circumpolar scale and with the “Arctic Marine Areas” (AMA’s).

- Baselines/ trends on FEC’s (if possible)
- Comparisons between the AMA’s (where possible)
- Intension is that figures and tables on FEC’s are relatively easy to update based on future monitoring
- Drivers of observed trends
- Current monitoring, monitoring gaps and advise for future monitoring

These will be of extreme value in the continued CBMP implementation



CBMP Arctic Marine Area	CSMP region	Country	Ivory gull		Glaucous gull		Black-legged kittiwake		Thick-billed murre		Common murre		Common eider		Least auklet		Little auk		
			Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	Total pop.	Trend	
Pacific Arctic	5	Russia	-	-	U	S	U	U	U	U	U	U	U	U	U	U	U	-	-
	5	USA	-	-	843	-	57,047	I	125,880	-	147,722	I	173	U	972,500	U	R	-	-
Beaufort	6	USA	-	-	426	U	-	-	-	-	-	346	-	-	-	-	-	-	-
	6	Canada	0	-	U	U	-	-	400	S	-	45,000	D	-	-	-	-	-	-
Arctic Archipelago	7	Canada	100	D	U	U	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	Greenland	200	D	500	U	-	-	-	-	-	-	-	-	-	-	-	-	-
Davis-Baffin	8	Canada	600	D	U	U	116,000	I	540,000	S	-	U	-	-	-	-	-	-	-
	8	Greenland	-	-	25,000	S	42,628	I	212,160	S	-	65,000	-	-	-	-	-	33 mil	U
Hudson Complex	10	Canada	-	-	U	U	7,000	U	50,000	S	-	U	-	-	-	-	-	-	-
	10	Greenland	-	-	15,000	S	60,720	I	13,325	D	390	D	22,000	-	-	-	-	100	U
	11	Canada	1,800	D	2,000	S	4,500	S	33,600	D	17,374	D	-	-	-	-	-	-	-
Atlantic Arctic	9	Canada	-	-	U	U	-	-	950,000	S	-	>200,000	-	-	-	-	-	-	-
	12	Greenland	1,500	D	20,000	S	3,700	U	4,225	D	-	13,000	U	-	-	-	-	5 mil	U
Kara-Laptev	13	Iceland	-	-	800	D	407,200	D	205,000	D	405,600	D	300,000	I	-	-	-	-	-
	14	Iceland	-	-	1,600	D	173,700	D	121,800	D	292,500	D	U	-	-	-	-	-	-
	15	Faroe Islands	-	-	-	-	200,000	D	-	-	180,000	D	10,000	S	-	-	-	-	-
	18	Norway	-	-	-	-	81,000	D	100	D	17,000	S	50,000	D	-	-	-	-	-
	19	Norway	2,000	S	4,200	U	255,000	D	725,000	D	133,000	I	17,000	U	-	-	-	>1 mil	U
Arctic Basin	19	Russia	<3,000	U	>5,000	U	<500,000	D	<700,000	U	>10,000	U	<50,000	U	-	-	-	>500,000	U
	20-21	Russia	<10,000	U	U	U	<50,000	U	<20,000	U	-	-	U	U	-	-	-	<100,000	U

CBMP Strategic Plan, SAMBR, Coastal Plan advice and next steps



Some suggested future steps of relevance to PAME EA work?

- Continue to report on changes in Arctic species, ecosystems, and the effects of stressors through SABRs;
- Continue to combine national monitoring with collaborative approaches to conduct these syntheses.
- Align CBMP to support inputinto global reporting needs and explore how data might fit in to other reporting requirements
- Establish new partnerships and take national, Circumpolar and also global needs into account when planning follow up on the SABR´ s
- Continue to increase coordination between CBMP and other regional and global initiatives e.g. PAME,
- Consider impacts of stressors and drivers within reviews of the Arctic Biodiversity Monitoring Plans
- Increased focus on integration of TK and LK

Circumpolar Biodiversity Monitoring Program Marine Scoping Workshop Nuuk; November 5-7.

<https://www.caff.is/marine/scoping-workshop-2019>

- Develop new 5 year implementation Plan
- Review conceptual models based on new knowledge and SAMBR advice
- Adjust monitoring plan
- Identify areas for collaboration with other Arctic Council Groups
- Discuss future reporting





Thank you