

Appendix 8. List of suggested studies needed in connection with construction of hydropower plant. Studies are prioritised based on an assessment of their importance. Also see section 3.1 of this report.

No.	Species / issue	Description of study	Priority (1/2/3)	Suggested budget in kr.	Notes
1.	Caribou	<i>Mapping important calving areas</i> Distribution of calving areas is unknown. Important calving areas should be protected from disturbance.	1		Caribou and muskox studies can be conducted concurrently.
2.	Caribou	<i>Mapping migratory routes</i> Evaluate whether/which areas represent important migratory routes that should be protected during construction of transmission lines, harbours and roads.	2	1,500,000 DKK.	Based on satellite tracking technology. Caribou and muskox studies can be conducted concurrently.
3.	Caribou	<i>Evaluating disturbance from infrastructure</i> Evaluate caribou reactions to transmission lines and other structures associated with caribou key habitat areas.	3	1,500,000 DKK.	Based on satellite tracking technology in areas around the Buksefjord plant where transmission lines already exist. Caribou and muskox studies can be conducted concurrently.
4.	Muskox	<i>Mapping dispersal routes</i> Determine whether muskox use Ujaraannaq to disperse South.	2	850,000 DKK.	Based on radio sensor technology. Caribou and muskox studies can be conducted concurrently.
5.	Harbour seal	<i>Examine for presence of a local population</i> Evaluate size of population in Søndre Strømfjord and its production of young.	1	200,000 DKK.	Harbour seal is endangered in Greenland and management should be based on best possible data.
6.	White-fronted goose	<i>Mapping of moulting and post-moulting areas</i> Determine if white-fronted goose uses area during their moult in July and whether area represents important feeding habitat prior to autumn migration.	1	550,000 DKK.	Based on aerial observations. The mapping study can be extended to include behavioural studies determining goose reactions to

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	Whitefronted <i>continued</i>				various types of human activities. Results can be applied as a basis for determining potential entry restrictions, air transport flight corridors, etc.
7.	Canada goose	<i>Mapping of staging and moulting areas</i> Determine if Canada goose uses area during spring staging and/or autumn moulting.	3	550,000 DKK.	Based on aerial observations. Canada goose stage and moult later than white-fronted goose, and the two species therefore cannot be monitored concurrently.
8.	Harlequin duck	<i>Determine if harlequin duck breeds in the Paradise Valley</i> It is currently unknown if harlequin duck still breed in the area. This should be determined and potential breeding pairs should be protected from disturbance.	3	50,000 DKK.	Based on on-site observations. Information on the distribution of harlequin duck is important for determining entry restrictions to breeding sites.
9.	Birds of prey	<i>Mapping of eyries in the area</i> White-tailed eagle nests in the area but specific territories and/or locations of eyries are unknown. Numbers of gyrfalcons breeding pairs are also unknown.	3	650,000 DKK.	Based on field observations. Mapping of eyries should primarily be carried out for areas directly affected by construction and operation of the hydropower plant.
10.	Arctic char	<i>Evaluate effects of altered water discharge</i> Determination of minimum acceptable water discharge in Sarfatoq Kuua for allowing arctic char spawning and smolt migration, respectively to and from the river. Assessment of effects on the arctic char population from altered water discharge following damming of Tasersiaq.	1	200,000 DKK.	Important investigation in relation to requirements for water supplies from Tasersiaq during periods of low water levels in Sarfartoq Kuua. It is e.g. unknown if placing the power plant in the southern location will benefit the population due to the resulting decreased turbidity in the river.

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11.	Arctic char	<i>Mapping of important spawning sites</i> Arctic char spawning sites should be mapped for all areas directly affected by construction of the power plant.	2	250,000 DKK.	If important spawning sites are affected by the construction of a power plant, new spawning sites should be created.
12.	Flora	<i>Mapping of rare plants</i> Rare plants should be mapped in all areas affected by construction of the power plant and associated infrastructures.	1	700,000 DKK.	Based on field observation. Mapping the area's vegetation may prevent important plant sites from being negatively affected by infrastructures.
13.	Scenic value	<i>Deposition / breaking of rocks</i> Determining which areas are best suited for deposits of rubble and waste rock/mine tailings, or best suited for rock breaking.	1	350,000 DKK.	The nature of the investigation will depend on whether rubble is in demand or surplus. Will assumedly be investigated in connection with various other geotechnical analyses.
14.	Scenic value	<i>Gravel pits</i> Mapping potential for excavating materials like gravel and sand, and evaluating possibilities for minimising the impact of gravel pits on the landscape.	2	650,000 DKK.	The nature of the investigation will depend on whether other terrain regulations cover needs for gravel and sand. Will assumedly be investigated in connection with various other geotechnical analyses.
15.	Scenic value	<i>Evaluate risk of increased erosion, permafrost breakdown, wind breaks, etc.</i> Examine if/in which areas there are increased risk of erosion, wind breaks, permafrost breakdown and thermokarst.	3	See notes	The majority of such issues will be investigated in connection with other geotechnical analyses, and a budget is therefore not included here.

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16.	Scenic value	<i>Evaluate the need for excavation and deposition of silt from Lake Tasersiaq</i> Determine quantities of silt that must be excavated from Lake Tasersiaq, and where its deposition affects the landscape minimally. The possibility for deposition at another location (e.g. in an alternative fiord) can also be evaluated.	1	1,300,000 DKK.	The activities of this investigation are associated with those of investigation no. 18, and should therefore be coordinated. Relevant data are presumably available from e.g. ASIAQ, Nukissiorfiit, Department of Industry, or others.
17.	Surface waters, lakes, rivers and fiords	<i>Core drillings for climate research</i> Examine whether Lake Tasersiaq presents a central resource for core drilling/climate research, etc.	3	See notes	Budget is not assessed here, as investigations may range from consulting relevant experts (e.g. at GEUS and DMI) to carrying out a full-scale examination of the lake's suitability for climate research.
18.	Surface waters, lakes, rivers and fiords	<i>Flow and sedimentation of silt and water</i> Examine effects of altered water and silt flow and sedimentation. The examination should be carried out both for the northern, but primarily for the southern locations, as the latter will cause the greatest changes to silt and water flow. The investigation should include an assessment of silt in the lake, effects of potentially increased silt holding time in the lake, present and future silt discharge into Sarfartoq Kuua, Søndre Strømfjord and Evighedsfjorden, and effects of altered flow patterns on e.g. delta dynamics (build-up and breakdown).	2	1,100,000 DKK.	Activities of this investigation are associated with those of investigation no. 16, and should be coordinated. Relevant data are presumably available from e.g. ASIAQ, Nukissiorfiit, Department of Industry, or others.

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19.	Surface waters, lakes, rivers and fiords	<i>Silt and wastewater effects on marine habitats</i> Determine the presence of unique marine sites (e.g. similar to the Ikait columns in the Ikka Fjord) in Evighedsfjorden and Søndre Strømfjord, and evaluate if waste water discharge and altered levels of silt discharge may affect any such sites.	3	See notes	Budget is not assessed here, as investigations may range from consulting relevant experts to carrying out a full-scale field examination in the fiord(s).
20.	Cultural and archaeological heritage	<i>Culture and heritage sites</i> Map and describe cultural heritage sites in affected areas.	1	See notes	This investigation is not described in detail and no budget is suggested as a study has been initiated by the Greenland National Museum.
21.	Regional economical development	<i>Effects on tourist boat cruises in Evighedsfjorden</i> Examine movements of cruise ships into the fiord with regard to assessing visual effects of transmission lines etc., and to potential significance of increased ice formation in the fiord caused by increased freshwater discharge.	3	50,000 DKK.	Relevant only if southern location on Evighedsfjorden is chosen.