ᓄᓇᕗᒻᒥᐅᑦ ᐃᓄᐃᑦᑐᑦ
ᖃᐅᔨᒪᐅᓯᖏᑦ ᑕᔪᓯᖓᓂᖏᓪᓗ ᓇᓄᖅᓂᒃ

Nunavik Inuit Knowledge and Observations of Polar Bears

Davis Strait subpopulation

ᓇᓄᐃᑦ ᐃᓂᓗᑦ ᑕᖅᓗᕈᑎᒥ

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Cover photo: Felix St-Aubin

ᖃᐅᔨᒪᔭᐅᖁᔭᕗᑦ

ᓯᕗᓪᓕᐹᑦᓯᐊᒥ, ᐊᒃᓚᒍᑎᖃᕐᓯᒪᔪᑦ ᑕᒪᑦᓱᒥᖓ ᓇᑯᕐᓴᓚᕆᑦᑐᑦᑐᑦ ᐃᓚᐅᓯᒪᔪᓂᒃ ᑕᒪᑦᓱᒧᖓ ᖃᐅᔨᒐᓱᐊᕐᓂᒧᑦ, ᐅᐱᓐᓇᓚᕆᑦᓱᑎᒃ ᐅᖄᒍᑎᖃᖃᑦᑕᓚᐅᔪᓪᒪᑕ ᖃᐅᔨᒪᐅᓯᕐᒥᓂᒃ. ᐃᓚᐅᓯᒪᙱᑯᑦᓯ ᑕᒪᓐᓇ ᖃᐅᔨᒐᓱᐊᕐᓂᐅᓯᒪᔪᖅ ᐊᑑᑎᒍᓐᓇᕋᔭᓚᐅᔪᙱᒪᑦ.

ᑲᖏᕐᓱᔪᐊᖅ: ᔮᓂ ᐊᕐᓃᑐᖅ, ᐳᑐᓕᒃ ᕿᓲᖅ, ᑏᓯ ᕿᓲᖅ, ᓄᐊ ᐋᓇᖃᑕᒃ, ᓵᓕ ᐊᓚᑯ, ᕗᐃᓕ ᐊᓚᑯ, ᐸᐅᓗᓯ ᐊᓚᑯ, ᐊᕐᑰᔭᖅ ᕿᓲᖅ, ᐋᓗᐸ ᑯᓗᓛ, ᐄᒥ ᖃᒨᓗᒃ, ᔮᓂ ᒨᓯᓯᐊᐱᒃ
ᖁᐊᖅᑕᖅ: ᔮᓂ ᐅᕝᕙᐅᑦ, ᐹᐱ ᓇᑯᓛᖅ, ᔫᓯᐱ ᑭᓕᐅᑕᖅ, ᐃᓗᑦᓴ ᐊᕐᓇᑐᖅ, ᕗᐃᓕ ᔮᕋᕈᓯ, ᓗᐃᓴ ᑯᓗᓛ, ᓵᓕ ᐳᒃᑕᔪ, ᐱᑕ ᓂᖏᐅᕈᕕᒃ, ᑏᕕ ᐅᒃᐱᑦ, ᓵᓕ ᐅᒃᐱᒃ
ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ: ᓵᒥ ᐊᕐᓇᑐᐃᓐᓇᖅ, ᓵᒥ ᑲᒃᑭᓂᖅ, ᔮᓂ ᐋᓇᓈᖅ, ᐸᐅᓗᓯ ᑑᒪᓯ, ᐸᐅᓗᓯ ᔮᕋᕈᓯ, ᑭᐊᓂ ᐊᕐᓇᑐᒃ, ᕗᐃᓕ ᐃᑦᑐᖅ, ᔦᑯ ᐊᕐᓇᑐᒃ, ᑖᓂᐊᓪ ᐋᓇᓈᖅ, ᑏᕕ ᐃᑦᑐᖅ, ᓵᓐᑎ ᐊᕐᓇᑐᐃᓐᓇᖅ,ᓘᑲᓯ ᐃᑦᑐᖅ
ᐊᐅᐸᓗᒃ: ᓵᓕ ᐊᖑᑎᙳᐊᖅ, ᑖᕕᑎ ᐊᖑᑎᙳᐊᖅ, ᑖᒥᓴ ᑯᔩ, ᓛᓴᔫᓯ ᑯᔩ, ᔮᔩ ᐃᑦᑐᖅ, ᔮᓂ ᐊᕐᐹᖃᑦᑕᒃ, ᐋᓂ ᐊᕐᐹᖃᑦᑕᒃ, ᒥᐊᔩ ᓴᓗᐊᕐᓯᐊᖅ, ᓯᐊᓯ ᐋᓇᖃᑕᒃ
ᑕᓯᐅᔭᖅ: ᐱᓕ ᑖᓐ ᒣ, ᒨᓯᓯ ᒪᓂᖅ, ᒣ ᒨᓯᓯᐊᐱᒃ, ᑖᒥ ᑮᓐ, ᕗᐃᓕ ᑮᓐ, ᔮᓂ ᑮᓐ, ᑖᒥ ᕿᑎᖅ, ᓴᓚᔅ ᐴᑎ, ᓵᓐᑎ ᐴᑎ, ᔦᒥᓯ ᒣ, ᑖᒥ ᐴᑎ,
ᑲᖏᕐᓱᒃ: ᐱᑕ ᐊᓇᖃᑕᒃ, ᔩᑲ ᑲᓪᓚᒃ, ᐃᓗᑦᓴ ᑕᖅᕿᐊᐱᒃ, ᑏᕕ ᓴᐸ, ᔮᔭ ᖃᐅᒃᑫ, ᐃᔭᑦᓯᐊᖅ ᓄᙵᖅ, ᑏᕕ ᑲᒃᑭᓂᖅ, ᐸᐅᓗᓯ ᑲᓪᓚᒃ, ᓄᐊ ᐃᑦᑐᖅ, ᔫᓯᐱ ᖁᖅᕕᓗᒃ, ᐃᔭᑦᓯᐊᖅ ᓯᒥᒐᖅ, ᑖᕕᑎ ᐳᑐᔩ, ᐋᓂ ᓯᒥᐅᓂ, ᒥᓂ ᐁᑭ, ᑖᒥ ᑲᓪᓚᒃ, ᓘᓯ ᖃᐅᒃᑫ, ᐋᑕᒥ ᑑᒪᓯ, ᔫᓯᐱ ᓇᓴᖅ
ᑰᒃᔪᐊᖅ: ᐱᓕ ᒣ, ᕚᓕ ᓵᓐᑕ, ᑖᓂᐊᓪ ᐃᐳ, ᑖᕕᑎ ᖁᖏᐊᖅ, ᔩᒥ ᔪᐊᓇᓯ

ᐊᒃᓚᑎᐅᓚᐅᕐᑐᑦ ᑕᒪᒃᑯᓂᖓ ᓱᓕᕆᐊᓪᓚᒃ ᐅᐱᒍᓱᓪᓚᓇᓐᓂᒥᓂᒃ ᖃᐅᔨᑎᑦᓯᒍᑎᖃᕈᒪᕆᕗᑦ ᑖᒃᑯᓂᖓ ᐃᓄᑑᓈᕐᑎᑐᓂᒃ ᐱᓇᓱᐋᕕᐅᔪᓂᓪᓗ, ᐃᑲᔪᕐᓯᒪᓚᐅᕐᓂᖏᓐᓄᑦ ᑖᒃᑯᓂᖓ ᑐᓴᕐᑎᓯᐅᑎᓂᒃ ᐊᒃᓚᐸᓕᐊᓕᕐᑎᓗᑕ ᐱᒍᓐᓇᓯᒍᑎᕆᓚᐅᕋᑦᑎᕆᑦ ᑐᓴᕐᑎᓯᐅᑎᓕᐅᕐᓂᒥᒃ: ᓄᓇᕕᒻᒥ ᐆᒪᔪᓕᕆᔨᑦ ᑲᑐᑦᔨᖃᑎᒌᓐᓂᖏᑦ (LNUKs) ᓄᓇᓕᓐᓂ, ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ, ᑰᒃᔪᐊᖅ, ᑕᓯᐅᔭᖅ, ᑕᓯᐅᔭᖅ, ᐊᐅᐸᓗᒃ, ᑲᖏᕐᓱᒃ, ᖁᐊᖅᑕᖅ, ᑲᖏᕐᓱᔪᐊᕐᓗ; ᑐᓵᔩᑦ/ᐱᓇᓱᑦᑏᓗ- ᐹᓯ ᐋᕐᖓᖅ, ᒫᓂᑲ ᐱᙳᐊᑐᖅ, ᓰᒥᐅᓂ ᑕᖅᕿᐊᐱᒃ, ᐹᓪᓚᔮ ᐃᓵᑭᐊᓪ, ᐁᑕ ᐊᕐᐹᖃᑦᑕᒃ, ᕗᐃᓕ ᑮᓐ ᓄᑲᕐᓯᖅ, ᔩᒥ ᔪᐊᓇᓯ, ᑖᒥ ᐊᕐᓇᑐᐃᓐᓇᓗ. ᕗᑌᖕᑭ ᔮᓐ-ᑳᖕᔮ (ᓯᓚᑉᐱᐊᖓᑕ ᐊᑦᔨᙳᐊᖓ ᓴᓇᒻᒪᖓᓗ), ᑖᓂᐊᓪ ᓂᕕᐊᕐᓯ, ᐊᒻᒪᓗ ᐱᓪᓗᑯᒍᑎᐅᕆᐊᓕᓐᓂᒃ ᓴᐳᒻᒥᔨ, ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔨᑦ ᐱᓇᓱᑦᑎᖏᒃ ᐋᑕᒥ ᐹᑦᓚᔮᑦ, ᐹᐱ ᐃᐳᓗ.

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1.0 ᑐᓴᕐᑎᓯᒋᐊᖕᖓᐅᑏᑦ ᓀᓪᓕᑎᕐᓯᒪᑦᓱᑎᒃ

1.1 ᑐᑭᓯᑎᑦᓯᐅᑎ ᓱᒧᑦ ᑐᓴᕐᑎᓯᐅᑎᑕᖃᕆᐊᖃᓯᓐᓂᒪᖔᑦ

ᔭᓄᐊᕆ 2012ᖑᑎᓪᓗᒍ, ᑲᓇᑕᐅᑉ ᑐᖅᑲᑕᕐᕕᒋᓯᒪᔭᖓ ᑌᑦᓱᒪᓂᐅᑎᓪᓗᒍ, ᓲᓱᒋᔭᐅᒍᓐᓇᐅᑎᓕᒃ ᐲᑐ ᑭᐊᓐ, ᑎᓕᔅᓚᐅᕐᓯᒪᒻᒪᑦ ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔨᓂᒃ (NMRWB) ᐊᐅᓚᑦᔭᕆᐊᕈᑎᖃᕐᑯᓕᕐᓱᒋᑦ ᐊᑐᕐᑕᐅᖃᑦᑕᕋᔭᓕᕐᑐᒥᒃ ᐊᐅᓚᑦᓯᒍᑕᐅᓗᓂ ᓇᓄᕐᓂᒃ ᓄᓇᕕᐅᑉ ᑕᕆᐅᖓᓃᑦᑐᓂᒃ (NMR). ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ ᑐᑭᒧᐊᑦᑎᑕᐅᑦᓱᑎᒃ ᐊᑐᕐᑕᐅᔪᑦᓴᒥᒃ ᓇᓗᓀᕐᓯᒍᑕᐅᖃᑦᑕᕋᔭᕐᓗᓂ ᖃᑦᓯᓂᒃ ᓇᓐᓄᕈᓐᓇᓚᖓᒻᒪᖔᑕ (TAT) ᑖᒃᑯᓄᖓ ᐃᓕᖓᔪᓂᒃ ᐱᖓᓱᐃᓄᑦ ᓇᓄᕐᓄᑦ ᐱᑕᓕᓐᓄᑦ ᓄᓇᕕᐅᑉ ᑕᕆᐅᖓᓂ. ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ ᖃᐅᔨᒪᑦᓯᐊᕖᖕᖓᑐᑦ ᓄᓇᕕᒻᒥᐅᑦ ᐃᓄᑐᐃᓐᓀᑦ ᖃᐅᔨᒪᐅᓯᖃᓪᓚᕆᒋᐊᖏᑦ ᓇᓄᐃᑦ ᐱᓪᓗᒋᑦ ᕿᓗᐊᕐᑎᓗᒍ ᐃᒣᓐᓇᓗᑐᐊᐱᖏᑦ ᐊᒃᓚᑕᐅᓯᒪᒻᒪᑕ ᑌᒣᒻᒪᑦ ᐱᒍᓐᓇᓇᓲᖕᖑᖕᖏᑐᑦ ᑕᑯᒍᒪᓕᕿᓗᐊᕐᓯᒋᑦ ᑲᑎᖕᖓᔩᑦ ᑐᑭᑖᕿᓯᐊᕆᐊᖃᓕᕿᒥᒃ. ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ ᐃᓱᒪᒐᓱᐊᕈᑎᖃᕐᓯᒪᑦᓯᐊᑐᑦ ᑕᒪᒃᑯᓂᖓ ᖃᐅᔨᒪᐅᓯᕐᓂᒃ, ᐱᖅᑯᓯᕐᓂᒃ ᐊᒻᒪᓗ ᒪᕐᑫᒍᓯᖏᓐᓂᒃ ᓄᓇᕕᒻᒥᐅᑦ ᐃᓄᑐᐃᓐᓀᑦ ᑐᑭᑖᕐᓂᒧᑦ ᐊᐅᓚᑦᔭᕆᐊᕐᓂᒧᓪᓗ, ᐱᓇᓱᑦᑕᐅᓯᓚᐅᔪᔪᑦ ᐊᐱᕐᓱᑲᑦᑕᓯᑦᓱᑎᒃ ᒪᕐᑫᑎᓂᒃ, ᐃᓄᑐᖃᕐᓂᓗ ᓄᐊᑦᓯᕕᒋᓯᑦᓱᒋᑦ ᐃᓄᑐᐃᓐᓀᑦ ᖃᐅᔨᒪᐅᓯᖏᓐᓂᒃ (IK) ᐊᒻᒪᓗ ᑕᑯᓐᓇᖃᑦᑕᓯᒪᓂᒃᑯᑦ ᓄᓇᓕᒻᒥ ᐊᓐᓂᑐᕐᑐᓂᒃ ᑖᒃᑯᓇᖕᖓᑦ ᐱᖓᓱᐃᓂᑦ ᓇᓄᕐᓂᑦ ᓄᓇᕕᐅᑉ ᑕᕆᐅᖓᓂ ᐊᑑᑎᒍᓐᓇᓯᔭᐅᓚᐅᔪᒻᒪᑦ. ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ ᐱᓇᓱᒍᓐᓇᐅᑎᑖᕐᑎᓯᓯᒪᓚᐅᔪᔪᑦ ᐃᓕᓐᓂᐊᕕᕐᔪᐊᖓᓂᒃ ᑐᕆᐊᓐ (Trent University) ᐱᓇᓱᖃᑎᒋᓚᖓᓯᑦᓱᒋᑦ ᑕᒪᑦᓱᒥᖓ ᐊᑐᐃᓐᓇᕈᕐᑎᑎᐅᓗᑎᓪᓗ ᑐᓴᕐᑎᓯᐅᑎᓂᒃ ᑕᒪᓐᓇ ᐱᓪᓗᒍ ᖃᐅᔨᒪᐅᓯᖅ.

ᑖᒃᑯᐊ ᑐᓴᒃᑎᓯᐅᑏᑦ ᑐᑭᖏᓐᓂᒃ ᓇᓗᓀᕐᓯᒪᒍᑎᑕᓖᑦ ᑕᑯᕗᑦᑕᖏᓐᓂᒃ ᖃᐅᔨᒪᐅᓯᖏᓐᓂᒃ ᐊᒃᓚᑕᐅᓯᒪᑦᓱᑎᒃ ᐊᒻᒪᓗ ᖃᐅᔨᒪᑎᑦᓯᒍᑕᐅᑦᓱᑎᒃ ᐃᓄᑐᖃᕐᓄᑦ ᒪᕐᑫᑎᓄᓪᓗ ᐊᓯᖏᓐᓄᓗ ᐅᑯᓇᓂ ᓄᓇᓕᓐᓂ ᓄᓇᓯᒪᔪᓄᑦ ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ, ᑰᒃᔪᐊᖅ, ᑕᓯᐅᔭᖅ, ᐊᐅᐸᓗᒃ, ᑲᖏᕐᓱᖅ, ᖁᐊᕐᑕᖅ, ᑲᖏᕐᓱᔪᐊᕐᓗ ᐱᓪᓗᒋᑦ ᓇᓄᐃᑦ ᐃᓂᓖᑦ ᑕᓪᓗᕈᑎᒥ. ᑐᑭᓯᑦᓱᒍ ᖃᓄᐃᓕᖓᓂᖓ ᒪᓕᑦᓱᒋᑦ ᐊᒃᓚᑕᐅᓯᒪᔪᑦ ᐅᖃᕐᑕᐅᓱᑎᓪᓗ ᓇᐅᓕᒫᑦ ᓈᓚᑦᑎᑕᐅᓂᖃᕐᑎᓗᒋᑦ ᐱᑦᔪᑎᖃᕐᓱᑎᒃ ᐊᑐᓕᕐᑎᑕᐅᕆᐊᓕᒻᒥᒃ ᐅᓄᕐᓂᕆᔭᐅᔪᓐᓇᑐᓂᒃ ᓇᓐᓄᑕᐅᓗᑎᒃ ᑖᒃᑯᓇᖕᖓᑦ ᐃᓘᓐᓇᖏᓐᓂᑦ ᓇᓄᕐᓂᑦ ᓄᓇᐅᑉ ᐊᕕᑦᑐᓯᒪᐅᑎᖓ ᒪᓕᑦᓱᒍ ᐃᓂᓕᓐᓂᒃ, ᐱᑦᔪᑎᒋᔭᐅᓗᐊᖕᖑᐊᓚᐅᔪᔪᑦ ᖃᓄᖅ ᖃᐅᔨᒪᑎᑕᐅᑦᓯᐊᕈᓐᓇᒪᖔᑕ ᐱᓪᓗᒋᑦ ᐊᐅᓚᑦᓯᒍᓐᓇᐅᑎᖃᕐᑎᑕᐅᔪᔪᑦ ᑐᑭᑖᕈᑎᒋᕗᑦᑕᖏᑦ.

1.2 ᖃᓄᐃᓕᖓᓂᖓ ᐱᓇᓱᑦᑕᐅᔩᑉ

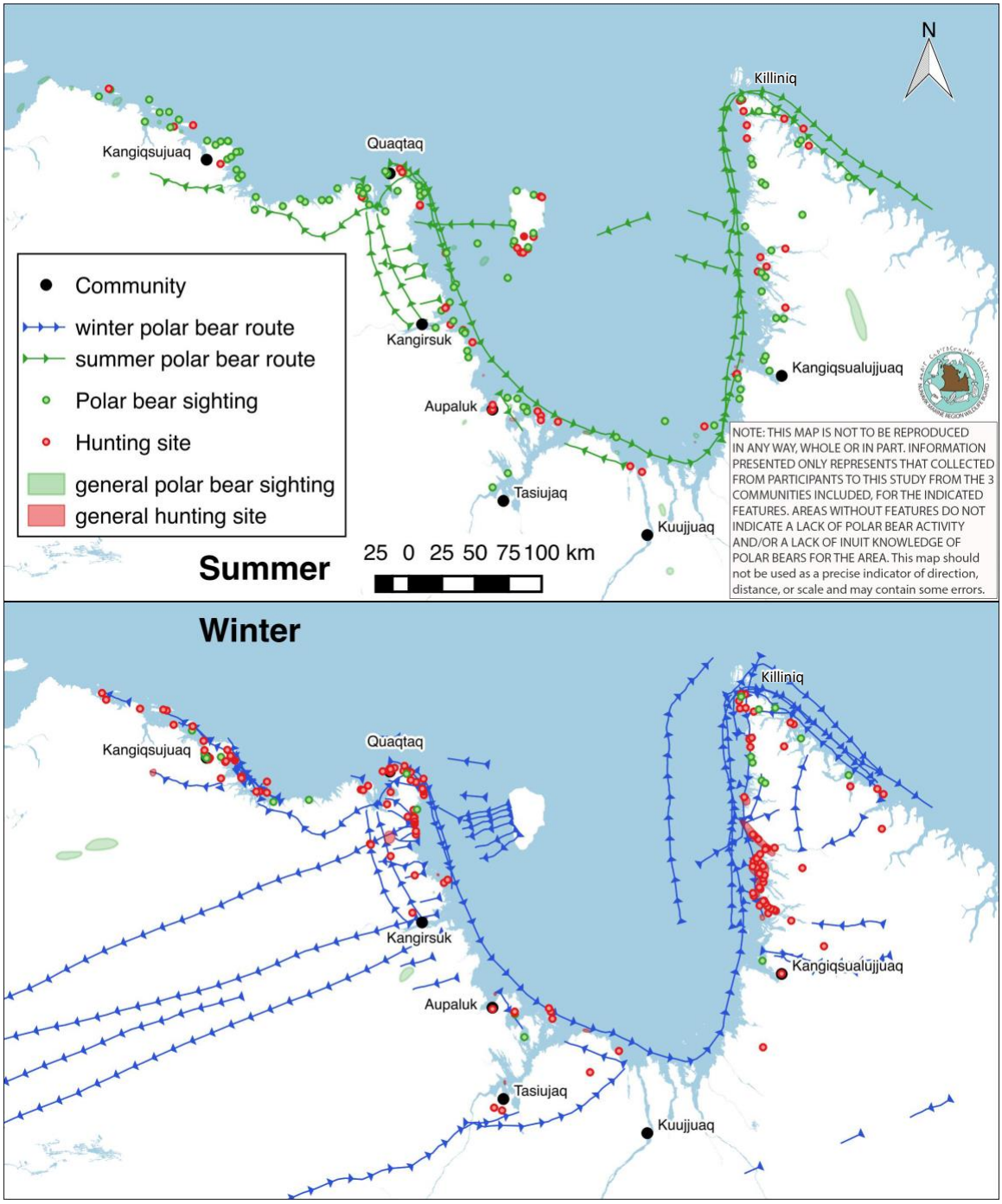
76 ᖑᓚᐅᔪᔪᑦ ᐃᓚᐅᔪᑦ ᑕᒃᒍᖓ ᑖᒃᑯᓇᖕᖓᑦ 7ᓂᑦ ᓄᓇᓕᓐᓂᑦ ᐱᓯᒪᑦᓱᑎᒃ ᐊᐱᕆᔭᐅᖃᑦᑕᓱᑎᒃ ᓄᓇᖕᖑᐊᒥᒃ ᓇᓗᓀᔦᖃᑕᐅᑦᓱᑎᒃ ᑕᒃᑲᓂ ᐱᓇᓱᑦᑕᐅᔪᒥ. ᓄᓇᓕᒻᒥ ᐆᒪᔪᓕᕆᔩᑦ ᑲᑐᑦᔨᖃᑎᒌᓐᓂᖏᑦ (ᐊᖑᕕᒑᐲᑦ) ᐃᑲᔪᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᖃᐅᔨᒪᓪᓚᕆᑦᑐᖅ ᑭᓇᐅᒐᔭᕐᒪᖔᑦ ᓄᓇᓕᒻᒥ ᐃᓚᐅᒐᔭᕐᓗᓂ ᐊᐱᕐᓱᑕᐅᔪᓄᑦ ᑎᑎᕐᑐᐃᖃᑕᐅᓗᓂᓗ ᓄᓇᖕᖑᐊᒥᒃ. ᑕᒃᒍᖓ ᐃᓚᐅᔪᑦᓴᒥᒃ ᐃᓚᐅᔪᑦ ᐅᑭᐅᖃᑎᒌᖕᖏᑐᐹᓘᓚᐅᔪᔪᑦ ᖃᐅᔨᒪᓂᖏᓪᓗ ᐊᑑᑎᓯᒪᔭᕐᒥᑎᒍᑦ ᖃᐅᔨᒪᐅᓯᕐᑖᕆᓯᒪᑦᓱᒋᑦ. ᕆᐊᖃᓕᑐᐊᕐᒪᑦ ᑕᒃᒍᖓ ᐃᓚᐅᔪᑦ ᓇᓗᓀᕐᓯᕐᑯᔭᐅᖃᑦᑕᓚᐅᔪᔪᑦ ᖃᖓᒃᑯᑦ ᓯᓚᐅᑉ ᓇᓪᓕᐅᑎᑦᑕᕕᖏᑦ ᐊᓯᑦᔅᓂᕐᒧᑦ ᒪᓕᓪᓗᒋᑦ ᐊᒻᒪᓗ ᖃᓄᑎᒌᓲᖑᒻᒪᖔᑕ ᐱᑕᖃᕐᓂᖏᑦ ᐊᒻᒪᓗ ᖃᐅᔨᒪᔭᐅᑎᕆᐊᓕᖏᑦ ᓈᒻᒪᓈᑦᓯᐊᖃᑦᑕᑎᒃ. ᐃᓚᐅᔪᑦ ᐅᖃᐅᓯᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓇᓄᐃᑦ

ᐃᓂᖏᓐᓂᒃ ᓂᕿᖏᓐᓂᓗ, ᒪᑯᓂᖓ ᐱᑕᖃᕐᓂᖏᓐᓂᒃ ᖃᓄᑎᒋᐅᒻᒪᖔᑦ, ᐊᕙᑦᑐᓯᒪᓂᖏᓐᓂᒃ, ᐃᓂᖏᓐᓂᒃ, ᓂᕿᖏᓐᓂᒃ ᑎᒥᖓᑕ ᖃᓄᐃᓐᓂᖓᓂᒃ ᑕᑯᑦᓱᒍ ᓄᓕᐅᓂᕆᓲᖏᓐᓂᒃ ᓯᑎᒦᓐᓂᕆᓲᖏᓐᓂᓗ. ᐃᓚᐅᔪᑦ ᐱᒻᒪᕆᐅᒋᐊᖏᓐᓂᒃ ᓇᓄᐃᑦ ᐅᖃᐅᓯᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓇᒻᒥᓂᖅᒍᑦ ᓄᓇᕕᒻᒥᐅᓕᒫᓄᓪᓗ, ᐅᖃᐅᓯᖃᕐᒥᓯᑎᓪᓗ ᖃᓄᖅ ᓇᓐᓄᕋᓱᑦᑐᓴᐅᒻᒪᖔᑦ ᐃᓄᒃ, ᐊᐅᓚᑕᐅᒍᓯᖏᓐᓂᒃ ᐊᒻᒪᓗ ᑲᒪᔨᕆᔭᐅᓂᕐᒥᒃ ᓇᓄᕐᓄᑦ. ᐃᑎᔪᒥᒃ ᓯᐊᒻᒪᓯᒪᑦᓯᑎᒃ ᐃᓄᑐᐃᓐᓄᑦ ᖃᐅᔨᒪᐅᓯᖏᑦ ᐃᒃᓕᑎᔭᖏᓪᓗ ᐊᒃᓚᑕᐅᒍᓐᓇᓯᑦᓯᑎᒃ ᐊᒻᒪᓗ ᑕᒃᑲᓂ ᐱᓇᓱᑦᑕᐅᔪᒥ ᑕᑯᔭᐅᑎᑕᐅᓯᒪᓕᕐᓯᑎᒃ.

1.3 ᖃᐅᔨᒍᓐᓇᓯᔭᐅᓯᒪᔪᑦ

ᐱᐅᓯᖓ

ᐱᓂᕐᐸᐅᑎᓪᓗᒍ ᐊᑦᔨᒌᒥᒃ ᐅᖃᐅᓯᖃᑭᑕᐅᓂᕐᐸᐅᖃᑦᑕᓚᐅᔪᔪᖅ ᑕᒃᒍᖓ ᐱᓇᓱᑦᑕᐅᔪᒧᑦ ᐃᓚᐅᔪᓄᑦ ᒪᓐᓇ ᐅᓄᕐᓯᓯᒪᓕᕐᓂᑌᑦᓯᑎᒃ ᓇᓄᕐᓂᒃ ᐊᕐᕌᒍᓂ 50ᓂ ᐊᓂᒍᕐᑐᓂ. ᐃᓘᓐᓇᑲᓴᑦᓯᐊᑎᒃ ᐊᐱᕐᓱᑕᐅᔪᑦ ᑐᑭᓯᒐᓱᐊᕐᕕᐅᓱᑎ, ᐅᖃᖃᑦᑕᓚᐅᔪᔪᑦ ᖃᐅᔨᓯᒪᓕᕐᑕᒥᓂᒃ ᐅᓄᕐᓯᒋᐊᕐᓯᒪᓕᕐᓂᖏᓐᓂᒃ ᓇᓄᐃᑦ ᑌᒪᖕᖓᓂᑦ 1970 ᐊᕐᕌᒍᖏᑦ ᐊᑐᓚᐅᕐᓯᒪᒻᒪᑕᓂ ᐊᒻᒪᓗ ᓯᕗᓂᖓᒍᑦ ᐊᕐᕌᒍᖏᑦ 2000, ᐊᒥᓱᑦ ᐊᐱᕐᓱᑕᐅᔪᑦ ᖃᐅᔨᓯᒪᓕᕐᑕᒥᓂᒃ ᐅᖃᖃᑦᑕᓚᐅᔪᔪᑦ ᐅᓄᕐᓯᓯᔪᕙᓂᐅᒋᐊᖏᑦ ᓇᓄᐃᑦ ᐊᕐᕌᒍᖏᑦ 1990 ᐊᑐᓕᕐᑎᓗᒋᑦ. ᓇᓄᐃᑦ ᐃᓂᒋᕙᑦᑕᕕᓂᕐᒥᓂᑦ ᓯᐊᒻᒪᓯᒪᓂᔅᐅᒍᓇᐅᓚᓇᐊᖏᓪᓗ, ᐅᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓇᓄᕐᓯᓲᕐᒍᓕᓇᐊᒥᓐᓂᒃ ᓇᓄᖃᕐᕕᐅᓲᕐᒍᓐᓂᖏᑦᑐᓂ ᐃᓂᓂ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓇᓄᕐᓯᓂᒃ ᓄᓇᑐᐃᓐᓇᒦᓲᕐᒍᓕᕐᑐᓂᒃ, ᐃᓚᒋᔭᐅᑎᓪᓗᒋᑦ ᓇᓄᐃᑦ ᐊᐅᓚᔪᑦ ᐅᖓᕙᒥ, ᓄᓇᕕᓕᒫᑦᓯᐊᒥ ᑎᑭᑦᓱᒍ ᑕᓯᐅᔭᕐᔪᐊᖅ. ᑌᒫᑦᓴᓇᒐᓚᒃ ᐊᐅᓚᓪᒥᔪᑦ ᓄᓇᑦᓯᐊᕗᒻᒥ ᐅᖓᕙᓕᐊᕐᐸᓕᐊᒋᐊᒥ, ᑯᐯᒃᓗ ᒑᐸᑐᐊᓪᓗ ᓄᕗᓕᒫᖓᓂ. ᐃᓘᓐᓇᒐᓚᑎᒃ ᐊᐱᕆᔭᐅᔪᑦ ᑕᑯᓚᐅᕐᓯᒪᔪᑦ ᓇᓄᐃᑦ ᓯᑎᖏᓐᓂ ᐃᓂᒋᓲᖏᓐᓂᒃ ᐅᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᐊᐳᑦᓴᓇᑦᑐᒥ ᖃᖃᒪᓇᓐᓂ ᖄᖃᑐᓐᓂᓗ ᐃᓂᖃᓯᑎᒃ, ᓯᑦᓴᐅᑉ ᓴᓂᐊᓃᑦᑐᓂᒃ ᐃᓂᖃᒐᓚᔭᓰᑦ, ᐃᓘᓐᓇᑎᒃ ᐱᐅᓯᖃᕐᑐᓴᑦᓯᐊᓚᐅᔪᔪᑦ ᓇᓄᐃᑦ ᓯᑎᖃᕐᔭᓕᐊᖏᓐᓂᒃ ᓄᓇᑐᐃᓐᓇᒥ. ᐊᐱᕆᔭᐅᔪᑦ ᓇᓄᐃᑦ [illegible] [illegible] [illegible] [illegible] ᐃᓱᒫᓗᓐᓇᕿᓇᐅᓕᕐᑐᒥᒃ.



ᑎᑎᕋᑕᐅᓯᒪᔪᓕ ᓄᐃᑕᑎᑦᓯᔪᓕ ᐃᓂᓯᓂᖅᓂᖅᓄᑦ ᓇᓄᐃᑦ ᐊᐅᓪᓚᕆᓯᓂᖅᓂᖅᓂᔭᓕ ᐅᐱᕐᓗᒥ ᐅᑭᐅᒥᔭᓕ ᑕᓪᓕᖅᑎᓂᐅᕐᓂᖅ ᑕᓚᐅᖅᑲᓂ ᓄᓇᕗᐅᕐᓂ ᑕᓚᐅᖅᑲᓂᕐᑐᒥ, ᓇᔭᔅᑕᐅᔪᑎᑎᓪᓚᐅᕐᓴᖅᓂᓕ ᒪᓕᑦᓯᓕᑕ ᐊᐱᕐᓯᑕᐅᖅᖢᑦᑕᓪᓚᐅᕐᓴᓂᑦ ᖃᐅᔨᒪᐅᓯᖅᓂᑦ ᐱᑦᔭᓕᑦ ᐃᓄᑐᖅᑫᑦ, ᒪᖃᕐᓂᖅᑐᑦ ᐱᓯᒪᑦᓯᑎᑦ ᖁᖅᓂᕐᓯᐊᔭᕐᓴᐊᖅᖢᑦ, ᑯᓴᕐᓴᐊᖅᖢᑦ, ᑕᓯᐅᕐᖅᖢᑦ, ᐊᐅᓚᔭᖅ, ᖁᖅᓂᕐᓯᖅ, ᖃᓄᖅᑕᖢᑦ, ᖁᖅᓂᕐᓯᓴᐊᖅᔭᓕ.

ᐱᒻᒪᕆᐅᑎᑕᐅᒍᑎᖏᑦ ᓇᓄᐃᑦ ᓄᓇᕕᒻᒥᐅᓄᑦ

ᓇᓄᐃᑦ ᐱᒻᒪᕆᐅᒋᐊᖏᑦ ᐅᖃᕐᑕᐅᖃᑦᑕᓚᐅᔪᕗᑦ ᐃᓄᑐᐃᓐᓇᓄᑦ ᒪᑯᓂᖓ ᐱᒻᒪᕆᐅᒍᑎᖃᕐᓱᑎᒃ, ᐱᕐᖁᓯᕐᒧᑦ, ᐃᓱᒪᐅᑉ ᖃᓄᐃᙱᓯᐊᕆᐊᖃᕐᓂᖓᓄᑦ, ᐊᑦᑕᓇᕐᑐᒦᑦᑌᓕᒋᐊᖃᕐᓂᒧᑦ,ᓂᕿᑦᓴᖃᕆᐊᖃᕐᓂᒧᑦ, ᒪᑭᑕᒍᓐᓇᕆᐊᖃᕐᓂᒧᓪᓗ ᑮᓇᐅᔭᖅ ᐊᑐᕐᓗᒍ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᐃᑉᐱᓂᐊᕐᓂᒧᑦ ᐱᐅᔫᒋᐊᖓ ᐊᓕᐊᓇᕐᑑᓱᓂᓗ ᑕᑯᔪᖃᕐᒥ ᓇᓄᕐᒥᒃ ᐊᕙᑎᒥᓂ. ᑕᑯᔭᐅᒐᒥᒃ ᐃᓱᒪᒍᑕᐅᓲᑦ ᓴᐱᓕᔪᐃᑦᑑᒋᐊᖃᕐᓂᒥᒃ ᐊᒻᒪᓗ ᓲᖑᓂᕐᒥᒃ ᑐᓂᔾᓯᒪᑦᓱᓂ ᐃᓄᓐᓄᑦ ᐃᓂᖃᖃᑎᒥᓄᑦ ᑕᒃᒐᓂᑦᓴᓇᖅ ᐃᓂᒥ. ᓂᕆᒍᓐᓇᕐᒥ ᑕᕆᐅᒥᑦ ᓄᓇᒥᓗ ᐱᓯᒪᔪᓂᒃ ᐃᕐᓯᓇᕐᓂᐸᐅᒋᐊᖏᓪᓗ ᖃᐅᔨᒪᔭᐅᑦᓱᑎᒃ, ᓇᓄᐃᑦ ᖃᐅᔨᒪᔭᐅᒍᑎᓪᓕᑦ ᐃᓄᒃᑎᑐᑦ ᐱᐅᓯᖃᒐᓚᒋᐊᖏᑦ ᑌᒣᑦᑐᑑᑦᓱᑎᒃ ᐊᓯᓕᒫᖏᑦ ᐆᒪᔪᐃᑦ ᑌᒣᑦᑑᑎᓐᓇᒋᑦ, ᖃᐅᔨᒪᔭᐅᑦᓱᑎᓪᓗ ᐆᒪᔪᓕᒫᓂᑦ ᓯᓚᑐᓂᕐᐸᐅᒋᐊᖏᓐᓂᒃ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐃᓱᒫᓗᑎᒥᓂᒃ ᓂᓪᓕᕈᑎᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᐊᑦᑕᓇᕐᑐᒦᓕᕆᐊᒥᓂᒃ ᐊᒥᓱᙳᓯᒪᓕᕐᓂᖏᓐᓄᑦ ᓇᓄᐃᑦ ᐹᕐᑕᐅᕋᓕᓲᖑᓕᕐᓂᖏᓐᓄᓗ. ᓇᓄᕐᓂᐊᓂᖅ ᐱᒻᒪᕆᓪᓚᕆᐅᑎᑕᐅᖏᓐᓇᖁᖅ ᐊᕐᖁᑎᒋᔭᐅᒻᒪᑦ ᐊᖑᑎᙳᐸᓪᓕᐊᓂᕐᒧᑦ ᐅᕕᒃᑲᓄᑦ ᐊᖑᑎᓄᑦ ᐃᓄᑐᐃᓐᓇᓄᑦ, ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓇᓐᓄᑐᖃᑐᐊᕐᒪᑦ ᑕᒫᑦ ᐃᑉᐱᓂᐊᕐᓇᕆᐊᖓ ᐅᐱᒍᓱᓐᓂᒥᒃ. ᓇᓐᓄᕈᓐᓇᓂᖅ ᒪᕐᕈᓚᕇᓐᓂᒃ ᐱᕙᓪᓕᓇᕐᑐᑕᓕᒃ: ᓂᕿ, ᐱᑦᓴᑖᕈᑎᐅᒍᓐᓇᑐᓪᓗ. ᓇᓄᕕᓂᕐᑐᑐᖃᓲᖅ ᐊᑐᓂ ᓄᓇᓕᓐᓂ, ᐱᓗᐊᕐᑐᒥᒃ ᐃᓄᑐᙯᑦ, ᓂᖏᕐᑕᐅᓯᐊᓲᖅ ᓄᓇᕐᖃᑎᒌᓄᑦ. ᕿᓄᐊᕐᓱᑎᒃ, ᓇᓐᓄᑐᖅ ᑕᑯᒐᒥ ᓇᓄᕐᒥᒃ ᓯᓂᑦᑎᑕᐅᓯᒪᔪᕕᓂᕐᒥᒃ ᒥᖑᐊᕐᑕᕕᓂᕐᒥᓘᓐᓃᑦ ᖃᐅᔨᓴᕐᑎᒧᑦ, ᓂᕆᔭᐅᒍᒪᓲᖑᙱᑐᖅ ᐊᑦᑕᓇᕐᓂᐊᖖᕆᔭᐅᑦᓱᓂ ᐱᐅᓕᔭᐅᓲᖑᙱᑐᖅ ᓂᕿᖅ. ᑌᒪᙵᓂᐊᕐᔪᒃ ᖃᐅᔨᒪᔭᐅᓂᓕᒫᖏᓐᓂ, ᓂᐅᕐᕈᑕᐅᓂᖓ ᓇᓄᙯᐅᑉ ᑌᒪᙵᓕᒫᖅ ᐱᒻᒪᕆᐅᔪᖅ ᑮᓇᐅᔭᕐᑖᕈᑎᐅᒍᓐᓇᙯᒥ ᒪᙯᑎᒧᑦ. ᓂᐅᕐᕈᑎᖃᕐᓂᖅ ᓇᓄᙯᕐᒥᒃ ᐃᓄᑐᐃᓐᓇᐅᖏᑦᑐᓄᑦ ᒪᑯᓄᖓ ᑲᒻᐸᓂᒃᑯᓄᑦ (Hudson Bay Company,), ᐱᒍᓐᓇᕈᑎᕆᔭᐅᓯᒪᒐᒥ ᓂᐅᕕᕈᑎᑦᓴᑖᕈᑕᐅᑦᓱᓂ ᒪᑯᓂᖓ ᓴᒃᑯᓂᒃ, ᐅᕐᓱᐊᓗᒻᒥᒃ, ᖁᑭᐅᑎᓂᒃ, ᐃᖏᙯᐅᑎᓂᓪᓗ, ᐱᑕᖃᕆᐊᖃᓪᓚᕆᑦᑐᓂᒃ ᑲᔪᓯᒍᓐᓇᐅᑎᒋᓂᐊᕐᓗᒋᑦ ᒪᙯᓐᓂᒥᒃ. ᐊᕐᕌᒍᓂ ᐊᒥᓱᒐᓚᓐᓂ ᐊᓂᒍᕐᑐᓂ ᓇᓄᑌᑦ ᓂᐅᕕᕐᑕᐅᓗᐊᕐᓯᒪᒪᒑᒍᓐᓂᑐᑦ ᐱᒍᒪᔭᐅᓪᓗᐊᕈᓐᓂᓯᒪᒐᒥᒃ. ᐱᒻᒪᕆᐅᓂᖓ ᓇᓄᕐᓂᐊᓂᐅᑉ ᐊᓯᑦᔨᓯᒪᓕᕐᑐᖅ ᐱᑦᔪᑎᒋᑦᓱᒍ ᓂᐅᕕᕐᑕᐅᓯᐊᕈᓐᓂᓯᒪᓂᖏᑦ, ᙯᓗᐊᕐᑎᓗᒍ ᐱᕙᓪᓕᕐᖁᑎᐅᒍᓐᓇᓂᖏᑦ ᐊᑦᔨᒌᙱᑑᖏᓐᓇᑐᑦ ᓱᓕ ᒪᙯᑎᓄᑦ, ᑕᒪᓐᓇᓗ ᐊᑯᓂᐋᓗᒃ ᑌᒣᓕᖓᓕᕐᓱᓂ. ᓇᓄᑌᑦ ᐱᐅᓯᕆᑦᓱᒍ ᐊᑐᕐᑕᐅᕙᓚᐅᕐᑐᖅ ᖄᕆᔭᐅᑦᓱᑎᒃ, ᖃᑦᓕᕆᔭᐅᑦᓱᑎᒃ, ᐳᐊᓗᒋᔭᐅᑦᓱᑎᓪᓗ, ᐁᑦᑑᑕᐅᓲᖑᑦᓱᑎᓪᓗᓃᑦ ᐱᒻᒪᕆᐅᑎᑦᓯᒍᑎᕆᑦᓱᒍ (ᓇᓐᓄᕆᐅᕐᑕᐅᔪᖅ ᐁᑦᑑᑕᐅᑦᓱᓂ ᓴᓇᔫᖓᓄᑦ ᐊᕐᓇᕐᖁᑎᖓᓄᑦ) ᐅᓪᓗᒥᒧᑦ ᑌᒣᑦᑐᖅ ᓱᓕ. ᑕᒪᒃᑯᐊ ᐱᐅᓰᑦ ᐅᓪᓗᒥ ᑲᔪᓯᓕᐅᒥᓯᒪᓕᕐᒥᔪᑦ ᐱᕐᖁᓰᕐᓯᑌᓕᓂᖅ ᐱᑦᔪᑕᐅᑎᓪᓗᒍ.

ᐊᐅᓚᑦᓯᓂᖅ & ᐃᑉᐱᒍᓱᑦᑎᐅᓂᕐᓗ

ᐊᑦᔨᒌᑦᓯᐊᒥᒃ ᐃᓱᒪᖃᑎᒌᒎᑕᐅᓚᐅᔪᕗᖅ ᑕᒪᓐᓇ ᐱᕐᖁᓯᖅ ᐊᑐᕐᓗᒍ ᐃᑉᐱᒋᔭᖃᕈᓐᓇᓂᖅ ᓈᒻᒪᒋᐊᖓ ᐊᒻᒪᓗ ᐃᓱᒫᓘᑕᐅᑦᓱᓂ ᐃᓱᓕᑦᑕᕕᓕᐅᕐᑕᐅᒐᔭᕐᐸᑕ ᐃᓱᒫᓘᓐᓇᑐᒎᑮᑕᐅᒍᓐᓇᕆᐊᖓ ᐱᐅᓯᐅᒋᐊᖃᙱᑐᓂᓪᓗ ᐊᑑᑎᒍᑕᐅᓚᕿᒍᓐᓇᕆᐊᖓ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᕗᑦ ᐃᑉᐱᒍᓱᑦᑎᐅᓂᖅ ᖃᓄᐃᓘᕿᑕᐅᔪᑦᓴᐅᒪᖕᒫᑦ ᐊᑦᔨᒌᖑᒋᐊᖏᓪᓗ ᓄᓇᕕᓕᒫᒥ ᐱᐅᓯᕐᒥᑎᒍᑦ. ᐊᑦᔨᐅᖏᑦᑑᑎᑦᓯᓂᑦᑕᖃᕐᑎᓇᒍ ᓇᓄᕐᓂᐊᓂᖅ ᑐᙵᕕᙯᓐᓇᓯᒪᔪᖅ ᑭᙴᒪᓇᕐᑐᓂᒃ. ᐊᒥᓱᑦ ᐊᐱᕐᓱᑕᐅᔪᑦ ᓂᓪᓕᕈᑎᖃᖃᑦᑕᓚᐅᔪᒻᒥᔪᑦ ᓯᓚᒦᓐᓇᓂᖅ ᐱᐅᔪᐊᓗᒋᐊᖓ, ᓇᓄᕐᓂᐊᖃᑦᑕᓯᒪᓂᕐᒥᓂᒃ ᑐᙵᕕᒋᑦᓱᒍ ᑭᙴᒪᓇᕐᓂᖓ, ᐊᓕᐊᓱᐊᙳᐊᓂᕐᒧᑐᐃᓐᓇᐅᖏᑦᑐᖅ. ᒪᙯᑎ ᑭᙴᒪᒋᔭᒥᓂᒃ ᐱᓯᒪᓕᙯᓗᐊᙯᒥ (ᐃᓚᖓᓂᓗ ᓯᕗᓂᖓᒍᒐᓴᒃ), ᓇᓐᓄᕈᓐᓇᓂᖅ ᐃᑲᔪᕐᓯᒪᒍᑕᐅᖃᑦᑕᓯᒪᒻᒥᔪᖅ ᐃᓚᒌᓂᒃ, ᓄᓇᓕᒻᒪᕆᐅᓂᓴᓂᓪᓗᓃᑦ. ᐃᓚᖏᑦ ᓇᓄᕐᓂᐋᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᕗᑦ ᓯᕗᓪᓕᐸᐅᑦᓴᓂᕐᒥᓂᒃ

ᐃᓄᑐᖃᕐᓂᒃ, ᓇᓄᕐᓂᐊᕈᓐᓇᕈᓐᓀᑐᓂᒃ, ᓂᖏᕐᑎᓯᓕᑐᐊᑫᒥᒃ. ᓇᓗᓀᕐᓯᓚᐅᔪᒻᒥᔪᑦ ᒪᙯᑏᑦ ᓇᓄᕐᓂᐊᓲᖑᒋᐊᒥᓂᒃ ᐱᕈᓅᕐᓯᒪᔪᓂᒃ ᑭᓯᐊᓂ ᕿᑐᕐᖓᖃᖕᖏᑐᓂᓪᓗ. ᓇᓄᕐᓂᐊᑏᑦ ᐅᑭᐅᒥ ᑭᓯᐊᓂ ᓇᓐᓄᕋᓱᐊᓲᖑᓂᕐᒥᓂᒃ ᓇᓗᓀᕐᓯᓚᐅᔪᒻᒥᔪᑦ, ᐅᑭᐊᑐᖃᐅᓕᕐᒪᓗ, ᐅᐱᕐᖓᓴᕐᖃᒥᐅᑎᓪᓗᒍᓗ ᒥᕐᖁᓯᐊᕆᑦᑑᓂᖏᓐᓂ, ᓂᕿᑦᓴᓯᐊᖑᓂᖏᓐᓂᓗ. ᐃᓚᖓᓂ, ᐊᕐᕌᒍᓂ ᐊᓂᒍᕐᑐᓂᓗᐊᖕᖑᐊᖅ, ᓇᓐᓄᑐᖃᑲᓪᓚᖃᑦᑕᓯᒪᒻᒥᔪᖅ ᐃᓄᐃᑦ ᐅᖓᓯᑦᑐᒧᑦ ᐱᓱᓐᓂᐊᓕᑐᐊᕐᒪᑕ ᓂᕿᒃᑭᐊᓴᕐᑖᕆᑦᓱᒍ (ᓄᓇᕐᐸᓯᒻᒪᑕ, ᐅᒥᐊᕐᑐᓯᒻᒪᑕᓘᓐᓃᑦ). ᐱᕚᕈᒻᒪᑦ, ᓇᓐᓄᑕᐅᔪᓕᒫᑦ ᐅᕐᖁᔫᓕᕐᑎᓗᒍ, ᓯᑯᖃᕈᓐᓀᑎᓪᓗᒍ ᐱᑦᔪᑎᑐᐊᖃᕐᓯᒪᔪᑦ ᐊᑦᑕᓇᕐᑐᒦᑦᑌᓕᓂᕐᒥᒃ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᖃᑦᑕᓚᐅᔪᔪᑦ ᐃᑉᐱᒍᓱᑦᓯᐊᕐᖁᔭᑦᓱᑎᒃ ᐊᑐᓕᕐᑎᑕᐅᓚᖓᑐᐊᕐᐸᑕ ᓇᓐᓄᕈᓐᓇᐅᑏᑦ ᐃᓱᓕᑦᑕᕕᖏᑦ ᓇᓐᓄᓵᕋᓱᐊᖃᑦᑕᓯᒐᔭᕆᐊᖏᑦ ᒪᙯᑏᑦ ᓄᓇᑖᓪᓗ, ᑕᒪᓐᓇ ᐊᒥᓲᓂᕐᓴᓂᒃ ᓇᓐᓄᖃᑦᑕᓚᕿᑎᑦᓯᓯᒐᔭᕐᑐᖅ: ᓇᓐᓄᕈᓐᓇᐅᑎᖃᓕᕈᑎᒃ ᒪᙯᑏᑦ ᐅᐃᒻᒪᖃᑦᑕᓕᕋᔭᕐᑐᑦ ᐊᑐᕐᑕᐅᖏᓐᓂᖏᓐᓂ ᐃᓘᓐᓇᑎᒃ ᓇᓐᓄᕈᓐᓇᐅᑏᑦ. ᐱᓕᐅᑎᓂᖅ ᓄᐃᓚᕿᑎᑕᐅᒍᓐᓇᒥᔪᖅ ᐃᓱᓕᑦᑕᕕᖃᓕᕐᐸᑕ ᓇᓐᓄᕈᓐᓇᐅᑏᑦ ᐊᑑᑎᑦᓯᐊᖏᓚᕿᑎᑕᐅᓗᓂ ᐊᐅᓚᑦᓯᒍᓯᖓ ᐱᕐᖁᓯᕐᒥᑎᒍᑦ, ᒪᙯᑏᑦ ᐅᑕᕐᕿᓯᐊᓲᑦ ᒥᕐᖁᓯᐊᕆᑦᓯᔫᑦᓯᑎᒃ. ᐊᐱᕐᓱᑕᐅᔪᑦ ᐅᖃᐅᓯᖃᓚᐅᔪᒻᒥᔪᑦ ᐊᑐᕐᑕᐅᒍᓐᓇᑐᓂᒃ ᓱᕐᑌᓕᕐᓗᓗᐊᕐᖁᓇᒍ ᐃᓱᓕᑦᑕᕕᓕᐅᕐᑕᐅᓯᒪᓕᕐᓂᐸᑕ, ᐃᓚᖃᕐᒥᑎᓪᓗᒍ ᐃᓱᒪᒋᔭᑦᓴᐅᒋᐊᖏᑦ ᖃᖓᐅᓕᕐᐸᑦ ᓇᓐᓄᕈᓐᓇᕋᓴᕐᓂᖏᑦ ᐊᕐᕌᒍᒥ ᐊᒻᒪᓗ ᓄᓇᓕᒻᒥ ᐊᐅᓚᑕᐅᓗᑎᒃ ᓇᓐᓄᕈᓐᓇᑎᑦᓯᒍᑏᑦ.

1.0 Executive Summary

1.1 Introduction to the report

In January 2012, Canada's then Minister of Environment, the Honourable Peter Kent, requested that the Nunavik Marine Region Wildlife Board (NMRWB) undertake to establish a formal management system for polar bears in the Nunavik Marine Region (NMR). The NMRWB was directed to establish levels of Total Allowable Take (TAT) for all three polar bear sub-populations that occur within the NMR. The Board recognized that while Nunavik Inuit possess a wealth of knowledge about polar bears, very little of it had been documented and thus remained largely inaccessible in the context of Board decision-making processes. As the NMRWB gives full consideration to the knowledge, traditions and hunting practices of Nunavik Inuit in its decisions and actions, a project to conduct interviews with hunters and elders to gather Inuit Knowledge (IK) and observations from Nunavik communities harvesting from the three sub-populations of polar bears in the NMR was initiated. The NMRWB contracted Trent University to conduct this work with them and prepare reports on this knowledge.

This report details the observations and knowledge documented and shared by Inuit elders, hunters and other residents in the communities of Kangiqsualujjuaq, Kuujjuaq, Tasiujaq, Aupaluk, Kangirsuk, Quaqtaq and Kangiqsujuaq concerning polar bears in the region of the DS sub-population. Given the context of public hearings related to establishment of a TAT for all sub-populations, particular attention was given to topics to best inform management decisions.

1.2 Scope of the project

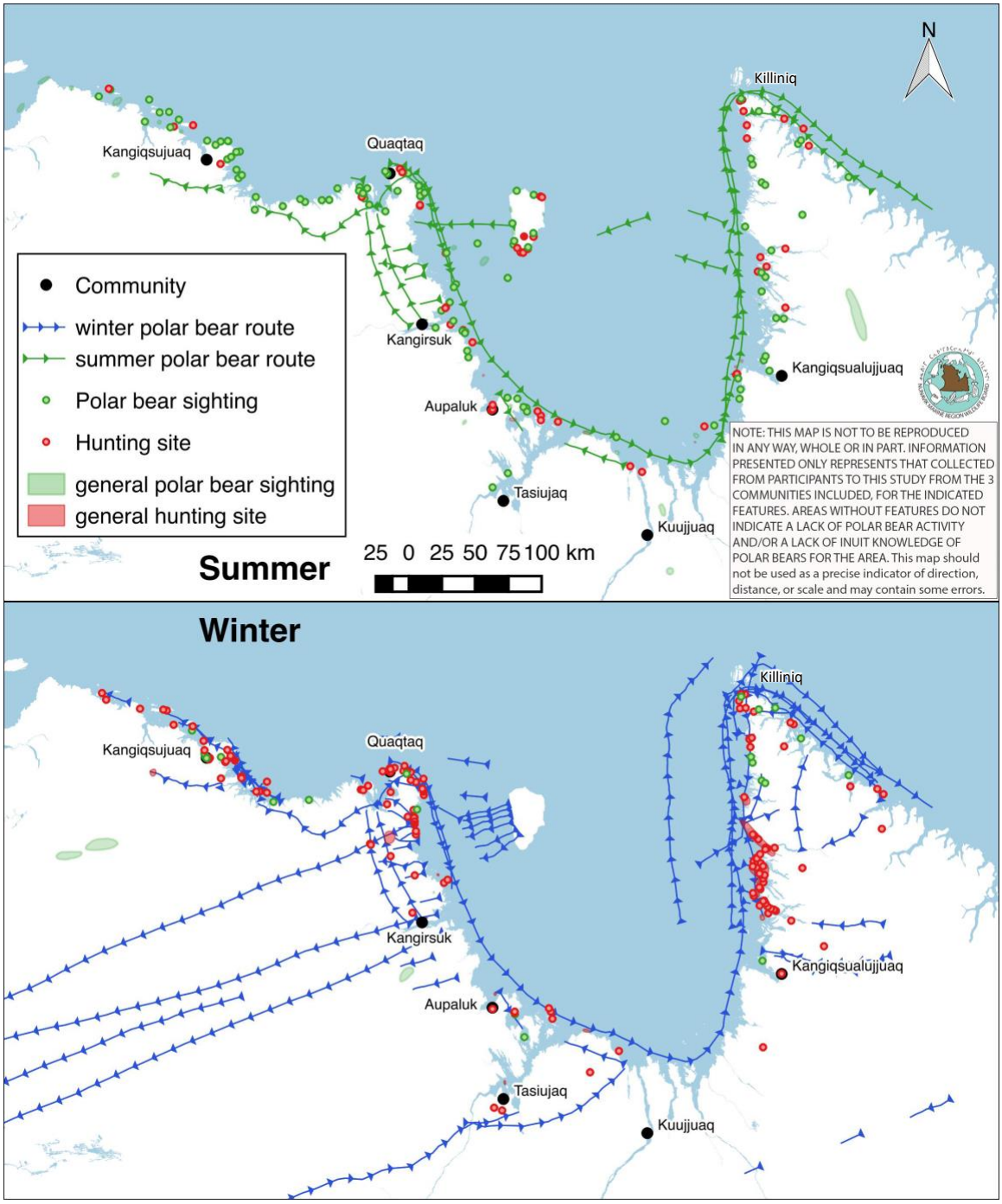
A total of 76 participants from seven communities were engaged in interviews and mapping activities for this project. Local hunter/trapper organizations (*Local Nunavimmi Umajulirijiit Katujjiqatigiinningit,* or LNUKs) in each community helped identify local polar bear experts for interviews and mapping sessions. Participants spanned a range of ages and years of experience. When applicable, participants were asked to specify the seasons

and time periods within which the information they shared was relevant. Participants shared information on the ecology and biology of polar bears, including abundance, distribution, habitat, feeding, health, mating, and denning. Participants also spoke about the importance of polar bears, both to themselves and to Nunavimmiut in general, as well as about hunting practices, management, and stewardship of polar bears. A vast depth and breadth of Inuit Knowledge and values were documented and are presented in this report.

1.3 Key findings

Biological

By far one of the most common pieces of ecological data reported by participants was the increase in abundance of polar bears over the last half century. In almost every interview, participants reported noticeable increases in polar bears since the 1970s, and before the 2000s, with many participants first noticing an increased bear population in the 1990s. Polar bears also seem to have widened their distribution, with some participants reporting seeing bears in areas that they did not occupy in the past. Participants also reported the use of inland areas, including the movement of some bears from the Ungava area, across Nunavik to the Hudson coast. Similar movements were reported from the Nunatsiavut coast towards Ungava, across the Quebec-Labrador peninsula. Most participants that had experience seeing polar bear dens indicated they were in deep snow drifts created by large hills and mountains, usually close to the coast, though they generally did not discount the possibility of bears denning inland. Participants indicated that bears prefer to eat ringed seals, but alternative food sources were common, with bird eggs and beluga being especially frequent alternatives in the polar bear diet. Overall, participants indicated bears seem very healthy. Bears are fatter in the winter and skinnier in the summer, but rarely skinny enough for participants to be concerned about the bear's health.



Features showing extent of polar bear distribution and movement in summer and winter for the Davis Straight sub-population in the Nunavik Marine Region, as indicated by the participants from Kangiqsualujjuaq, Kuujjuaq, Tasiujaq, Aupaluk, Kangirsuk, Quaqtaq and Kangiqsujuaq.

Importance of polar bears to Nunavimmiut

Polar bears were reported to be important to Inuit in regards to culture and mental health, safety, sustenance, and economy. Participants described a sense of emotional wellbeing and excitement when seeing polar bears in their environment. They are seen as a symbol of the fortitude and strength of the people who live alongside them. As a tertiary consumer and apex predator, polar bears are often considered more similar to humans than any other animal, and regarded as one of the most intelligent species. Participants also expressed safety concerns resulting from the increased abundance and frequency of interactions with polar bears. Hunting a polar bear remains an important rite of passage into manhood for young Inuit, and participants reported a sense of pride associated with every successful hunt. Hunting provides two of the most tangible benefits of polar bears: food and resources. Polar bear meat is eaten in each community, especially by elders, and usually shared amongst community members. However, when hunters have discovered that a kill was previously tranquilized and tattooed for research, the meat is deemed unsafe for consumption and left behind. At times throughout modern history, the sale of polar bear hides has been an important source of income for hunters. Selling hides, primarily to non-Inuit buyers such as the Hudson Bay Company, enabled the purchase of materials such as ammunition, gasoline, rifles, and snowmobiles, required to continue a subsistence hunting lifestyle. In recent years very few hides are sold, due to a heavily decreased market demand. The importance of polar bear hunting has changed as economic opportunities have changed, though the benefits of hunting are robust and varied, and have existed for many decades. Polar bear hides were traditionally used to make mattresses, snow pants, and mitts, or as important gifts (e.g. a first hide is often gifted to the hunter's *sanijik*, god parent) which still occurs today. These types of activities appear to be once again increasing in popularity as a means to maintain culture and traditions.

Management & Stewardship

A very common sentiment among participants was that traditional stewardship practices were sufficient for conservation and that the introduction of a quota to limit polar bear hunting was unnecessary and possibly dangerous or counterproductive. Participants shared several stewardship practices that were common across the region. Without exception, hunting was based on need. While many participants expressed great enjoyment associated with being out on the land, their hunting activities were based on subsistence, not sport. Even when a hunter's own needs were met (and sometimes even before), hunting supplemented the needs of family, or the greater community. Some hunters mentioned prioritizing elders, who could no longer hunt, when distributing polar bear meat. More specifically, participants spoke about limiting their hunting to fully grown polar bears without small cubs. Participants also generally limited their hunting to winter, as well as late fall and early spring when bears have the best fur and meat. In some cases, especially in the past, a small amount of hunting outside of this season was done to sustain people on long expeditions (be it on the land, or on boat trips). Otherwise, virtually all kills during the warmer, ice free seasons were due to safety concerns. Participants cautioned that the implementation of quotas can create a sense of competition between hunters or communities, and that this would likely increase the number of bears hunted: with a quota, hunters would rush to get their bears before the quota is filled. The competition created from a quota system could also inhibit traditional management practices, where hunters wait until prime hunting season to take bears. Participants suggested several ways that the detrimental effects of a quota could be mitigated, including considering seasons and locally managing quotas.

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2.0 Context and Rationale

The polar bear is the largest terrestrial carnivore on the planet and a critical top-level predator of Arctic ecosystems. It also holds an important place in many Arctic peoples' culture and society, to this day. It has a circumpolar distribution, being found in United States (Alaska), Canada, Greenland, Norway and Russia (Wiig et al. 2015). Sea ice is an important aspect of the polar bear's critical habitat, and annual decreases in Arctic sea ice extent and availability have been an ongoing concern (Stroeve et al. 2012; IPCC 2014). Primary threats to the world's polar bear populations include climate change and the loss of sea ice, environmental contaminants in the Arctic, resource development, Arctic shipping, and human-bear conflicts (McKinney et al. 2009; Letcher et al. 2010; Obbard et al. 2010; Stirling et Derocher 2012; Wiig et al. 2015). Given the increasing nature of many of these threats in the circumpolar North, the issue of polar bear conservation, management and protection has received considerable attention in recent years (Wiig et al. 2015). International attention surrounding polar bears and the threats they face in a changing Arctic has resulted in an increased level of scrutiny towards management regimes that are implemented at the national and international levels.

The Polar bear is currently listed in Appendix II of the Convention on International Trade in Endangered Species (CITES), and international trade is therefore regulated. The Agreement on Conservation of Polar Bears (signed in 1973) provides a framework for coordinated management actions at the international level. In Canada, management responsibilities are shared by the Federal Government, as well as by the Provincial and Territorial governments of Manitoba, Ontario, Québec, Newfoundland& Labrador, Yukon, Northwest Territories and Nunavut along with constitutionally recognized wildlife co-management boards and representative Indigenous organizations. The Canadian sub-populations account for nearly 60% of the world's polar bears and is organized into 13 management units (Figure 1).

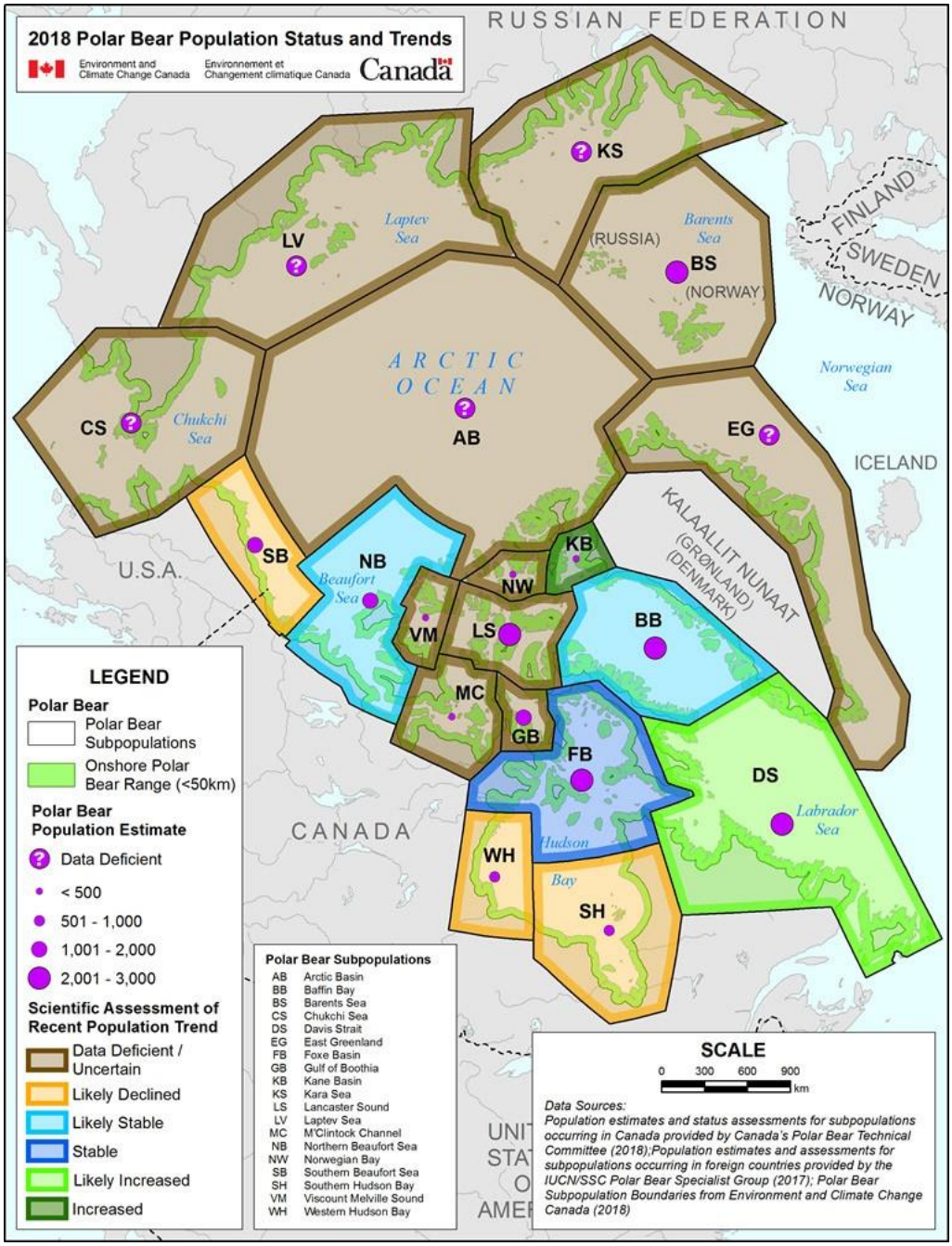

Figure 1: Circumpolar polar bear sub-population status and trends (ECCC 2017).

In January 2012 Canada's then Minister of Environment, the Honourable Peter Kent, requested that the Nunavik Marine Region Wildlife Board (NMRWB) establish a formal management system for polar bears in the Nunavik Marine Region (NMR) in collaboration with other wildlife management partners. As part of this management system, he

directed the NMRWB to establish levels of Total Allowable Take (TAT) for all three polar bear sub-populations that occur within the NMR. As the main instrument of wildlife management for the NMR, pursuant to the Nunavik Inuit Land Claims Agreement (NILCA), the NMRWB has exclusive authority over the establishment, modification or removal of levels of TAT and non-quota limitations (NILCA s. 5.2.3).

The objectives of the wildlife management system provided for by the NILCA are detailed in section 5.1.3 of the Agreement, and seek to establish a system that, among others:

(a) defines and protects Nunavik Inuit harvesting rights;

(b) is governed by and implements the principles of conservation;

(c) reflects levels, patterns and the character of Nunavik Inuit harvesting;

(f) recognizes the value of Nunavik Inuit approaches to wildlife management and Nunavik Inuit knowledge of wildlife and wildlife habitat and integrates those approaches with knowledge gained through scientific research;

(h) provides for public participation and promotes public confidence in wildlife management, particularly amongst Nunavik Inuit;

The decision-making process is further governed by section 5.5.3 of the NILCA, which stipulates that decisions of the NMRWB, or a Minister, in relation to the establishment, modification or removal of a TAT shall restrict or limit Nunavik Inuit harvesting only to the extent necessary:

(a) To effect a conservation purpose in accordance with sections 5.1.4 and 5.1.5;

(b) To give effect to the allocation system outline in Article 5, to other provisions of Article 5 and to Articles 27, 28, and 29; or

(c) To provide for public health or public safety.

The Board recognizes that while Nunavik Inuit possess a wealth of knowledge about polar bears very little of it has been documented and presented to the Board in a formal context. Because the NMRWB must give full consideration to the knowledge, traditions and hunting practices of Nunavik Inuit in its decisions and actions, a project to conduct interviews with hunters to gather Inuit Knowledge (IK) and observations from Nunavik

communities harvesting from the three sub-populations of polar bears in the NMR was initiated.

This report is one of three sub-population reports for the three management units of polar bears that occur within the NMR. It is the product of an NMRWB special project, with the contracted assistance of Trent University to carrying out this work. The objective of the project was to thoroughly document the knowledge and observations of Nunavik Inuit relating to polar bears. Given the context of public hearings related to establishment of a TAT for all sub-populations, particular attention was given to topics to best inform management decisions.

3.0 Introduction

3.1 The status of Polar bears in Nunavik

In Canada, polar bears are considered to be a single designatable unit but are managed by sub-populations, the boundaries of which are based largely on known movement patterns of polar bears within each of these regions (obtained from harvest reports of tagged bears and through telemetry studies; Figure 2) (Calvert et al 1993; Taylor and Lee 1995; Taylor et al. 2001).

In 2009, polar bears were listed as being 'Vulnerable' under Quebec's *Loi sur les espèces menacées ou vulnérables* and 'Threatened' under Ontario and Manitoba's *Endangered Species Acts*. Similarly, Canada listed polar bear as a 'Special Concern' under the *Species at Risk Act* in 2011 and were recently reassessed as 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2018. In all cases, these designations imply that polar bears are not immediately threatened with extinction, but that certain conservation concerns must be addressed to ensure survival of the species.

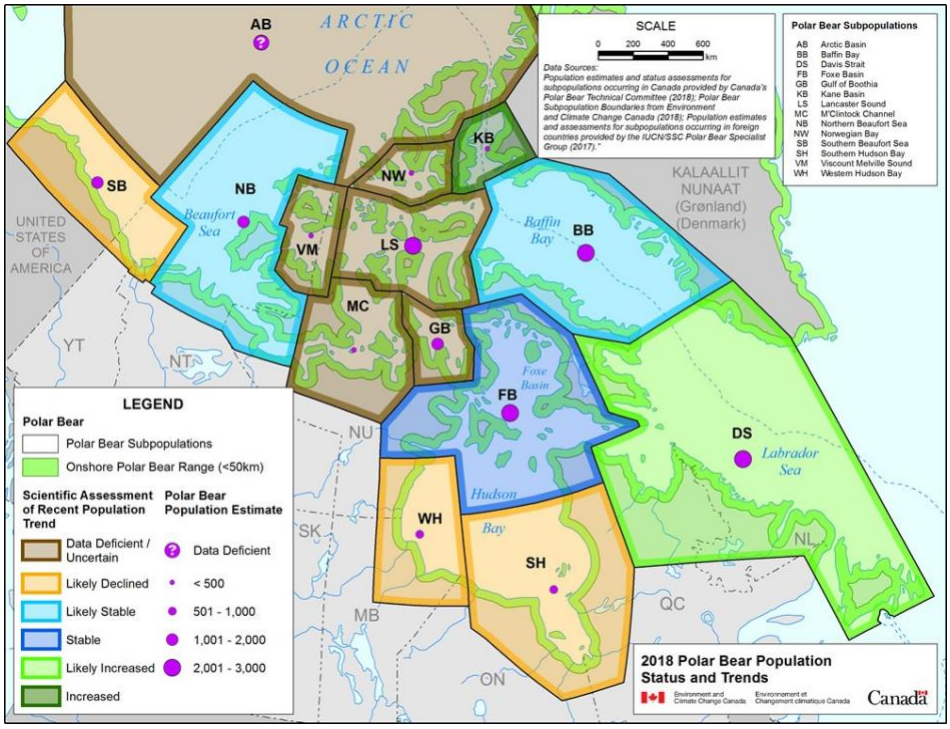

Figure 2: Polar bear sub-population status and trends in Canada (ECCC 2017).

Part of the ranges for three polar bear sub-populations extend into the NMR, Davis Strait (DS), Foxe Basin (FB) and Southern Hudson Bay (SH) (Figure 2). A 2016 aerial survey estimated the SH sub-population to number 780 (95% CI: 590-1029) bears (Obbard et al. 2017), down from 943 (95% CI: 658-1350) estimated by a 2011/2012 aerial survey (Obbard et al. 2013). While these point estimates indicate a decline, the 95% confidence intervals for both studies are relatively large, indicating no conclusions can be made with a high degree of certainty about the population trajectory. The Polar Bear Technical Committee (PBTC) which annually reviews and assesses sub-populations based on new information assessed the current trend for the subpopulation as "likely decline", after a period of stability since the late 80s (Figure 2; Obbard et al. 2013). A mark-recapture survey of the Davis Strait sub-population is currently being completed but results are not available at this time. The last time Davis Strait was estimated, in 2007, the population was estimated to be 2158 (+/- 180 (SE)) bears (Peacock et al. 2013). The PBTC assessed DS as 'likely increasing' (Figure 2). The Foxe Basin sub-population was estimated to be 2300 bears from 1989-1994 (estimate based on Taylor et al. 2006 and updated based on Inuit observations). A more recent aerial survey in 2009-2010 led to an estimated population of 2580 (95% CI: 2093-31800 (Garshelis et al. 2012), and the sub-population was assessed by PBTC as 'stable' (Figure 2).

The Davis Strait sub-population occupies parts of two countries (Canada and Greenland), two provinces (Quebec and Newfoundland & Labrador), one territory (Nunavut) and three Inuit land claims areas (NMR, Nunavut Settlement Area, Labrador Inuit Settlement Area). Bears from this sub-population have been important to Inuit and other Indigenous hunters for many generations and the knowledge of these animals, and the environment in which they exist, is extensive (Henri et al. 2010).

This report details the observations and knowledge documented and shared by Inuit elders, hunters and other residents in the communities of Kangiqsualujjuaq, Kuujjuaq,

Tasiujaq, Aupaluk, Kangirsuk, Quaqtaq and Kangiqsujuaq concerning polar bears in the region of the DS sub-population.

4.0 Methods

4.1 Study area

Between November 2014 and March 2015, semi-directed interviews (Huntington, 1998) were conducted in the seven Nunavik communities that occur within the boundaries of the DS sub-population (i.e. Aupaluk, Kangiqsualujjuaq, Kangiqsujuaq, Kangirsuk, Kuujjuaq, Quaqtaq, and Tasiujaq). The study area includes the traditional and contemporary hunting grounds of the people of these seven communities. This area encompasses the lands and coastal marine region of the Hudson Strait from Kangiqsujuaq, east to the traditional hunting grounds surrounding the relocated community of Killiniq, located near the northern tip of the Quebec-Labrador peninsula (Figure 2).

4.2 Interview guide and mapping

A primary focus of the interviews was to gather knowledge on the biology of polar bears from Inuit elders and hunters in the participating communities. Topics related to biology included distribution and migration, feeding, body condition, mating and denning, habitat, and abundance. The interview guide also emphasized questions related to the importance of polar bears, and traditional approaches to their stewardship by Nunavimmiut (Appendix 1). Questions about human interactions with polar bears were also included in the interviews, including frequency of encounters, and bears entering the community.

Interviews also included a participant mapping component (Tobias, 2010), and questions were included in the interview guide to prompt participants to share knowledge by drawing features on the map. Participants identified areas relevant to different aspects of their experience associated with polar bears as well as aspect of bear biology such as denning areas and migration routes when drawing features on the maps.

4.3 Interviews

4.3.1 Participant selection

LNUKs in each community were informed early on about the project's intent, and their support was sought prior to, and during, the research team's visit to their community. LNUKs assisted with identification of participants, organization of interpretation services and provision of interview space. Trips to communities began with a meeting between the researcher and the LNUK to discuss the project and to confirm a potential list of participants, composed of individuals with expertise and knowledge of polar bears. The project aimed to include approximately 10 participants per community, buy varied primarily depending on the level of polar bear activity and polar bear hunting in each community. Participants were purposively selected based on their experience and knowledge of polar bears (Davis and Wagner, 2003). Participant lists were cross referenced with available hunting records to ensure active polar bear hunters were invited to participate. Participation was open to both males and females, though it was required that participants be over 18 years of age. Due to a strong bias toward older males in the initially developed participants lists, LNUKs were also encouraged to consider women and younger participants with an expertise and knowledge of polar bears. However, LNUKs were instructed not to include them simply to have equal representation of ages and genders. Participants were then contacted by the community interpreter/translator and invited to participate in the study.

4.3.2 Conducting interviews

Individual and small group interviews of five or less participants were conducted in each community in November 2014 (Kangiqsujuaq and Quaqtaq) and February/March 2015 (remaining communities). Participants were given the opportunity to choose the interview format with which they felt most comfortable. If a participant preferred to be interviewed in a group, they were encouraged to form groups with peers that were identified during the meetings with the LNUK (i.e. often individuals having hunted or travelled on the land and sea together).

Interpretation was offered for all interviews and, depending on their preference, interviews were conducted at a public location in the community (e.g. Municipal and/or Landholding buildings) or at the interviewee's home. Interviews started with an informed consent process; consent was gathered in writing or by recorded verbal agreement.

4.4 Qualitative analysis

Audio recordings were transcribed and all transcripts were then reviewed and verified by the research team against the original recording. A hierarchical map of themes and topics included in the interview guide was created to guide the qualitative analysis. Transcripts were imported into QSR International's NVivo 10 qualitative data analysis software (2014), and codes were applied to identify text fitting the hierarchical map of themes (Kitchin and Tate 2000). If important information which called for a new theme or topic to be added to the coding hierarchy was found during the coding process, a new code was created and all previously-coded transcripts were re-analyzed.

When all transcripts had been coded, descriptive and thematic content analyses (Saldana 2013) were performed on the dataset. Interview data was explored for the following purposes: a) to describe common responses to questions, and b) to look for patterns and trends in the data across many participants.

4.5 Validation

In November 2015 validation meetings were held with participants in each participating community. All participants were invited to workshops where preliminary results were presented, and were given the opportunity to review, modify and add to the results. Having received a copy of their interview transcript (if they did not attend the workshop this was done via their LNUK) participants had the opportunity to review, omit, or add material to their transcript to ensure the accuracy of collected data, and for their approval of the shared knowledge (Huntington, 1998; Creswell, 2009). Feedback received during validation meetings was considered and adaptations to findings were made based on

discussion among participants, and by group consensus. Preliminary maps were created for the workshops, and participants had the opportunity to add, remove, or modify features they had shared. Validation workshops also confirmed that 1990 was an appropriate date to be considered as a division between 'historic' and 'current' time periods used in the analysis and reporting of results. The year 1990 was chosen for validation as it was the earliest decade that at least one participant from each community indicated that polar bears were more abundant than in the past. During validation participants confirmed that after 1990 polar bears were showing abundance and distribution patterns similar to the current situation. For clarity, some participants noted increases in abundance as early as the 1960s, and some areas had reached polar bear abundance at current levels before the 1990s (see section 5.3, Abundance, and table 6 for details).

5.0 Results

5.1 Participant attributes

A total of 40 interviews were conducted with 76 elders, hunters, and knowledge holders in the seven participating communities. Seventeen of those interviews were individual interviews while the remainder involved two or more individuals being interviewed at the same time. Group interviews ranged in size from two to five participants with an average of three. Participants ranged in age from 24-86 with a strong majority, 85%, of participants, between the ages of 40-79. Eighty-nine percent of participants were male. Tables 1 and 2 show a summary of participant characteristics by community including the number of interviews conducted in each location.

Table 1: Number of participants from the Davis Strait region listed by community and age range.

	Number of Participants							
Age Range	**Aupaluk**	**Kangiqsualujjuaq**	**Kangiqsujuaq**	**Kangirsuk**	**Kuujjuaq**	**Quaqtaq**	**Tasiujaq**	**Total**
20-39	3	1	2	1	0	1	3	11
40-59	3	2	6	8	1	2	2	24
60-79	3	8	2	8	4	6	5	36
80+	0	1	0	1	0	1	1	4
Unknown	0	0	1	0	0	0	0	1
Total	9	12	11	18	5	10	11	76
Average Age	48	63	52	61	62	65	54	58
Age Range	24-69	27-86	37-66	38-80	53-74	37-81	26-80	24-81

Table 2: Total number of male and female participants interviewed in each community.

	Participants			**# of interviews**
Community	**Male**	**Female**	**Total**	
Aupaluk	6	3	9	3
Kangiqsualujjuaq	12	0	12	7
Kangiqsujjuaq	11	0	11	7
Kangirsuk	15	3	18	5
Kuujjuaq	5	0	5	4
Quaqtaq	9	1	10	8
Tasiujaq	10	1	11	6
Total	**68**	**8**	**76**	**40**

During the interview process, over 60 hours of audio information was recorded and transcribed, and participants drew a total of 975 features on maps. The final hierarchy of topics discussed and shared through interviews is presented in Figure 3 and shows the scope of themes addressed.

Figure 3: Hierarchical coding structure used to code interview transcripts. Numbers represent the level of hierarchy for a given code.

5.2 Polar Bears and Nunavimmiut

The residents of Aupaluk, Kangiqsualujjuaq, Kangiqsujuaq, Kangirsuk, Kuujjuaq, Quaqtaq, and Tasiujaq have a long and intimate history with polar bears. Over time, the role of polar bears has changed and shifted in many ways, including with regards to Inuit culture and subsistence. However, their place in Nunavimmiut world-view appears to have remained constant over time. Participants spoke of polar bears with respect and reverence, in a way that is not quantifiable, and likely unrelated to the frequency of polar bear encounters, or of their status as a resource. The respect offered to polar bears goes beyond that which is given to most other animals, with several participants ascribing them a superior intelligence.

> *"… polar bear is a very smart animal. I find it's one of the smartest animals in the north, maybe in the world – top ten." – Resident of Tasiujaq*

> *"... the polar bear species are a very dangerous species animals…And the polar bear is a very smart animal - I think it's the smartest animal – so it's very important to hunt them." – Resident of Kangiqsualujjuaq*

To this day, a boy's first successful polar bear hunt remains an important milestone.

> *"Because that's those story too, eh. If you're 50 or 60 years old, Inuk never harvested a polar bear you're not a man. … If you shot one and you were five years old you became a man. … I thought I became a man when I first caught my polar bear. … I was like 22, 23, around that." – Resident of Kangiqsujuaq*

5.2.1 Hunting Practices and Traditions

Over time, and across geographical areas, the role of polar bear hunting in the lives of Nunavik Inuit has varied, along with the intensity and frequency of harvesting efforts. Most interviewees report that the region has seen an increase in polar bears since the 1990s (see section 5.3), and that hunting has increased proportionally, as has the importance of polar bear as a resource for Nunavimmiut in the region (see section 5.2.2).

Harvesting opportunities in the DS range differ between the seven communities, and likely reflect the abundance of bears in each respective area. Harvest records maintained by the Quebec government are incomplete, with many hunters understanding that reporting is only required when they want to sell a hide outside the community. Therefore, it appears that previously published data regarding harvest levels by Nunavik communities is approximate and likely underreported. When asked to provide an estimate of their harvest, all communities reported an increased harvest in recent years. While not all participants were able to provide an answer in terms of overall harvest, there were some participants in each community who were able to provide an estimate of overall community harvest. The answers were always approximate and rarely exactly the same as other answers from the same community, although there were no instances where answers directly contradicted each other. The following are interpretations of community harvest using all the provided answers. The community of Quaqtaq reported the highest harvest at approximately 22 bears per year (Table 3). Next was Kangiqsualujjuaq where hunters reported normally taking 12 or fewer bears. Aupaluk always takes less than 20 and typically 10 or fewer, Kangiqsujuaq, Kuujjuaq and Tasiujaq each reported harvesting around 5 polar bears per year. Finally, Kangirsuk reported a harvest of fewer than 5 per year.

Table 3: Reported estimate from interview participants of total number of bears harvested in each community during a typical or average year in recent times.

	Aupaluk	Kangiqsualujjuaq	Kangiqsujuaq	Kangirsuk	Kuujjuaq	Quaqtaq	Tasiujaq	Total*
Estimated Average Harvest	<10	≤12	5	<5	4-6	22	5	**60-65**
Notes	May range up to 20		May range up to 11		May range up to 10	May range up to 30		

* total is based on summation of information from individual communities, and not participant responses to being questioned on regional harvest for all seven communities.

From the participant reports of community harvest (table 3), the average annual harvest is estimated at around 60-65 bears. However, participants also noted that harvest levels vary between years depending on bear abundance, and environmental and hunting conditions. Annual maximum harvest is difficult to assess, as maximum harvest by each community is unlikely to occur in the same year. Although the communities of Quaqtaq, Kangiqsualujjuaq, and Aupaluk have the highest overall harvest levels, participants from Kuujjuaq most frequently reported engaging in hunting excursions that specifically targeted polar bears (Table 4). Overall, polar bear-specific hunting was reported in 13% (n=40) of interviews, though the proportion of individual hunters engaging in such practices is less. When interpreting this information, it is important to recall that the results may be inflated compared to the general population due to the fact that hunters and elders recognized for their knowledge and experience relating to polar bears were specifically requested for these interviews. Generally, participants speak of the rarity of hunting trips aimed specifically at polar bears, and stressed that in most communities polar bear hunting is almost exclusively opportunistic.

Table 4: Number of interviews in which participants identified their approach to polar bear hunting.

	Actively hunts polar bear	Opportunistic	Did not comment
Aupaluk	1	1	1
Kangiqsualujjuaq	1	0	6
Kangiqsujuaq	0	4	3
Kangirsuk	0	4	1
Kuujjuaq	2	1	1
Quaqtaq	0	5	3
Tasiujaq	1	2	3

Communities showed some variation in the seasonality of polar bear hunting, but winter was consistently the season of choice with summer being the least preferred season (Table 5). That said, there were some differences in the time of year when the majority of hunting took place, and where the majority of hunting was done. In Tasiujaq most harvesters began hunting in the winter, although some hunters chose to start in fall or late August. In Kuujjuaq, spring and winter were equally common polar bear hunting times. Participants in Kangirsuk and Aupaluk indicated that polar bear hunting by their community occurred only in the winter months. Kangiqsualujjuaq participants reported that their harvest took place primarily in the late winter. The start date for hunting in Quaqtaq was less synchronous among participants than in other communities; although winter remained the most commonly favoured polar bear hunting season with some preferring spring, others fall. One Quaqtaq participant reported harvesting year–round, except the summer months between April and September. Kangiqsujuaq residents also indicated that, while harvests may occur between September and May, most are taken in the winter.

Table 5: Common season for hunting polar bears as reported by participants. Open circles represent seasons that were indicated as a 'good/preferred season' in which to hunt polar bears by participants in one or more interview in a community. Solid circles represent seasons reported as being a 'good/preferred season' for hunting polar bears by participants in more than half of the interviews in a community. Blank spaces identify seasons that were not mentioned as being a 'good/preferred season' in which to hunt polar bears by any interview participants.

	Fall	Winter	Spring	Summer
Aupaluk		●		
Kangiqsualujjuaq	○	●	○	
Kangiqsujuaq	○	●	○	
Kangirsuk		●	○	
Kuujjuaq		●	●	
Quaqtaq	○	●	○	
Tasiujaq	○	●		

Geographically, polar bear hunting occurs predominantly within areas that can be reached from the community by dog sled or snow machine and within the traditional hunting grounds of a community (Figure 4a, b). In accordance with the opportunistic and adaptive nature of Inuit hunting, most participants explained, simply, that polar bears are hunted in the areas where hunting generally takes place. These areas tend to be centered around islands and points of land, due to their naturally high abundance of wildlife. Example of such areas indicated by participants, include Killiniq north of Kangiqsualujjuaq, the northwest edge of Ungava Bay near Quaqtaq, and Akpatok Island in northern Ungava Bay. Although polar bears are primarily hunted on the sea ice, participants draw attention to the fact that it is possible to see them or track them inland, (see Figure 7a,b, and Figure 8). Most participants, however, do not actively hunt polar bears inland because proper gear is not always on hand when they come across tracks inland and since they are more difficult to hunt on the rough inland terrain.

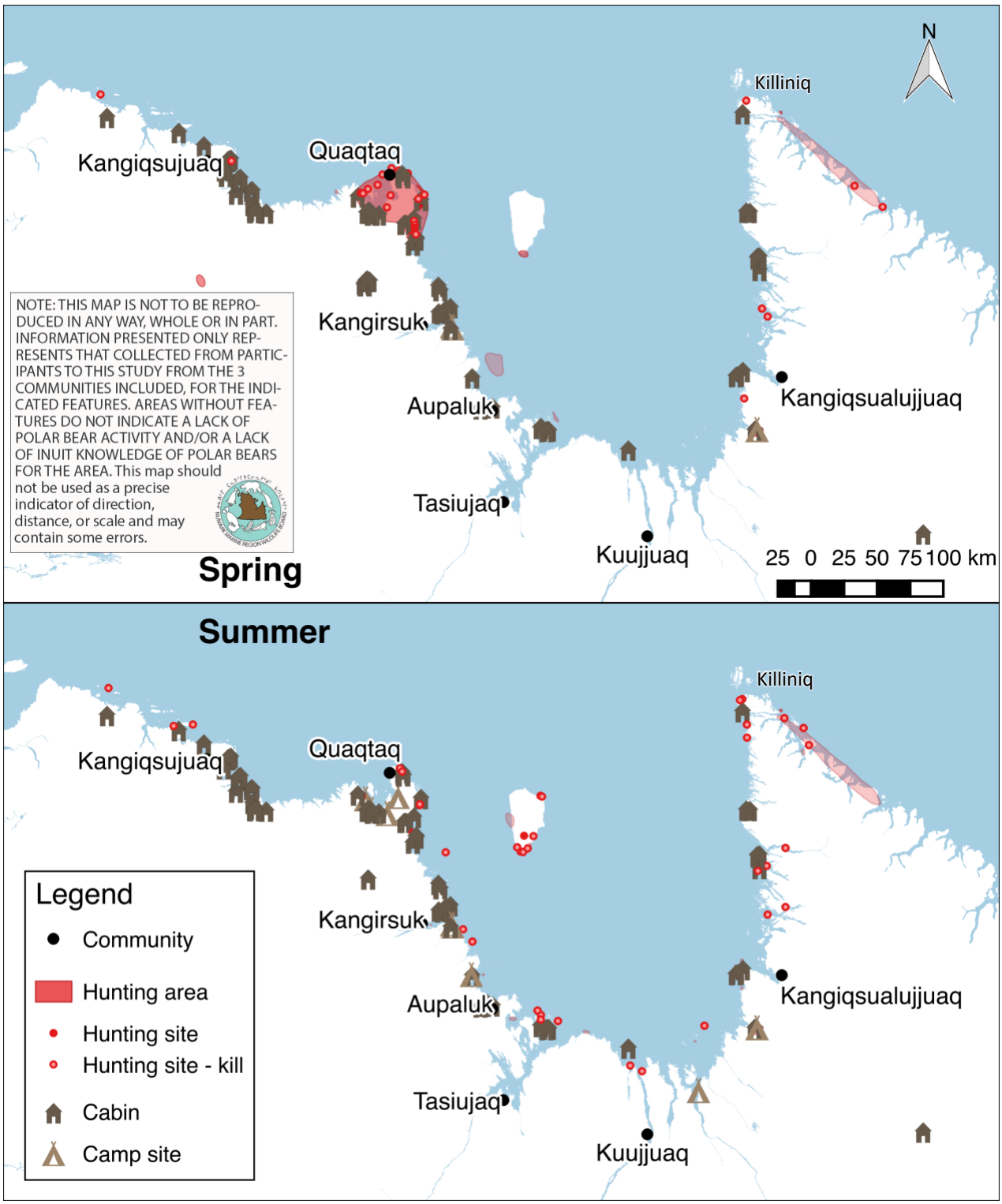

Figure 4a: Map of human footprint associated with polar bears, in the study area in spring and summer.

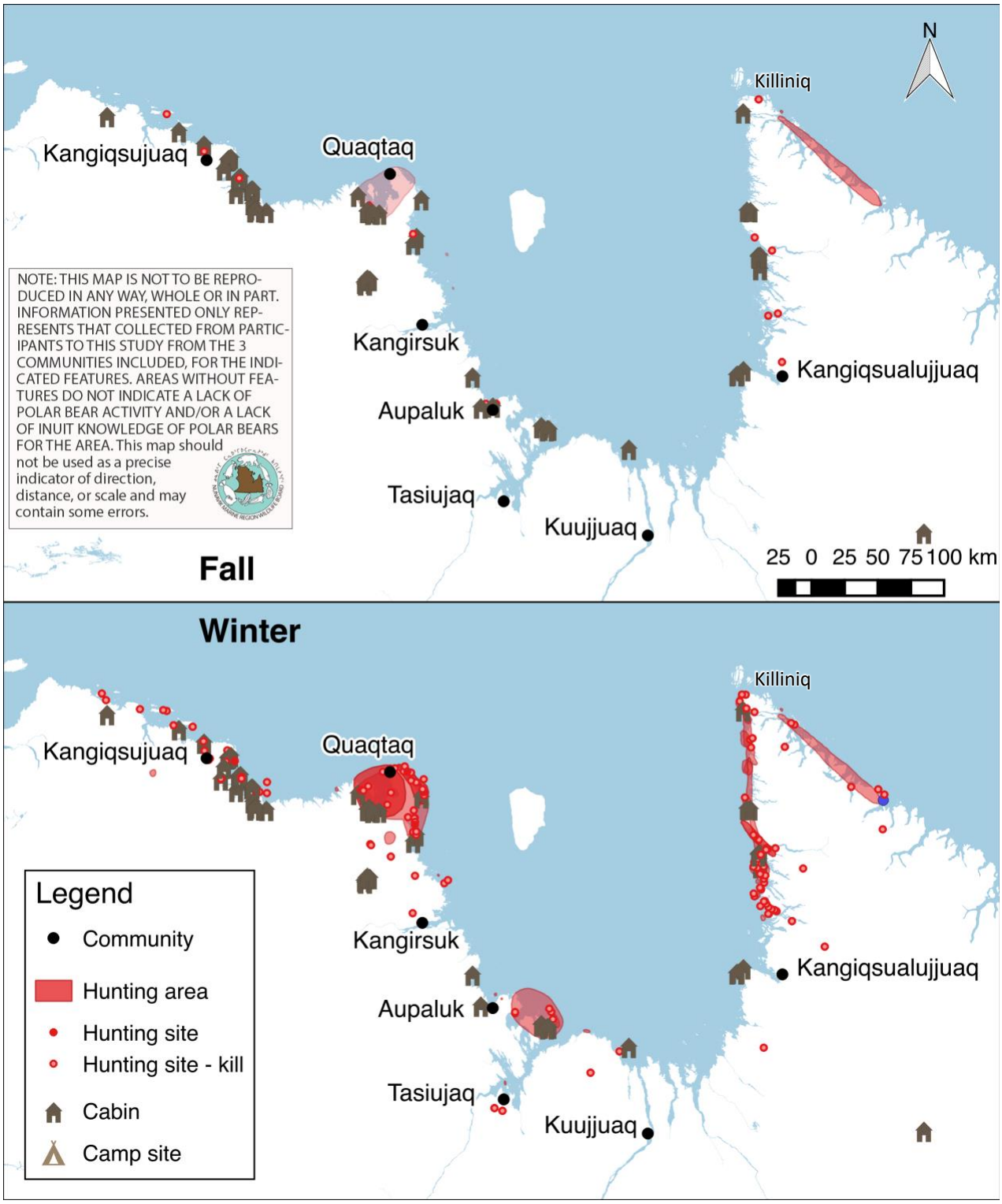

Figure 4b: Map of human footprint associated with polar bears, in the study area in fall and winter.

Polar bear hunting is generally conducted using a high-powered rifle and finding a bear is either opportunistic, or involves tracking the animal; traditional approaches to hunting polar bears are still practiced today. Typically, young hunters learn hunting methods and gain knowledge from joining older mentors on hunting trips.

> *"Well, there was not a lot of bears in those days. It's not like today. We hunted for about a week and a half before we started to see tracks. I was quite young. It was quite an experience to be able to be out there with somebody that knew what they were doing… You're not aware of the danger and where not to be. You learn a lot, not just from hunting: where are you going to find bears, where the bears tend to hang out along the flow. It was a good learning experience." – Resident of Kuujjuaq*

Before rifles, polar bears were hunted in a variety of ways, including locating dens and coercing the bear outside to be killed with sharp knives by other hunters flanking the entrance. Several participants reported being told stories of this style of hunting, and some witnessed their parents or grandparents hunting bears this way.

> *"A real traditional way that I've heard and have seen it, my grandfather got a polar bear, the bear was in the den. … And he go in and even though he touched the polar bear, the bear won't bite or fight nothing, he just sit there. Only when he goes out he's going to start attacking you. My grandfather went inside the den and pushed the polar bear out and then killed the polar bear." – Resident of Kangiqsualujjuaq*

While the method of hunting bears has changed over time, it appears that the role played by polar bear hunting in these seven communities has not. Polar bears and polar bear hunting were reported to have remained important even with the changes that have occurred in Inuit culture over the years. Respondents often reported abiding by traditional practices in terms of choosing which bear to hunt, and being selective about

what individuals were acceptable to harvest. There was strong consistency in what participants reported as being acceptable, in line with traditional practices:

A. Do not take cubs, or mothers with cubs.
B. Avoid juveniles, unless the primary focus of the hunt is for meat.
C. Regardless of other points if you truly need it, you can take it.

> *"My father used to tell me not to kill polar bear with cubs. … Because he used to tell me you'll see them again when they're grown, that's the time to kill." – Resident of Kangiqsualujjuaq*

> *"Because you're not allowed to get the cubs and you're not allowed to kill the mother with the cub. If they have a cub you're not allowed to hunt them." – Resident of Kangiqsualujjuaq*

> *"When I hunt, I try not to shoot the mother and cubs. … Because if you kill all the cubs there are no more polar bears after." – Resident of Kangiqsualujjuaq*

Sustenance, education, and maintaining cultural practices were, and continue to be, important benefits of polar bear hunting. Some participants noted that, through polar bear hunting, Inuit children and youth learn invaluable life lessons and traditional skills.

> *"Young Inuit, what they can learn, from what I learned, is to have patience. You need good patience to be a polar bear hunter because we're at the same time still hunting or beluga hunting sometimes in the winter time. Patience for me is important knowledge to have and for you to learn that, because a lot of people don't have patience. If they don't see it they move right away. They go home early, you know. Most patient people always catch something. It might be fish or it might be a polar bear." – Resident of Kangiqsujjuaq*

"You learn how to be alert from polar bear - if they're around their surroundings. If you're not you would be attacked by polar bears, so you have to… be alert." – Resident of Kangirsuk

"Yeah, one of the elders told me how to shoot a polar bear. I think young people should know not to shoot it anywhere, like to make sure that they shoot the heart or where the polar bear will die right away, like instantly. … I think that's one of the things they would learn. If they have any kind of rifle, small, large, to know where to shoot if they're being attacked or hunting. … There's one story of an old lady, was walking with her walking stick and the polar bear came and started attacking her. When the polar bear is on four legs and it's hard for the polar bear to turn on his right - harder. Left side it's very flexible but the right side it's kind of hard for him. So she knew that so she ran to the right of the polar bear. So they were going in a circle, and then she had her mittens. She put the mitten at the end of the stick and when the polar bear came with his mouth open, she shoved the stick with the mitten at the end into the mouth of the polar bear, put it in the throat and the mitten is stuck in the throat and the polar bear died." – Resident of Kangirsuk

Almost every aspect of polar bear hunting has reportedly changed in some way over the last 50-100 years. Two main drivers of change appear evident from participant interviews. One is climate change and the corresponding changes in sea ice conditions. Slower freeze-up in autumn, and earlier melting in spring have shortened hunting seasons, and led to unpredictable ice conditions. The second driver is the suite of changes in Nunavimmiut lifestyle. Changes in polar bear hunting have been influenced by the transition from a nomadic lifestyle to settled communities, the introduction of firearms, the snowmobile, and many other social and technological changes.

Some respondents spoke of increased polar bear harvesting as a consequence of a rise in the value of hides. While hides have been traded between Inuit and Europeans since at

least the 16th century, a valuation of the historic fur trade was beyond the scope of this project. The modern fur market fluctuates widely based on external factors and indeed market prices were quite high in the years preceding these interviews. For some participants, this economic value has surpassed food as the primary reason to hunt bears. Some older hunters reported limiting their hunting due to their concern that the influence of increased hide prices could lead to too many bears being taken.

5.2.2 Importance of Polar Bears and Polar Bear Hunting

The importance of polar bears to Nunavimmiut takes many forms. Much of the discussion regarding the importance of polar bears to Nunavimmiut focused on hunting, and the importance of these animals as a cultural and economic resource for Inuit. However, polar bears were also described as being far more valuable than solely for their material worth. While it may be impossible to do so completely, an effort was made to understand participants' overall thoughts on the importance of polar bears independently from aspects tied to hunting alone. Most interviewees talked in detail about the many ways in which polar bears are important to them, with some identifying importance in all three categories (cultural, ecological, economic) at some point during their interview (Table 6). Interestingly, four participants stated that polar bears had no personal importance for them. However, they may have misinterpreted this question since each went on, at some other point during the interview, to discuss ways in which polar bears were in fact important to them.

Table 6: Categorized participant responses to the question "Are polar bears important to you? How?"

	Cultural[1]	Ecological	Economic	Skills[2]	Other/ safety[2]	Not Important	Total
Aupaluk	1	0	1	1	3	2	3
Kangiqsualujjuaq	3	0	2	3	7	1	7
Kangiqsujjuaq	7	0	7	0	7	0	7
Kangirsuk	1	0	3	1	5	1	5
Kuujjuaq	1	1	4	1	4	0	4
Quaqtaq	3	0	4	1	8	0	8
Tasiujaq	2	1	4	3	6	0	6
Total	**18**	**2**	**25**	**10**	**40**	**4**	**40**

[1] 'Cultural' includes mental health, Inuit identity, traditional food

[2] 'Skills' and 'Other/safety' include responses that relate more specifically to the importance of polar bear hunting (as opposed to the importance of the animal itself), but nonetheless came up frequently when asked this question.

In several interviews (78%, n=40) participants specifically stated that hunting polar bears was important to them personally, while others (13%, n=40) stated that it was not important for them as an individual at that time. In 5% (n=40) of the interviews, participants did not comment on whether polar bear hunting was important to them personally or not. All of the interviews in which participants who said that polar bear hunting was not important to them personally, did mention that polar bear hunting is important to Nunavimmiut. In some cases, those that reported that polar bear hunting was not important for them were elders who no longer hunted or that polar bears were too much hard work once they had made the kill, and that they preferred smaller targets such as seal or caribou that were easier to manage.

> *"[It's] not necessarily [important to me to continue to harvest polar bears]. Not for me personally, because I killed a polar bear last December and I said, well, boy, this is a lot of work. It's a lot of work. … Every aspect of a polar bear is a lot of work. It's like when you try to remove the bones from the feet, it's a lot of work. … I guess for somebody who doesn't mind doing that, it's okay, but personally I decided I'm not going to kill any more polar bears just for the fact that it's a lot of work, unless I'm in danger. …Yes, of course [it is important for the people of*

Nunavik because] well, not everybody is working in an office, and they don't want to. We have very few animals that we can make a living off of, and the polar bear is one of them that we can live off of." – Resident of Quaqtaq

There was unanimity amongst all 76 participants (100%) that polar bear hunting is important for Nunavimmiut, despite the fact that this may not be the case for them personally (Figure 5). Most often, the importance of polar bear hunting was directly related to Inuit culture, the local economy, the environment, or a combination of these factors. Some respondents were not as specific with their reasoning, but such instances still give valuable insight.

"Oh yeah, yeah [it's important to me to be able to continue hunting polar bears]. … It's in my blood to hunt. I'm a hunter." – Resident of Kangiqsujuaq

"The feeling is a lot different, culturally…. If a man kills a beluga, it's completely different than killing the polar bear. Culturally, we find it very important because it brings out the great identity of Inuit. And it's a great feeling to kill a polar bear. It's a lot different than trying to kill other animals. But this one is a lot - gives you pride. … it's a very scary animal. So by killing it, it brings you joy. … By killing other animals it's, like, regular… but the polar bear, it's because it's so huge and everybody respects that animal. And if you kill the polar bear it gives you pride and makes you want to do more and that - you know you're going to provide and you're going to make clothing out of it and you're going to - you can make money out of it too. The income will be a little bit more secure by killing - getting the hide. … And if I kill a polar bear, if hunter find out they're going to call me, 'Wow, congratulations, you hunt the polar bear. Wow, I want it too.' "– Resident of Kangiqsujuaq

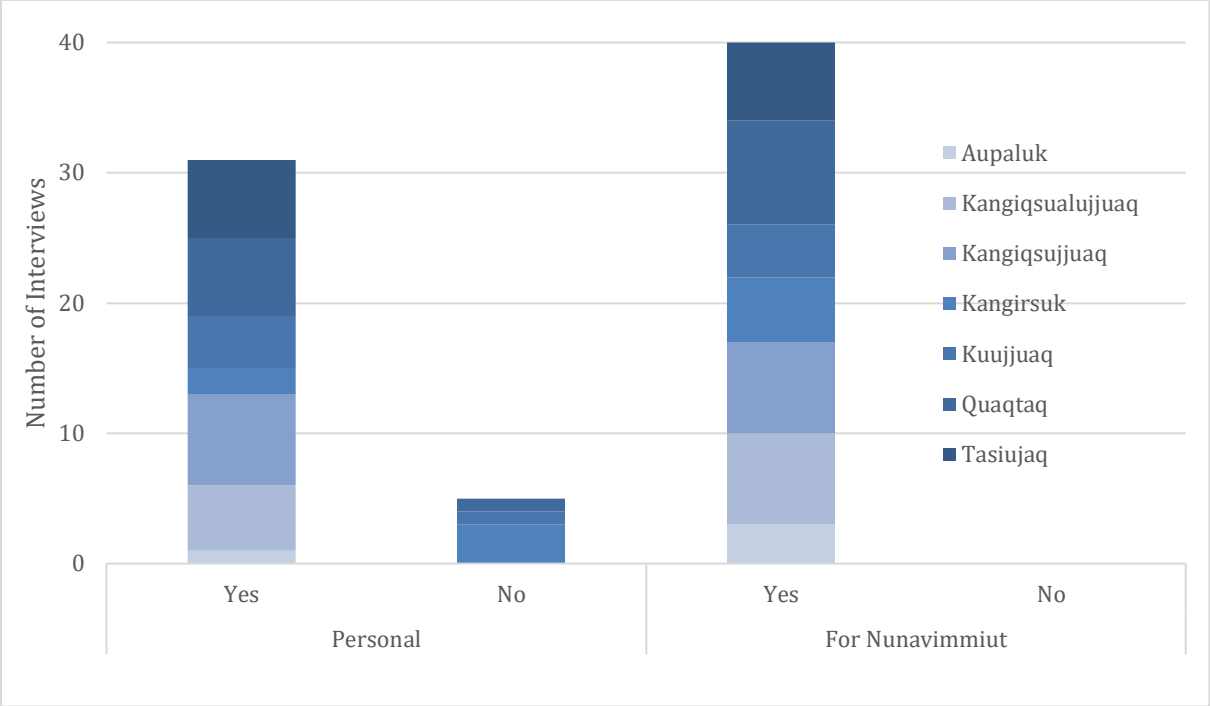

Figure 5: The number of interviews (n=40) in which participants spoke about the importance of hunting polar bears for themselves, and for Nunavimmiut in general.

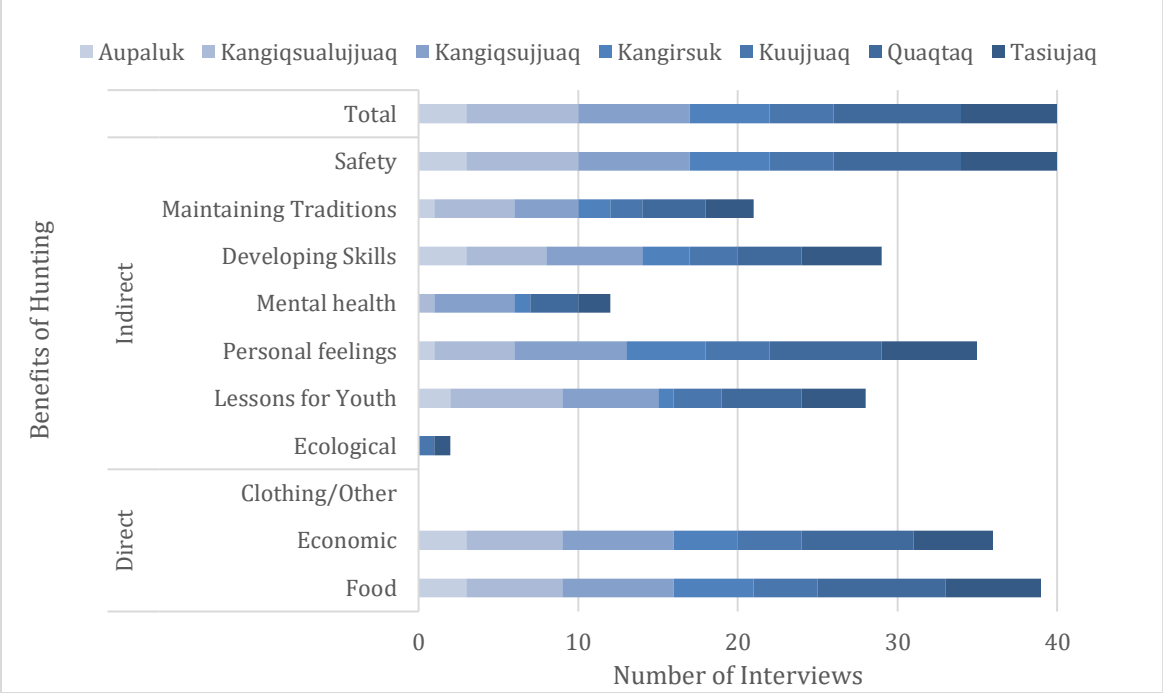

Figure 6: The number of interviews (n=40) in which participants spoke about the various benefits of hunting polar bears.

Polar bear hunting evidently brings a multitude of benefits to Nunavik Inuit and their communities. Every interview recognized the value of polar bear as a food item while its economic value, lessons for youth, and individual/intrinsic value (pride, confidence, identity, health) were talked about in most interviews (Figure 6). Many respondents talked about the multi-faceted importance of polar bear hunting.

> *"Yeah, when I got a polar bear I shared with people…cause the food, there's a lot of people eat polar bear meat but some of them don't even want to get polar bear meat but there's more people wants to eat more meat. And you can use the skin for clothing, you can use the skin and sell it to the market or it's really useful. As long as it's not a very, very big polar bear it's good meat. … Before, a long time ago, we used to use it as clothing or a mattress but today we mostly sell it to the market." – Resident of Kangiqsualujjuaq*

> *"I know that people do art with the skin. They do all kinds of things, but I'm not really into that. At the time I was polar bear hunting I was mostly doing it for economic reasons and subsistence reasons and food, family, and all those reasons. I wasn't doing it for anything else – and the thrill of it. I mean once you start out at age 11 you get hooked." – Resident of Kuujjuaq*

All interviews mentioned access to food as an important aspect of polar bear for Nunavimmiut. Polar bear meat is consumed in all communities, though not by everyone, and is almost always eaten cooked. It is not a frequent or consistent part of the diet and preference for it varies between individuals.

> *"… [polar bear meat] is very good. …Once in a while, not all the time." – Resident of Tasiujaq*

> *"Yeah, [polar bear meat is] very good. Nowadays, Mary doesn't really eat it but Jesse likes. …[People bring polar bear meat to town] only if somebody kills one, they get a little bit of meat. … They have a huge meat they share." – Resident of Aupaluk*

Most participants stated that they will not eat polar bear meat if it is clear that the bear has been tranquilized. Any bears that have ear tags, lip tattoos, or a telemetry collar are generally not eaten. Particularly in Aupaluk, Kangirsuk and Quaqtaq, participants described how they avoid eating meat from bears that have been previously tranquilized.

> *"… some people eat the meat, when it doesn't have an earring [ear tag]. …When it hasn't been tranquilized." – Resident of Kangirsuk*

> *"We used to hunt it more for food. But less and less because the bears have been tranquilized. And sometimes they're not as fat as a result." – Resident of Quaqtaq*

Due to the large quantity of meat, a polar bear is frequently brought back to the community to be shared after a hunt. Announcements are often made over the FM and community members are invited to come and take part.

> *"Yes, we have to, we have to [take the meat when we kill a polar bear]. …We have to bring the meat to the community, when we kill the sea mammals or mammals. … So we bring the meat here. That's the law." – Resident of Kangiqsujuaq*

In evaluating the overall importance of polar bear hunting to Nunavimmiut, it is important to recall that although responses have been categorized within this report and, while broad patterns can be extracted from this data, the reality remains that the perceived importance of polar bears to Nunavimmiut is as varied and unique as individual respondents. Every individual expressed their own unique value and relationship with polar bears and polar bear hunting.

5.2.2.1 Cultural importance

Polar bears are important to Inuit culture in many ways. Often the importance to culture is linked to other forms of value for Nunavimmiut including as food, for learning skills, and as an economic commodity. Polar bears have also played a role in shaping Inuit culture

through necessary lifestyle adaptations associated with bear safety. When asked how polar bear hunting makes them feel, many indicated that they associated an important personal intrinsic value to hunting polar bears. They spoke of the many unquantifiable things gained from polar bear hunting, including respect from others, learning of survival skills, life skills, a feeling of fulfillment (especially from sharing the meat), and a feeling of pride or accomplishment.

> *"Well, as you would feel yourself, once you kill a top predator you would feel some kind of proudness in you for sure, thinking not a lot of people, you know, not a lot of people kill polar bear, and once you've done it, you feel a sense of proudness in yourself. Killing a potential predator to your family, a potential dangerous animal to your community, you get some sense of accomplishment by thinking that you somehow increased the level of safety because you killed a polar bear that for sure would not go to the community, but knowing there's a chance that polar bear would still go to the community and make a horrific attack, and since you put the population lower, you contributed a little bit to the community by killing a top predator" - Resident of Kangiqsujuaq*

> *"It's a very special feeling, because you're going to sell the bearskin and also you're going to share the meat with other people, that's a real good feeling when you get a polar bear." – Resident of Kangiqsualujjuaq*

Most interviews indicated that young Inuit learn many things from hunting polar bears. The danger of the animal itself, as well as the skill required to hunt it means it is an effective and disciplined way to learn important land skills.

> *"There's a lot [young Inuit could learn from hunting polar bears]. Once you start polar bear hunting you learn about the ice, the ice conditions, currents, anything to do with the ocean. It's very important. Not just because polar bear, but other species also – where they are, what they do in those areas, what you can find in*

those areas. It's a whole list of things. Seals, bearded seals, beluga, it's all there. So you get that knowledge, so it's very important." – Resident of Kuujjuaq

"Well I think [young people] will learn a good way to respect animals, because they will learn that they can be outsmarted by a polar bear. And not to disrespect the animals. They will get good respect towards the environment and also the polar bears because if you get to try and understand polar bears, like, try to hunt them, you study them, you try and understand them the way they are and how they live, and how they react, and I think the young people, if they hunt polar bears, get a good sense of respect towards the environment. More so than the people who do not hunt polar bears that assume environment is like that according to someone else's perspective. But when they hunt polar bear themselves, they will get their own sense of respect to the environment, and polar bears in general if they do hunt them. Because if they don't hunt polar bears, they don't study polar bears, they don't try and understand polar bears, so therefore, a non-hunter polar bear would have less respect to the polar bears' space and the way they react to the human environment, compared to a person who hunts polar bears, who studies polar bears and tries and understand the polar bears' space, and therefore gives more respect to the polar bear." –Resident of Kangiqsujuaq

In the past, participants reported using hides for a variety of things including outerwear (especially pants and mitts), blankets or matts, and coverings for dogsleds. Some participants said they followed the tradition of giving their first polar bear hide to their *Sanajik* (a dresser, or godparent figure).

"It was a great feeling because I didn't kill it for nothing. The meat was used for eating and the other skin was used to be with my sanajik." –Resident of Aupaluk

"When people make clothing out of it, they're very warm. … Most of them they make snow pants out of it and mitts. They wish they have snow pants and coat out of nanuk skin." – Resident of Aupaluk

Many participants indicated the use of skins has shifted more towards its use for its economic value, although traditional uses, such as clothing and mitts, are still important.

"Before, a long time ago, we used to use it as clothing or a mattress but today we mostly sell it to the market." – Resident of Kangiqsualujjuaq

"Long time ago we didn't have anything – like houses. When we were still in the igloo we used the polar bear skin long time, like they can be useful for anything – clothing or mattress and they can be food to share. That was important to us. The skin can be used as snow pants because we didn't have anything much for clothing. The polar bear skin can be snow pants too long time ago, but we didn't use it for a parka. Yeah, it's important for us still [today]." – Resident of Kangirsuk

The economic value of a polar bear or its hide is still important in Nunavimmiut culture and society. While there has been a transition with colonialism to living in settled communities, and some associated loss of aspects of a traditional nomadic Inuit lifestyle, many traditional practices are maintained. Individuals that perform these activities carry the means by which intergenerational knowledge can be passed forward, and culture can be maintained.

"Yeah, see for me, it's our way of life. I was born and raised like that and I think it's very important. Again, it brings to my table, to my family, food. That's most important for me. Instead of buying chicken or pork chop I get to eat my country food such as beluga, polar bear, seals. I'm very proud when I bring those to my kitchen table to feed my family and family members. It is most important for us as Inuit." - Resident of Kangiqsujuaq

However, even those still living a more traditional lifestyle have economic needs. The economic value of polar bear hides has provided an important opportunity for individuals to meet their economic needs while carrying on traditions and cultural practices.

> *"Well since time immemorial the polar bear has been part of Inuit life too. There in the earlier days of course, the hunters had to hunt for food, polar bear was one that they had to hunt for food; and of course in addition to food, for clothing and for income matters, to add to their income to help out the family, to make some money, to help in recovering the cost of their hunt." – Resident of Kuujjuaq*

One of the strongest indications of importance of polar bears to Nunavimmiut can be seen in how participants talked about hunting their first polar bear. Many participants described their first polar bear as a coming of age experience, and a way of becoming a respected hunter.

> *"Well, it was something to be proud of. My father was still alive and I was proud to show him that I got a bear." – Resident of Quaqtaq*

> *"The first kill I remember well, back in 1966 when I was sixteen years old. I was really happy, it was the first one I - a kill. My dad told me- I can remember when my dad told me, this is only the starting of your hunting polar bear, you know, there will be more to come. I was really proud of that- I was really proud to be starting to be a hunter at that time." – Resident of Kangiqsualujjuaq*

5.2.2.2 Ecological Importance

In a few (n=3) interviews the roll of polar bears in maintaining a healthy ecosystem was mentioned. Polar bears were credited with controlling seal populations.

> *"Well, polar bears, I think, are very important to maintain the population of the seals and walrus around here, because they would generally feed on more sick animals or less healthy animals. They'll hunt healthy animals for sure, but they*

have a lot bigger chance of getting a kill when the animal is kind of, like, sick. So I think that's important." –Resident of Kangiqsujjuaq

Polar bears were also identified as being important scavengers, cleaning up carcasses of whales that wash ashore.

"One time I've seen one in [an inlet], a beached bowhead, which was very, very old and rotten. I've seen two polar bears eating from that beached up whale, which was very, very old … Very smelly." – Resident of Kangiqsualujjuaq

"The three I got, they were eating the bowhead, whale, an old bowhead. … A carcass, yeah, carcass." – Resident of Kangiqsujuaq

5.2.2.3 Economic importance

"There's not a lot of jobs available and it [hunting polar bears] has a lot of benefits and you get to learn how to hunt and you get paid for it when you sell it." – Resident of Aupaluk

The economic importance of polar bears primarily comes from selling the hide. While the economic value of polar bears extends beyond that of the income gained from selling hides, most participants did not speak about this. Sport hunting and eco-tourism provide alternative economic opportunities related to polar bears in other regions, but this is not the case in Nunavik at present. Sport hunting of polar bears is not currently allowed in Nunavik, though some participants expressed interest in developing an industry. It is difficult for individuals to maintain hunting as a form of livelihood and survive economically and the economic value of a polar bear skin can help hunters financially and provide the income they need to continue hunting.

"…today for myself in my own personal opinion, it's important for me, because I don't have income. The only income I get is from the polar bear skin and then to get a missing outboard motor or a skidoo. But right now, as for myself, I don't

use them for wind pants no more, but for getting some snow mobile or outboard motor canoe and things like that." – Resident of Kangiqsualujjuaq

"Right now in the 2000s, we notice now that we can sell the polar bear skin. There's a market here, and it's useful for buying food or buying some materials for hunting or for a skidoo. It's useful when you're selling the polar bear skin." – Resident of Kangiqsualujjuaq

"Like, for trappers, they trap for fox and they hunt wolves just for their pelts and fur and polar bears help…like it's more money, more expensive to sell. Like a hunter, if he killed three, he can purchase a skidoo, which is now thirteen thousand, fifteen thousand [dollars]. They're expensive now. So it helps a hunter to purchase a machine." – Resident of Kangiqsualujjuaq

The economy around polar bear skins is dynamic, and prices are market driven. Many participants spoke about the wide range of prices for polar bear hides, ranging from approximately $500 per pelt to more than $1,000 a foot (upwards of $11,000 for a large bear). In many of the communities, the hunter support program has helped to make sure that hunters are paid a fair price for their polar bear skins. However, in communities where hunter support is not involved in that process, hunters report still facing the possibility of being significantly under-paid for the value of their polar bear skins.

5.2.3 Human Interactions and Conflicts with Polar Bears

For Nunavimmiut, polar bears are a part of everyday life often posing safety issues for communities. While Nunavimmiut who do not go out on the land very often may never see a bear, those that do spend significant time on the land hunting, camping or gathering bird eggs/down, are constantly aware of possible bear encounters. Most interviews indicated that polar bear sightings and/or encounters have increased significantly during their lifetime. One Aupaluk participant described the increase in polar bear encounters, and the community adaptations related to these encounters.

"But I've seen a lot of camps closed for the whole summer. There's a lot of polar bears and the camps along the shoreline are not safe anymore these days. We used to build cabins all over the shoreline. Today we don't even spend the night anymore and our cabins are rotting down and we're not teaching our young ones to spend this beautiful time out there – part of it because of the polar bears." – Resident of Aupaluk

The above quote also describes the destruction of property and cabins that has become a frequent occurrence, and was reported by participants from all seven communities. Some participants have lost count of the number of times they have rebuilt their hunting cabins. Camps and cabins are increasingly difficult to maintain, and many respondents said that the occurrence of property destruction has occurred in association with increased polar bear sightings and encounters.

"Yeah. Summertime the ice is gone earlier and they go where they never been before like breaking into cabins, because the ice is gone. They're hungry and they never broke into cabins before but they are doing it because they're hungry and they're not scared of anything." - Resident of Kangirsuk

The increased frequency of encounters with polar bears in some areas has even caused some participants to avoid using their cabins or going camping out of concern for their safety.

"Two, three years ago around…around Quaqtaq island, okay Quaqtaq around here almost…we see lots over here. That time very happy, no polar bear, very fun, lots of seal, no polar bear and then one day, summer bears start coming. Maybe same time ice going away too fast, bears start coming. We catch one, next day my father in law, because we were camping together, he has a cabin there and he catch one. The following morning, then the third morning he catch another. We're camping over there with the family for fishing, seal, it's a good hunting spot. For quite a long time, no bears, nice every summer. The ice used to be

around here and lots of ice, open water a little bit, little bit ice and then when the ice started moving out, no more ice, the bears start coming to the land and we stopped going there after a while. Very tiring, we cannot sleep, don't feel welcome. We don't want to shoot a bear for nothing so we moved somewhere else." – Resident of Kuujjuaq

Occasionally polar bears also enter communities. This is a serious concern for many people who fear for children's safety. Most did not report a noticeable increase in bears coming into the community. However, there are speculations that this could begin to happen, based on increased sightings outside the communities and reports from other communities in Nunavik that more frequently deal with bears in the community.

"Yes yeah, [polar bears are] ... passing by more often each year. … I think [it's because] they always smell garbage." – Resident of Kangiqsujuaq

Incidents involving loss of human life or injury are rare thus far, but the threat remains prominent in the minds of participants.

"Yeah, yeah [more bears are coming into the community than before]. … Yeah, there's been close calls being attacked by a polar bear. … Outside, like in the camp. But never happened in town. When somebody see a polar bear near town everybody has to be notified right away so nobody ever got [hurt]. But it happened outside town in the camp." – Resident of Kangiqsualujjuaq

Many participants believe that the only reason bear encounters have not caused more damage or personal injury, is due to the diligence of hunters. Bears know that humans are dangerous and therefore, for the most part, avoid communities, and populations are kept to a manageable size.

"Yes, [polar bear hunting] does [help keep people safe]. Yes, the hunters help to keep the polar bears away." – Resident of Quaqtaq

5.3 Abundance

In all seven communities, changes were reported in polar bear abundance (Table 7). Some changes are unique to a community, although overall trends exist. Participants in all seven communities generally felt that the number of bears is healthy and among the highest numbers they have seen in their lifetime. Many participants were very concerned about national and international perspectives from outside Nunavik that polar bears are endangered everywhere. Most participants strongly disagreed with this perspective.

> *"Yes, [polar bears are] important for me and people think that they're going to be extinct, but I don't think so." – Resident of Quaqtaq*

> *"I think they really have to do more studies on the polar bear before they can start setting any quotas, eh? Scientists say they're going to become extinct, but when you talk to local people or listen to stories, it's completely opposite." – Resident of Kuujjuaq*

All interviews conducted in the DS communities shared the view that the population grew somewhat from the 1960s until the 1980s, and that a continued increase has been especially marked since that time. Historically, and prior to the 1960s, participants said very few bears were ever observed.

> *"There's – the elders, they were telling the stories there weren't much polar bears in the past. Right now there's lots." – Resident of Quaqtaq*

Participants described that the ecosystem is complex, and any changes in polar bear abundance is linked to more than just hunting by humans. Participants also noted that the abundance of all animals changed from year to year.

> *"It depends on what they always say: sometimes there was lots of polar bears, sometimes very few, sometimes a lot, sometimes very few; it depends on the fish or it depends on the small animals they eat, right. … Like if there's a lot of seal, then there's a lot of polar bear, but in order to have lots of seal, we need a lot of*

fish, and to get a lot of fish, we need a lot of mosquitoes, go down the food chain. Sometimes the food chain is plentiful, then there are a lot of animals, sometimes not too many small animals, very few small animals. Right now it's full of foxes – a lot – so there's maybe lots of lemmings, right, so if there's a small lemming population, there's small fox, so the polar bear depends on how many seals there are, right." – Resident of Quaqtaq

"I mean we're not going to be getting 100 or we're not going to be getting 50, maybe not even 20 in a year. Maybe five or six people will go polar bear hunting. Unless a polar bear comes to our cabin and tries to do something, we'll kill it. We'll kill it for sure. But there's not much danger in what we're doing at the moment so there's [not much] danger for depletion of the polar bear population. I know that they do get up to Kangiqsujuaq. But it's the tip of the iceberg, I believe. Like I said, there seems to be a lot more polar bears than there was before. I don't know if it's a cycle. The science hasn't told me that – that it is a cycle. But traditional knowledge has told me that – that there is a cycle in each species. Polar bear is just one of them." – Resident of Kuujjuaq

The timing of the observations of an increase in polar bears varied by participant and community, although broad trends were evident (Table 7). Validation workshops confirmed that 1990 was an appropriate date to be considered as a division between 'historic' and 'current' time periods used in the analysis and reporting of results. The year 1990 was chosen, as many participants identified the 1990s as a time period when an increased abundance of bears became evident.

Table 7: Decade in which participants first noticed an increasing trend in polar bear abundance. Open circles identify communities in which at least 1 but less than half of interviews in a community reported an increase in polar bears in that decade. Solid circles identify communities in which at least half of the interviews identified an increasing trend in abundance in that decade.

	1950s	1960s	1970s	1980s	1990s	2000s	2010s
Aupaluk				●	●	○	
Kangiqsualujjuaq			●	○			
Kangiqsujjuaq			○		○		
Kangirsuk			○	○	○		
Kuujjuaq					●	○	
Quaqtaq					○	○	
Tasiujaq*				○	●	●	

*Tasiujaq participants identified early 2000s during interviews, but reported most increases began in the 1990s during validation meetings.

Occasionally participants reported that they had not observed any changes in numbers, or even had seen a decrease in polar bear numbers.

> *"I can say about this area here, where I run a camp for youth; it's been about 10 years now since I can say that - over 10 years ago there used to be a lot of polar bears coming in to this particular area. And they - this was during summertime and there's a lot of the children there and they have dogs there. And there used to be a few of them going here at the same time. But today I've noticed that there's not as many polar bears coming in. Because of the ice that used to come in here tends to go down here now. Back then when the ice would come this way there would be a lot of polar bears coming onto this island where there would be a lot of them. But nowadays with not much ice left, I've noticed last year I went by boat and saw only one polar bear here. When the ice would be down here during the summer time there would be a lot of polar bears starting to swim to the shoreline here, to this area. And there used to be a lot of them. Nowadays I think maybe because of the ice, less ice, I think the seals also, and the polar bears,*

I think they're going north. And they're not as many nowadays…I would see a lot of polar bears but the prints can be seen now and then. There's not as many nowadays." –Resident of Kangirsuk

In Kuujjuaq there was a reported increase in encounters with polar bears in the 1990s and 2000s while travelling or camping on the land. One participant remarked that there were almost no bears at all at one point in the area.

"Anybody you talk to 20 – 30 years ago, you never saw a bear. Myself, growing up, I never seen a polar bear until I became almost an adult. When we were out on the islands and traveling by boat and canoe, if you'd hear of someone, 'Oh, we saw a polar bear,' but that was rare, eh? … Now if you don't see one you're one of the lucky ones. … And a lot of young animals, like I was saying, that are coming out from the high arctic and they've never seen a human in their life. The older bears, they, like I said, they avoid human contact now. They head right back out to sea as soon as they see us. The young ones, they'll come back ashore instead." – Resident of Kuujjuaq

Tasiujaq was the community to have most recently reported an increase in polar bears, where bears have only been consistently seen in recent years.

"But there was not a lot of polar bears in the past. … Nowadays there's a lot more. …it's been the past six, seven years that we start to see them all the time." – Resident of Tasiujaq

Aupaluk and Quaqtaq have the highest reported harvest of polar bears among the seven DS communities. For some participants, the change over their lifetime has been from seeing almost no bears, to seeing a large number today. In general, participants from the Davis Strait region have been observing more bears since the 1990s, with small variations in timing depending on the community. Some participants attribute this to changes in the environment that have made ice less stable.

"Yeah, there's a lot of change because we have more polar bears than we used to have before. … It's the global warming because we don't have no more ice in the ocean. They are more inland now than being in the ocean." – Resident of Kangiqsualujjuaq

Nunavimmiut stated that the number of polar bears observed fluctuates annually, largely in response to environmental conditions. For example, in years when there are large areas of open water near communities, more bears are observed. Inuit have stressed that these fluctuations are a natural aspect of polar bear demography and movement. Similarly, it was reported that environmental conditions (e.g. years with large expanses of rough ice) can impact the ability of hunters to reach the floe edge where they would normally harvest bears.

5.4 Distribution

Distribution of polar bears is important to examine at different scales, in combination with abundance, to better understand population dynamics. In some cases, changes in local abundance can simply be the result of a change in regional distribution. Many participants spoke of this relationship for many large animals.

"Right now there are not too many polar bears around this area, because right now they're in Nunavut – they're visiting Nunavut. They're the ones who are complaining right now." – Resident of Quaqtaq

As regional distribution changes over long periods of time, these observations are often intergenerational. Many participants spoke of being taught about this by elders.

Many participants had a great deal of knowledge to share regarding annual movement patters and migration routes of polar bears. While most participants could only give specifics at the local scale, the culmination of the local knowledge from the seven communities compliments each other to provide regional insight (Figure 7a, b).

Participants spoke of a common pattern of bears in spring following the ocean current on ice platforms, hunting seals as they go, moving generally east towards the Atlantic Ocean. After some time on the ice, bears would then move in the opposite direction on land, and repeat. The scale of this movement pattern varied considerably, sometimes a cycle would last only a day or less, but many participants indicated polar bears would ride the ice great distances, and then walk equally great distances across land. Common routes mentioned by participants included bears following the ice along the Ungava Bay Coast and around to the Labrador coast, and then walking back the Ungava Bay. Participants also said that some bears would follow the ice from Hudson Bay, along the Hudson Strait into Ungava Bay, and then walk across most of Nunavik, from Ungava Bay to mid-Northern Hudson Bay.

Locally and regionally, some participants spoke of changes in polar bear movement and distribution as a result of bears relocating to areas where seals are more plentiful. This search for food also affects the seasonal distribution of polar bears (Figure 8).

> *"It has been always like this, when the polar bears are starting to migrate we notice that there are more animals where they're going, and we can see some tracks going there. Polar bears can go anywhere where they can do hunting, when there's no more seals around here they could move to another area, like to another territory. … Like the Inuit used to be, they used to camp in this area and when there was less animals they had to look for where there was more animals. It's the same thing with polar bears, they would look for a place where there are more animals." –Resident of Kangiqsualujjuaq*

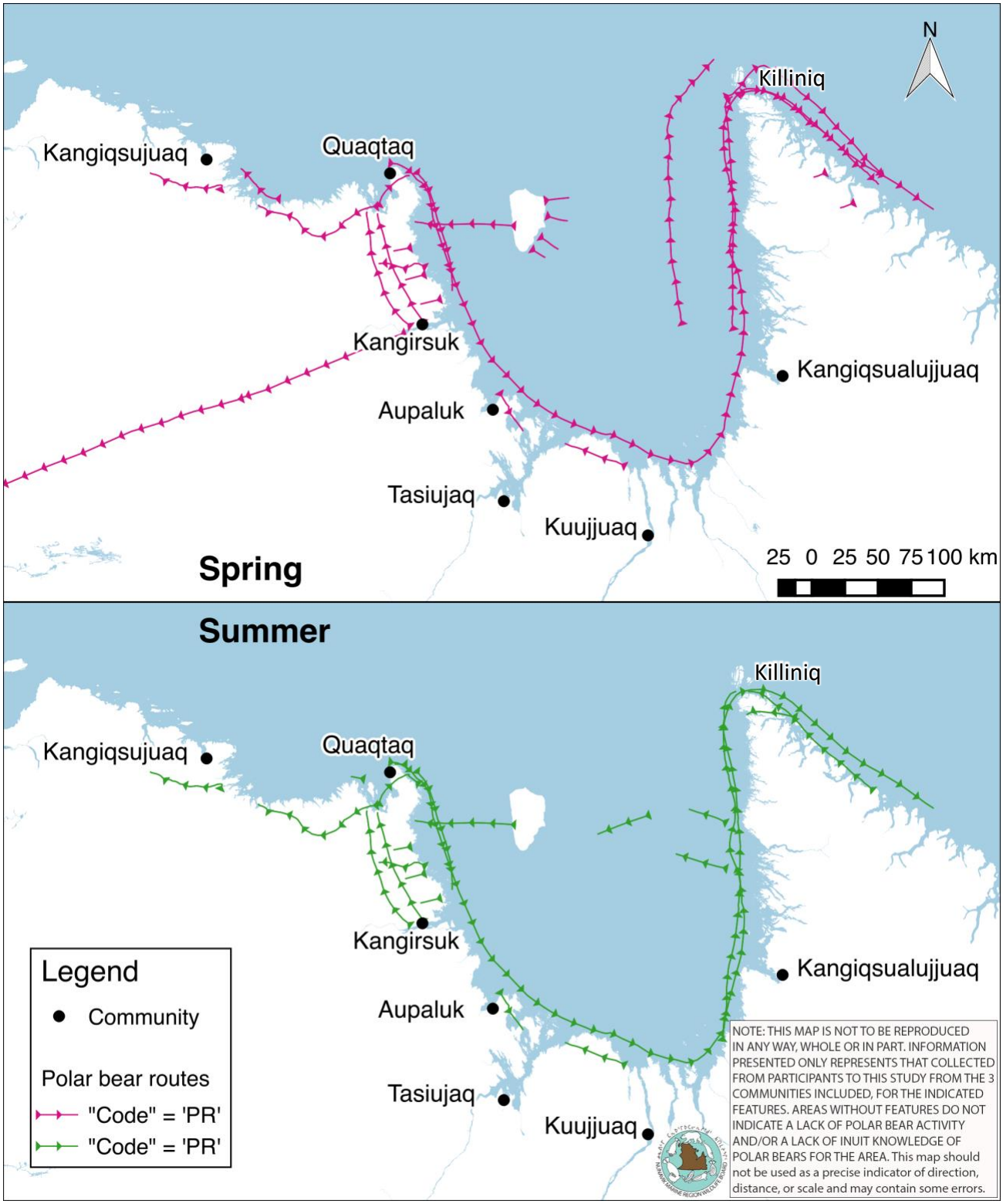

Figure 7a: Seasonal polar bear travel routes (spring and summer).

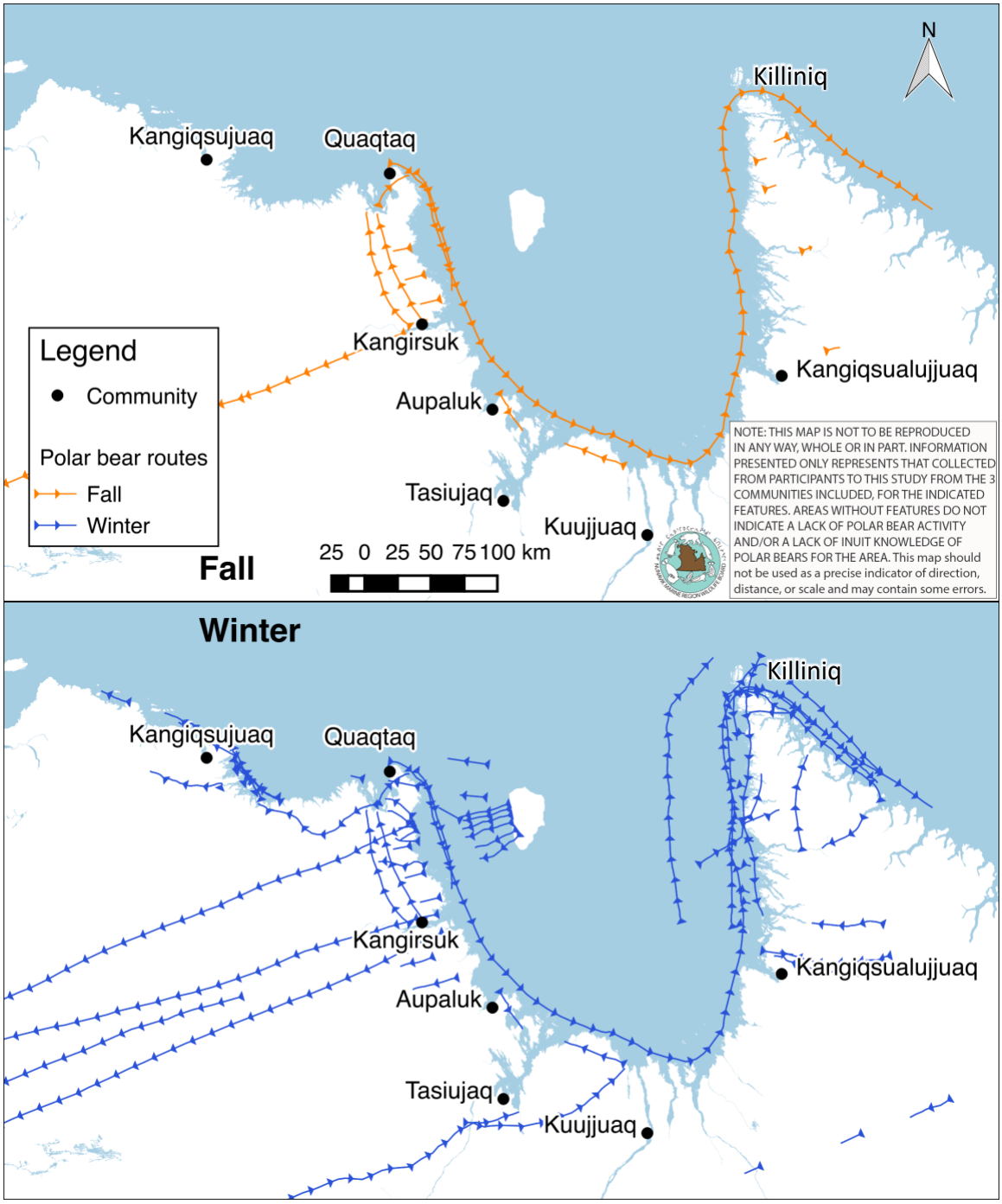

Figure 7b: Seasonal polar bear travel routes (fall and winter). Data without a specified season is included in each seasonal map.

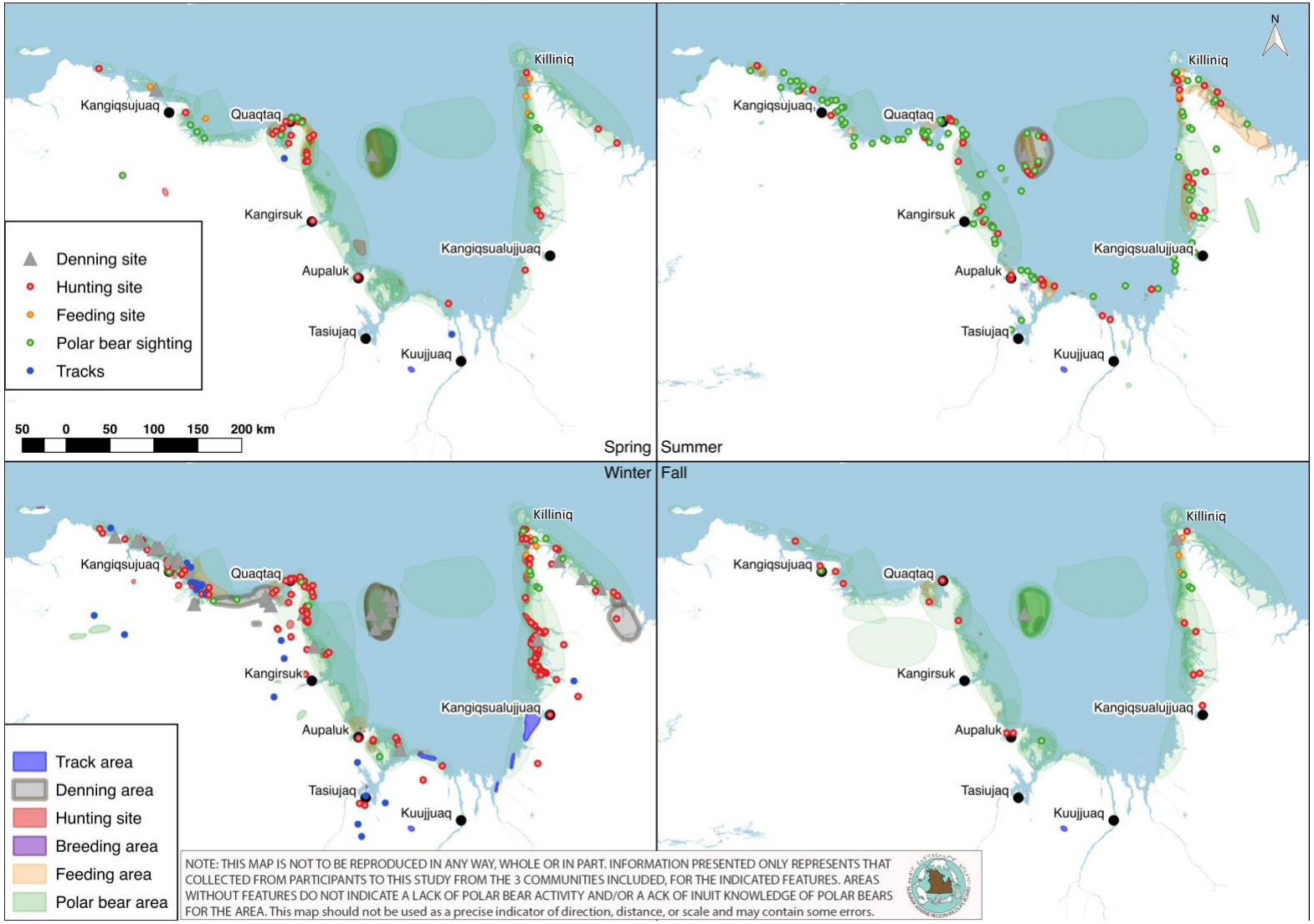

Figure 8: Seasonal distribution of polar bears. Data without a specified season are included in each seasonal map.

Others described how environmental changes are impacting sea ice formation and how break up is affecting polar bear movement and distribution on a seasonal basis (Figures 7a,b and 8) and over time (Figure 9a,b).

> *"…the population has decreased because the ice is further away now. There's less ice. Back then there used to be [ice] closer to our area around here. And when there used to be a lot of ice here there were more polar bear near this area and they sometimes would start travelling to the other coast and this is talking way into the past about what I've heard." – Resident of Kangirsuk*

Some participants suggested that polar bears are simply shifting food sources as seals become more difficult to locate. This may draw polar bears to explore new areas they wouldn't otherwise occupy.

> *"It may be that their food source is diminishing, and it seems also because of that they are looking for alternate sources of food and they are going to other areas that normally they would not go or other areas to look for food. … It may also be that they are venturing into new areas, to forested areas whereas polar bears are known to be more out in the sea ice traditionally. They may be finding new areas, yes. … my communication with my fellow hunters tells me [that this could be because of changes in the sea ice], that yes due to the ice, changes in the climate certainly, although I cannot say, yes they are [moving]. …what I hear tells me that [polar bears] may be doing just that, looking for alternate ways to get food." – Resident of Kuujjuaq*

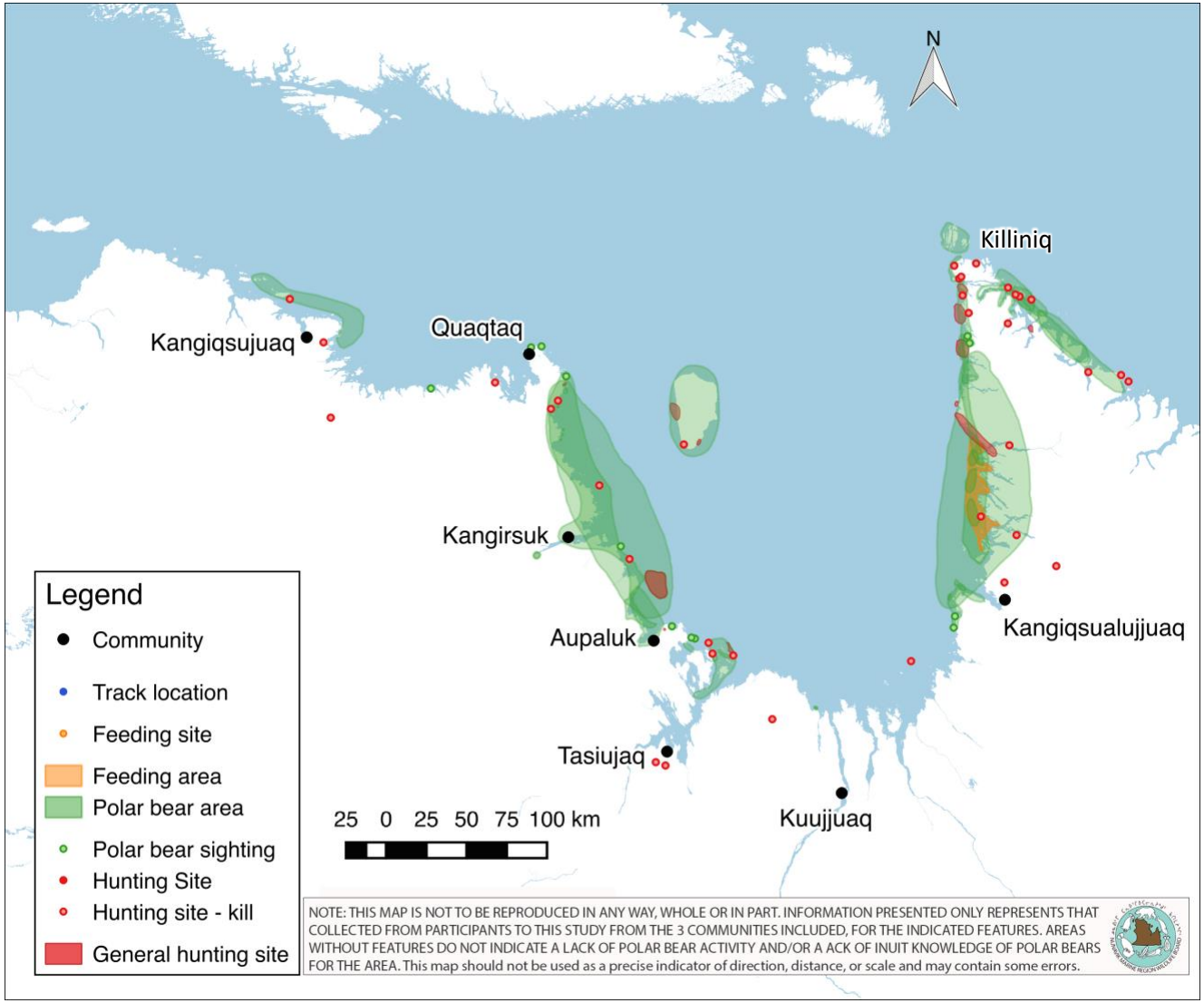

Figure 9a: Map showing features that reflect the distribution of polar bears of the Davis Strait sub-population pre-1990.

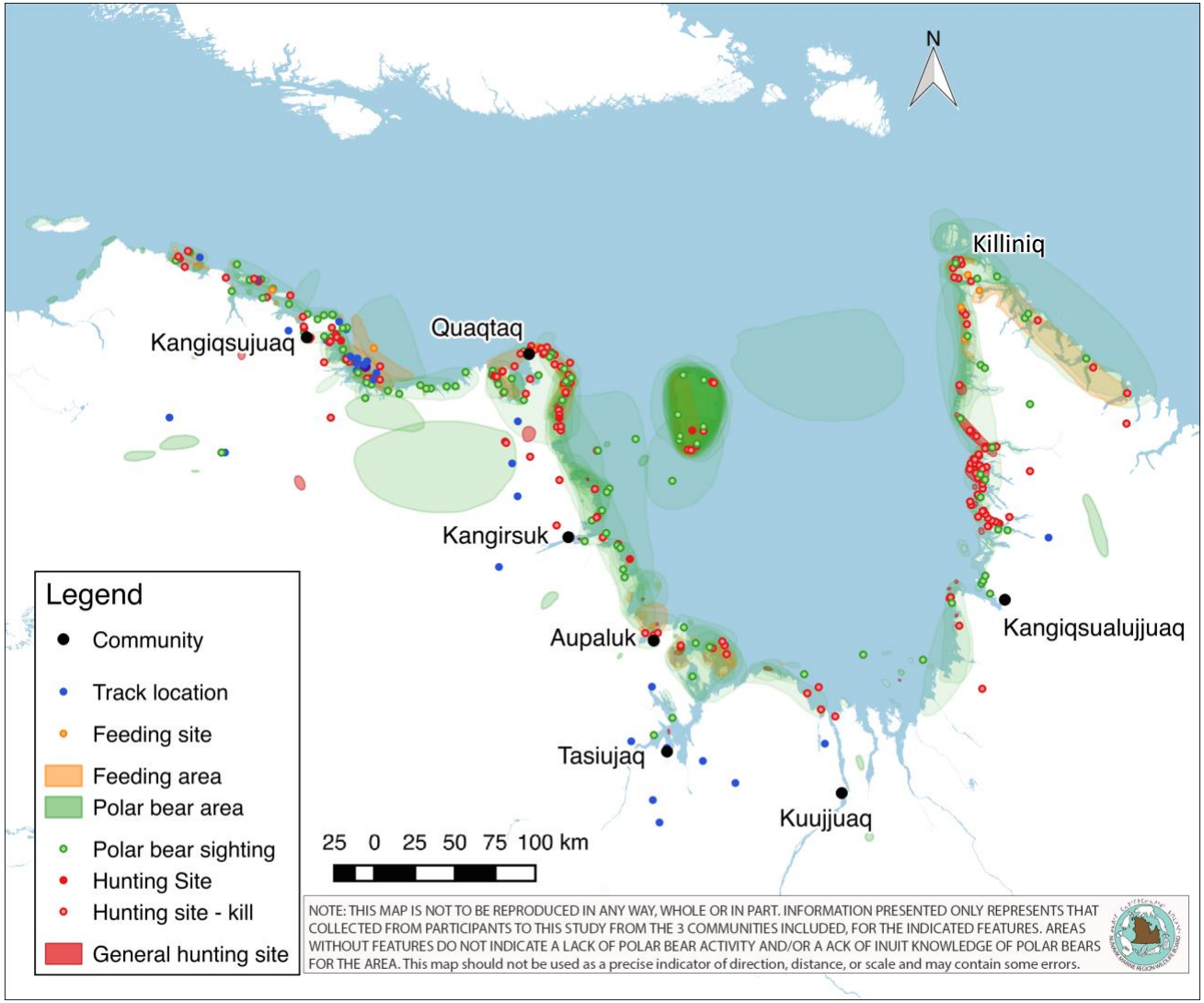

Figure 9b: Map showing features that reflect the distribution of polar bears of the Davis Strait sub-population since 1990.

Table 8 illustrates the number of mapped features (sightings, kills, general use areas, and feeding areas) drawn by participants per decade. This provides an approximation of the distribution of polar bears and Inuit observations pre and post 1990. In the rare case that a feature was not given any indication of time period, it was not included in table 8. An increasing number of features reported each decade after the 1980s may be indicative of increases in polar bears frequenting areas that Inuit regularly visit and used during the same time.

Table 8: Number of mapped features (polar bear sightings, kill sites, general use areas, and feeding areas) identified as historic (pre-1990) or current (1990-present) during validation. 'Total historic' and 'Total current' categories include all features identified during validation as existing before or after 1990, respectively.

	Historic					**Current**			
	1950s	1960s	1970s	1980s	**Total Historic**	1990s	2000s	2010s	**Total Current**
Aupaluk		5	1	8	**17**	8	23	2	**61**
Kangiqsujuaq		1		2	**4**	6	7		**241**
Kangiqsulujjuaq		16	11	32	**55**	24	11	21	**177**
Kangirsuk		1	2	9	**13**	6	14	15	**81**
Kuujjuaq			14	21	**23**	13	18	6	**59**
Quaqtaq		1	2	2	**4**	1	1		**139**
Tasiujaq	1		3	5	**11**	5	8	3	**72**
Grand Total	**1**	**24**	**33**	**79**	**127**	**63**	**82**	**47**	**830**

5.5 Habitat

Many characteristics of polar bear habitat were identified during interviews. Figure 10 provides a visual representation of the most common characteristics mentioned.

Figure 10: Word cloud indicating the 100 most common words mentioned by participants when speaking about polar bear habitat. Word size indicates the relative frequency of word use in interview transcripts, with more commonly used words appearing larger. Red words are those participants identified as required habitat features.

Sea ice, including characteristics related to quality, were identified by participants as very important aspects of polar bear habitat, particularly in influencing access to seals. Participants spoke of bears needing the same things Inuit need when hunting seals: a stable ice platform from which to approach the floe edge and open water. Bears show a preference for areas where conditions match these characteristics, often around islands and points of land where the current affects ice formation. Some participants noted that local dumps are becoming a type of habitat for bears, however most indicated less disturbed areas away from humans as prime polar bear habitat.

"Well, because polar bear diet just doesn't necessarily consist of sea mammals, I think polar bear habitat would be where there's lots of islands so they have a secondary food source, like ducks or duck eggs, or where there are beluga, or where there are polynya. Where there's islands, like these eider islands over here, you know, where there have lots of islands, because seals tend to make pups on the low tide area, and polar bears hunt in those areas, so they'd be more around the land-fast ice island areas. You would have less chance of seeing polar bears where there's less islands. I don't know why, because you will see a lot more polar bears where there's more islands." – Resident of Kangiqsujuaq

5.6 Polar bear biology

5.6.1 Feeding

The most important hunting seasons for polar bears are winter and spring when they can catch seals along the floe edge. Participants indicated that polar bears become very fat and look very healthy during this time. In nearly all interviews, seals were identified as the primary prey of polar bears. Ringed seals and the larger bearded seal were both said to be the preferred prey species of polar bears.

"I always cut it open, just to make sure that they don't have something in the stomach which is unusual. So I've noticed- like we told you what they eat. They eat seals, we know, and there's a lot of seal oil. But luckily I have not seen what they have eaten which is not right for them, which is good, because I've seen a lot of- in Manitoba, Churchill, in the dump, just to make sure it doesn't eat- that when I kill it, I hope the stomach is okay so I can eat it."-Resident of Kangiqsualujjuaq

However, most participants stressed that polar bears will eat anything that they can catch (Figure 11). Beluga and bird eggs were commonly identified as prey items. Participants specified that polar bears will hunt beluga whales, as opposed to just eating them as

carrion. This is indicated by the scars on the backs of beluga from encounters with polar bears, which are very common.

"No, [polar bears] hunt belugas. They look for them all over the place. There's belugas get stuck in the ice once it freezes too fast. They'll stay there for the whole winter and make a big hole or a couple of holes and they'll grab them out of there. They grab the small ones first and then – a few years back and three years ago or two years ago in Sanikiluaq they got something like 50 to 60… beluga that was stuck because they weren't going to make it because the open ice was too far from them and polar bears had already gathered 28 belugas. Picked them out. … So yeah, it happens all the time. …When they have the opportunity, yes [belugas are an important food source], because they're much harder to get. And then when it's open water, they won't be able to get to them, I'm sure, unless a polar bear jumps from a cliff down onto a beluga. Otherwise I don't see it happening." – Resident of Kuujjuaq

"I know that they eat beluga, seal, eggs, and walrus." – Resident of Kangiqsujuaq

"Nowadays they eat anything that they see, anything available, but back then they used to [eat] seal." – Resident of Aupaluk

"They're individual, but when I travel by my boat, I would see one in the corner and one in the next corner, but one time I saw a group, like six in one group because they had killed a beluga. That's why they were in a group. … [And] no [it wasn't a beluga that had just washed up on shore], they had actually killed it, when we saw it was fresh." – Resident of Kangiqsualujjuaq

"Yeah, they kill [belugas]. They eat them. … Yeah, they kill them [and don't just get them if they happen to wash up], they hunt them. Yeah." – Resident of Tasiujaq

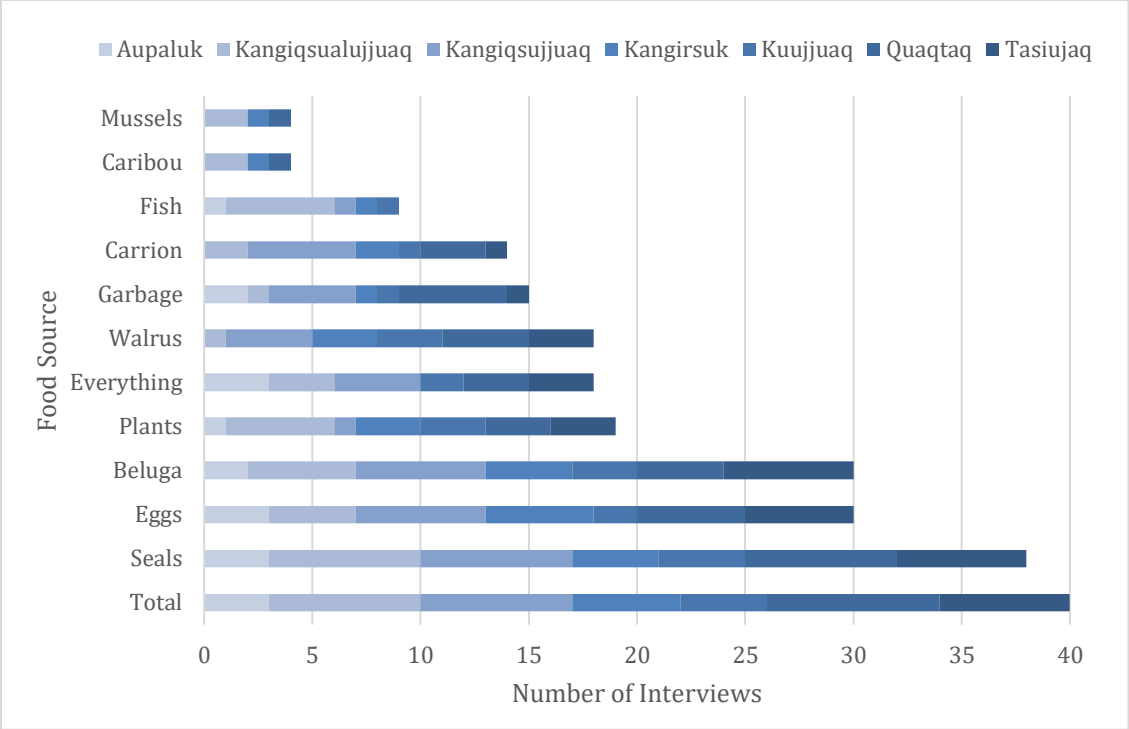

Figure 11: Polar bear prey items ranked by the number of interviews in which they were mentioned.

Many participants indicated that when food is abundant, polar bears would only eat the fat from seals. This was supported by many observations of the stomach contents of hunted bears, which frequently contained only fat.

> *"Yeah, we opened the stomach because we want to know what they eat, what's inside. When we cut the stomach we see fat and seal skin." – Resident of Kangiqsualujjuaq*

> *"Mostly fat. … Seal fat." – Resident of Kangiqsujuaq*

> *"The bear that he caught, he opened it up and in the stomach he found what we call uqqsuk which is fat."– Resident of Kangirsuk*

Some participants noted that polar bears would eat vegetation at times when they had eaten large amounts of fat. This was thought to be done to help with digestion.

"Yeah, my first kill on polar bear I opened the stomach and there was some seal meat, seal fat. And the second bear I caught there was no meat but there was fat… seal fat with grass in it." – Resident of Kangiqsualujjuaq

5.6.2 Health and Body condition

The large majority of observations reported by participants are of healthy bears in good condition. No participants indicated noticing parasites in bears that they have caught. However, one participant from Kangiqsujuaq did recall a very rare incident where he encountered an unhealthy bear.

"[Of the 80 bears I've seen] That one wasn't healthy. It was dirty and not very clean mouth. … Yeah, [it was] skinny as well - not too skinny but skinny. … I think he had rabies, I don't know. …No [the other polar bears I have seen didn't seem strange or too skinny], the other ones I have seen are good, are always alright." – Resident of Kangiqsujuaq

Noticeably sick bears are very rarely observed, but there are some accounts of overly skinny bears. Some participants say that skinny bears are far more likely to be aggressive and should be treated with extra caution.

"Yeah, when they're hungry, they're dangerous. … When they're fat, they aren't dangerous. I heard that." – Resident of Kangiqsujuaq

The cause of a bear becoming skinny was typically attributed to differences in the hunting skills between bears, negative effects of tranquilization and radio location collars, or occasionally to injuries obtained from fights with other bears and large animals such as walrus.

"Yeah, it's easy to tell because you can even see their bones. Yeah, because the hunters notice that their polar bear had bad luck hunting. Some of them are very

good hunters and some become very poor hunters." – Resident of Kangiqsualujjuaq

"Yeah I never noticed [any sick or skinny bears], only the ones that have ear tags or – yeah [the ones with ear tags can sometimes be sick or skinny]." – Resident of Kangiqsualujjuaq

"Most of the time [bears are] healthy. I saw one this summer, maybe it had a wound from a walrus and it was going to die. It's probably dead now, but that's from getting injured. It doesn't have to do anything with [sickness]. Yeah, it was wounded. Malnutrition caused by a wound, not because there's nothing to eat." – Resident of Tasiujaq

No overall trend in the number or frequency of observations of unhealthy bears over time was reported by participants. A normal annual fluctuation in body condition was reported though, with bears being thinner in the summer and fatter in the winter and spring.

5.6.3 Mating and Denning

Participants indicated knowledge of denning sites, or areas where dens were frequently used, as well as mating sites (Table 9, Figure 12). Interview information on these subjects varied significantly between interviews; commonly reported and mapped information is presented in Table 9 and Figure 12, respectively.

Table 9: Mating and denning information in all seven communities.

Community	Denning	Mating	# Cubs
Aupaluk	Den in winter, females only	-	2-3
Kangiqsualujjuaq	Denning in winter, snow depth important	-	2-3
Kangiqsujjuaq	Den near or in mountains in deep snow	Summer, maybe on islands	1-2, occasionally 3
Kangirsuk	Winter mountain dens, deep snow, female only	-	2
Kuujjuaq	Den in December, elevated areas with snow	Males track females	2
Quaqtaq	Deep snow in hills	-	2, occasionally 1 or 3
Tasiujaq	Deep snow, closer to feeding areas	March-May	2-3

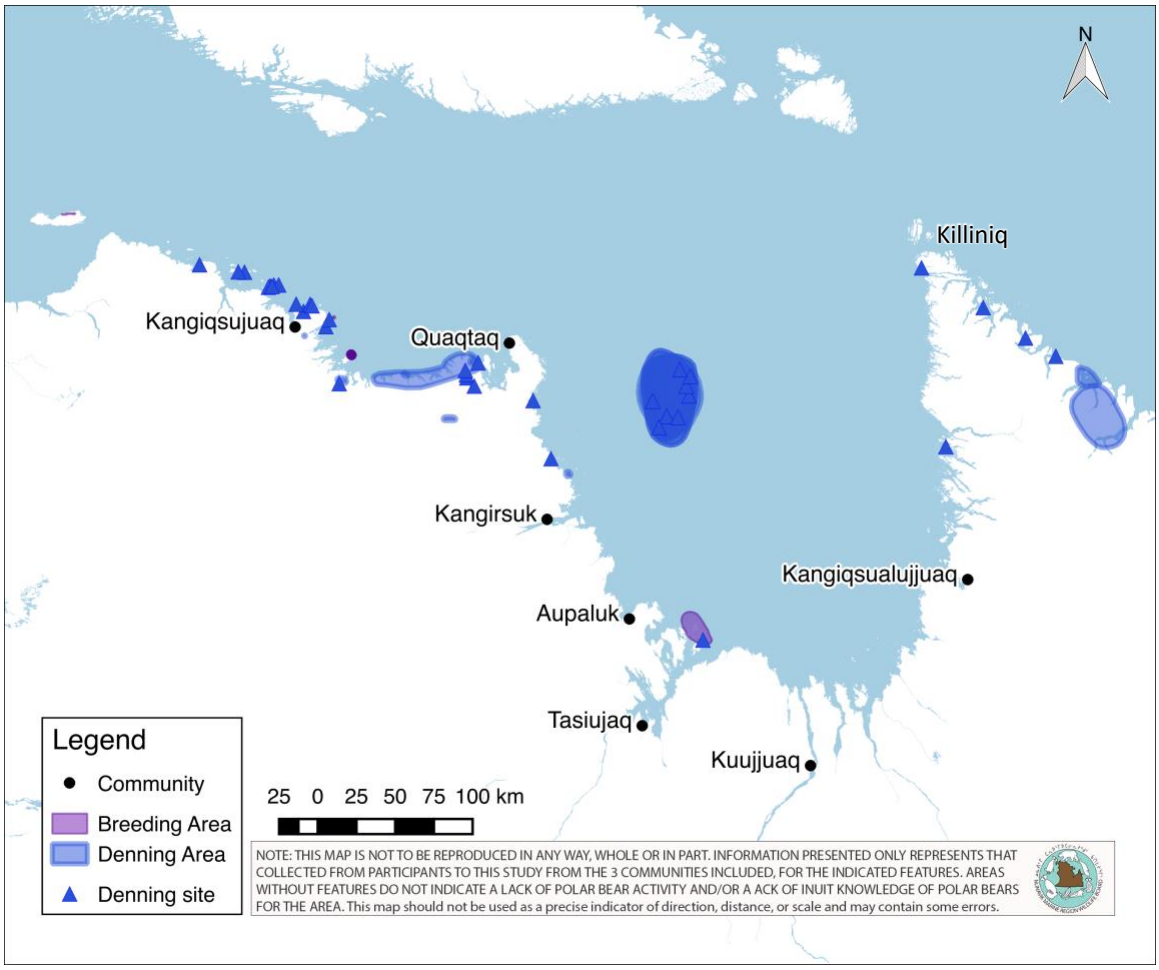

Figure 12: Map of known den locations and areas where dens are likely to be found in the Nunavik DS subpopulation range.

Participants spoke of polar bears creating snow dens in the winter, when the weather was particularly bad, and to give birth to cubs. Generally, respondents agreed that denning started in early-mid winter (December-January) in preparation for the harsh weather. Emergence was reported to occur in early spring or late winter (February-April) in time for the best seal hunting conditions. The birth of cubs would occur during that timeframe. Denning generally occurred in elevated areas, along hills and mountains where deep snow frequently accumulated.

"The females go inland to den up and have their cubs." – Resident of Kuujjuaq

"Yeah, they in these high hills or cliffs, they have dens and have baby cubs … They usually want to be in the cliffs, high hills." – Resident of Quaqtaq

Most participants did not speak in detail on the mating habits of polar bears. Those who did comment indicated mating occurred in the spring, summer, or fall, but were uncertain. Participants from Tasiujaq consistently stated mating occurred between March and April. Males were reported to fight over females, and during this time males would follow females without cubs for great distances.

"These three that I showed you, were fighting over one female and the bigger one won and got the female with him and the other one was not that far away." – Resident of Aupaluk

"The female usually is ahead and the [male] bear is quite far behind, following the tracks of the female." – Resident of Quaqtaq

5.6.4 Species interactions

Participants were asked about interactions between polar bears and other species. They indicated that, as a top predator, polar bears are not influenced very much by other species. The exception to this, noted by many participants, is the bear's heavy reliance on seals.

"They follow seals and they - when [the seals] come back, [the bears] come back also." – Resident of Kangiqsujuaq

"[To survive, polar bears need] Meat. Seal meat and fat. Mostly fat, I think." – Resident of Quaqtaq

"I'm not sure. I think it's probably a cycle. Because sometimes there's a lot of seals and sometimes there's no seals. They can be moving to different areas. They're [polar bears] following the seals because like in the winter hunt, sometimes we see a lot of tracks. And sometimes we see barely anything." – Resident of Tasiujaq

With the recent decline in availability of seals in the DS region, however, participants reported that polar bears have begun to pursue alternative foods more frequently.

> *"Yes [I've noticed a change in what polar bears are eating]. Like, nowadays they're trying to eat more char, Arctic char because before, when I go fishing, I never seen them, I never used to see them trying to catch char, but every year now, I see them trying to catch char. That changed entirely. …Yeah [I think that's because there are less seals]." – Resident of Kangiqsualujjuaq*

> *"Even though there's less seal this year, there are so many belugas. In the summer time when I hunt belugas, there are lots of scratches and I knows it's not only seal that they eat, there's also belugas that they can eat." – Resident of Kangiqsujuaq*

5.7 Stewardship of Polar Bears and Traditional Management

Some participants did not have an answer when asked about how Inuit traditionally 'managed' polar bear populations, responding that they are wild and cannot be 'managed'. For this reason, stewardship is likely a more appropriate term. Inuit stewardship of polar bears does not take the form of a wildlife management system. Rather, it is better described as a suite of values, ideals, and unwritten guidelines meant to ensure the mutual survival of polar bears and Inuit (Kendrick 2013). Table 10 and the following quotes indicate some of the guidelines identified by participants.

Table 10: Proportion of total interviews in each community reporting any of three general traditional stewardship techniques. Open circles indicate a community in which <49% of interviews reported a technique, while solid circles indicate communities in which 50% or more of the interviews in that community reported a technique.

	Harvest No Cubs	No Summer Harvest	Never waste
Aupaluk	○		●
Kangiqsualujjuaq	●	○	○
Kangiqsujjuaq	●	○	○
Kangirsuk	○	○	
Kuujjuaq	○		○
Quaqtaq	●	●	
Tasiujaq	●		○

The values and ideals identified by participants in the DS region can be summarized in three main categories. First, avoid harvesting cubs, and mothers with cubs, unless absolutely necessary. Second, avoid harvesting during the summer, as the meat is less desirable and the fur is less valuable. Last, only harvest polar bears when all parts of the animal will be used, consumed, or sold. Adherence to these values and ideals was reported to help reduce the impact of hunting on polar bear populations while maintaining the relationship between Inuit and polar bears. It should be noted that these responses were volunteered in response to open ended questions about stewardship and therefore likely underrepresent adherence to these stewardship practices.

> *"Our ancestors, they used to tell us not to hunt polar bear, nanuks, just because they're annoying them or just because they're in town. We were told not to hunt the polar bear nanuks by our ancestors. … If it's not going to be used or it's not going to be – if it's for nothing we don't want to kill it." – Resident of Aupaluk*

> *"Elders used to tell us that they have spirit too. That's why part of it we don't want to kill them for nothing. They used to tell us like they have a spirit that can*

give you a nightmare or something if you kill them for nothing." – Resident of Aupaluk

"According to our elders and our ancestors, they have been telling us that we are not allowed to kill a female with cubs. This is part of the tradition, we have to follow along with it, we have to respect [the tradition] all the time" – Resident of Kangiqsujuaq

Hunting primarily males (a common western conservation technique) is not a traditional method for Inuit. Inuit hunting is based primarily on need, and solitary females are not considered more important than males for maintaining healthy population numbers. While females with cubs are given respect and not hunted if they aren't needed, many people believe focusing on males would be detrimental to the population.

"First I'd like to say that all wildlife have the male and the female. I can give an example of caribou. Nowadays hunters come up north and they try and get a trophy of the caribou, the bulls. And they kill a lot of the bulls and not the females. And if there's more bulls, males being killed, there's going to be more females and there's not going to be - they're not going to be able to breed. And same goes for the Belugas that they've put quotas on before up till today when you can only catch a certain - like if they were to catch a female, only a female, the female is the one that gives birth to the calf and same goes for other animals too. If you shoot only the males then there's only the female left and they're not going to be able to breed. And that's something I wanted to mention first." – Resident of Kangirsuk

"To help the Polar Bear management – I'm starting to see in the winter some Polar Bears limping because in summer time some people shoot them on the leg or feet. Some bears I shot, they have bullet wounds on the leg or on the bum. … Maybe it would be good to have some kind of a warning thing. … Like for bears. Instead of using a firearm." – Resident of Kangiqsualujjuaq

5.8 Research and monitoring

Most participants expressed serious reservations about the type of polar bear research being done in the region. Inuit values generally dictate that wild animals should not be disturbed or played with, and participants felt that many methods employed by scientist were quite invasive.

Some believed that ear tags and collars caused stress to the bear by impacting their hearing and movement, or simply representing an unnatural burden on the animal. Others, however, disagreed that collars and tags had any behavioural impact on bears.

> *"[Bears with ear tags] don't hear you, they cannot hear." – Resident of Aupaluk*

> *"The ones that have tag in the ear, they were all skinny. … Maybe because the earring, in the ear? … Was interfering with their hunting? …[Skinny bears are] Only with the ear tags, I'd say they're all skinny. Because they're pierced. … And they have a little scar – like a little hole behind the ear. When they go for the seal, under the snow, they must hit so hard to get a cut. Behind the ear. …[Bears without ear tags are] more fat." – Resident of Kangiqsualujjuaq*

The use of tranquilizer is also a concern for Inuit. There is a widely held belief that the tranquilizer ruins the meat, and may have some impact on the hunting behaviour of the bear as well. These methods are seen as invasive according to Inuit values.

> *"Yeah, I want the tagging of the polar bears to be stopped because I've heard some stories. After the tranquilization, they look like they're the same but changes their mindset and the way they hunt really, it affects their lives." – Resident of Aupaluk*

> *"From what people say and myself, the polar bear that was tranquilized before is not very healthy after that. I wonder if there's any other way that they can – to do it in any other way besides tranquilizing the polar bear because the polar*

bear's not healthy after that. So we would be happier if we can do it in some other way besides tranquilizing them. Yes, that's what we hear even from Nunavik Health. Polar bears who are tranquilized, they are not healthy after. So if they could do it in some other way, in a more humane way or something." – Resident of Kangirsuk

"Yeah, basically. When you see that an animal has been tagged and drugged before it's sort of – nothing really appeals to you as a good meal. They say it doesn't hurt the animal, but it's just the thought of something that's been tranquilized.– Resident of Kuujjuaq

5.9 Alternative stewardship/management strategies/recommendations

Participants were asked if they had any advice for the Nunavik Marine Region Wildlife Board with regards to a management strategy that could be implemented instead of, or in modification to, the quota system that is being discussed. Many participants' response to this was to simply to leave things as they are, with no western management system being put in place at all.

"I think it's fair for me to say that, because I for myself have experience, a lot of polar bear encounters and drove them away. Those dangerous bears that you cannot absolutely do nothing about, that are going to be a nuisance, if they're a danger to the community, I don't think they should be part of the total allowable take, but accidental catch, which is not part of the quota. I think there should be a separate pocket for those accidental dangerous encounters. A different pocket than total allowable take. …Yeah [keep track of them, but have some kind of different system]. And I would like for those total allowable take I would still recommend that it's only open September to April and stay closed May to end of August, because if it's going to be - if we're going to have total allowable take, and people find out if we attract tourists, they're going to start hunting in

summertime, and people are going to catch too many - because they're very vulnerable in summertime. They're white, you're on a canoe, on a boat, you see them more. So I would only want to have open days from September to April or from that period at least, and summer period closed. Like, we always respect it. Keep that - our own regulation which we use, keep that regulation, keep, like May to August." – Resident of Kangiqsujuaq

Some participants felt that it was important to first complete a full survey of the polar bear population before determining an appropriate management approach.

"I think they really have to do more studies on the polar bear before they can start setting any quotas, eh? Scientists say they're going to become extinct, but when you talk to local people or listen to stories, it's completely opposite. So until they do a proper study, who can really set the quota? … You never see the scientists down here. Never. You'll see the odd helicopter flying up and down once a year maybe, but there's nobody doing any studies on the bear populations. I think they did it once in the last ten years and that was for like a day – going down and coming back and they saw a lot of bears. They were amazed how many bears were down there. So I think that the scientists have to get more involved in the area than sitting at a desk somewhere and deciding these guys can only shoot 30 bears this year. They don't have a clue what's out there. They're not there in the summer. They're not there in the spring. They're not there in the winter because when I go by boat we see bears out from shore, you know? What are those bears doing? The scientists don't know that." – Resident of Kuujjuaq

Other participants did not have specific suggestions for the Board, but wanted to emphasize things the Board should take into consideration when making these decisions. Those who work and live around polar bears, and who have the best knowledge of them, were individuals considered to be the best suited to make such decisions.

"I heard that other countries other than Canada, they push to save polar bears that are in the north. And for me I don't think they're talking about because they're in another country and they have never seen a winter and they can't tell us not to do whatever, you know? I don't think we have to listen to them. Their government, you know? … Yes [make our own decisions]. I know that world-wide there's - I don't know - Greenpeace. They have to do more research to know, you know - to say that it's time to stop hunting, you know?" – Resident of Kangirsuk

5.9.1 The quota system

When expressing views on a potential future quota system for polar bear hunting in the region, participant's perspectives varied between community (Table 11). Most expressed some view against the imposition of a quota system however, if a quota was to be imposed, many participants shared some perspectives on a community-based quota system that would take into consideration the harvesting ability of the community in the determination of community allocations. Most thought that any system should be flexibly managed over multiple years.

Table 11: Participant opinions towards the potential of a quota system on polar bear hunting in Nunavik, by number of interviews/community in which perspectives were expressed.

Community		Aupaluk	Kangiqsualujjuaq	Kangiqsujuaq	Kangirsuk	Kuujjuaq	Quaqtaq	Tasiujaq	Total Interviews
In support of quota			3	3					**6 (15%)**
Against quota		3	1	3	2	2	2	3	**16 (40%)**
Willing to work with a quota, if necessary	**Community quota, no information**		1						**1**
	Community quota-based on harvest ability	2	1	1	2	3	1	1	**11 (28%)**
	Equal allocation to each community		1						**1**
	Total Interviews	**3**	**7**	**7**	**5**	**4**	**8**	**6**	**40**

It is important to note that most interviews indicated a lack of support for a quota system. Table 12 summarizes the most common reasons why participants argued against a quota for polar bears in the region. It should be noted that these responses were volunteered in response to open ended questions about quotas and therefore likely underrepresent prevalence of concerns.

Table 12: Participant opposition to a quota system for polar bear hunting in Nunavik, by the number of interviews per community in which perspectives were expressed.

Community		Aupaluk	Kangiqsualujjuaq	Kangiqsujuaq	Kangirsuk	Kuujjuaq	Quaqtaq	Tasiujaq	Total Interviews
Arguments against instituting a quota	**Safety**	3	3	2	3	1	2	2	**16 (40%)**
	High abundance of bears already	1	2	1	1	1	2	1	**9 (23%)**
	Inuit traditional management preferred	2	2	3	3	2	1	4	**17 (43%)**
	Quota leads to more hunting		2		1	1		4	**8 (20%)**
	Total Interviews	**3**	**7**	**7**	**5**	**4**	**8**	**6**	**40**

Many participants brought attention to the fact that polar bears are a dangerous animal, and that limiting hunting could create dangerous situations.

> *"My concern is, if we have too many polar bears and less hunters, that will be very dangerous for the hunters and I would rather see some hunters still hunting polar bears without a quota." – Resident of Kangiqsualujjuaq*

> *"Maybe the population would start to increase and more since there would be more bears and they will start to come in more to campsites and be more of a nuisance or dangerous to the people around the areas is what – how I see it. … Yeah [it would] mainly [affect] the safety of the people." – Resident of Kangirsuk*

Participants pointed out that the quota system could even have a reverse effect for polar bear populations.

Respondent 3: "If we had a quota, I think, some men would try to get more."

Respondent 1: "I think they would start hunting them more when there's a quota."

Interviewer: "Okay. Why do you think that? I know that a lot of people say that, for us from the south, that's a pretty strange concept. Can you give some reason for why that would happen?"

Respondent 1: "Well, some people might have an idea of catching a bear, but when there's a quota, 'whoops, I'm not going to have any left', so they try and go ahead of everybody to go catch one. … So if there's no quota they just sit back and well, I'll kill it when I see one."

Interviewer: "Right, okay. So it gets in the way of the opportunistic nature of hunting? "

Respondent 1: "Yeah."

– Residents of Kangirsuk

As indicated above, the concept of limiting the number of animals that can be taken by a community is at odds with the Inuit approach to hunting. Many hunters are content to wait for the opportunity to hunt an animal, including polar bears. There was concern expressed that if a limit on the number of polar bears to be taken is put in place then individuals would worry that they would not be allowed to hunt a polar bear if the opportunity arose, which may lead to higher polar bear harvests earlier in the year than would otherwise happen in the absence of a quota. Some participants have claimed that this is already the case for other species such as beluga as it causes people to rush to hunt wanting to make sure they do not miss their opportunity and inadvertently has increased harvesting pressure. Although polar bear hunting is different from beluga in its importance for food security, and while hunters may not actively look for polar bears after a limit is reached, opportunistic hunting remains an important part of Inuit culture. The

idea that animals need to be hunted if they are to persist is also a common understanding, one that can be in opposition to the idea of a quota system.

> *"When the animals are being harvested, there's an exchange, the exchange from God. He replaces the animal. And when there will be a quota and people are told not to hunt them anymore, the bear is going to disappear, will not be existing anymore. It's just from our God, that's how we're believing in our knowledge and our Elders." – Resident of Tasiujaq*

Some participants suggested incorporating aspects of traditional stewardship into the quota system. For example, participants suggested restricting or eliminating summer harvest, except in the case of self-defense, in preference to a regular quota system. Since the value of the polar bear skin and quality of meat are lower in summer, Inuit hunters are less likely to want to harvest bears in the summer anyway so a summer restriction may be less intrusive.

> *"I'm okay with the quota that they can't shoot the polar bear in summertime, I'm okay with it. … It's okay to shoot a polar bear, but I'm respecting the one in the summertime. … I'm okay with that, but the other, in the winter or the other seasons I don't agree if they get quota." –Resident of Kangirsuk*

Other participants suggested developing ecotourism associated with polar bears or allowing paid sport hunts to provide compensatory income for a loss due to the decreased harvest and sale of polar bear hides by Inuit. These suggestions were not widely held, however, and other participants disagreed.

> *Respondent: "I guess they'll have to do their research first before they come up with answers because we have to go to the hunters first. Also, we could decrease the hunt but increase the cost of hunting polar bears, and the way to do it is sport hunting. …Well, let's say we're killing a hundred bears today, just for explanation purposes, $5,000; a hundred bears for $5,000. But we decrease that to ten bears for $50,000, so it would make more sense to have a management plan that can*

satisfy everybody, because hunting polar bear is mainly for economical reasons. Bears are killed out of fear sometimes. Maybe they're coming into the camp where you are so they'll get eliminated because they're a risk and they could kill you."

Interviewer: "So introducing sport hunting that would increase the value of the bears would be a reasonable strategy?"

Respondent: "If I put it another way, if they're going to introduce management, then they need to compensate the losses that the hunter will have, and that would be one way of doing it, because ecotourism can be done but not everybody is into ecotourism." – Resident of Quaqtaq

Some participants were very concerned with how quotas would be distributed across communities. They suggested strategies ranging from individual quotas per community, a quota shared between nearby communities or quotas for each region in Nunavik. Participants more often preferred the idea of providing a quota for each community based on their current yearly harvest levels (Table 11).

Respondent 1: "We want to make sure that we're equally open with the region that we don't want to see another difference from a bigger community to a smaller community. We want to have an open – if there's open numbers of polar bears allowed, we want them to be open to the region for us because if there's going to be a number, there's going to be three and there's going to 20-30 in bigger communities where there's no polar bear. They don't see polar bear every day in Kuujjuaq but they have a big community. Where would they get more quota than us when we have more polar bears. That's what we hope –"

Respondent 2: "- It shouldn't be based on the [community] population." – Two residents of Aupaluk

"Who – how? What's the numbers that you're going to come up with for each community and who does the decisions? I think it would be each community should have a study done on it, see what they take per year and who's hunting so everybody gets a chance to hunt because let's say we only start in March, but they're already hunting in December across and there's a quota of what, let's say 40 and they shoot the 40 between Wakeham and those more northern communities because that doesn't give us a chance here because we start to hunt here in March mostly. … [I wouldn't want the] quota be filled up in January. There's no more bears available, which happens with the other animals. Like the beluga, they have a set quota and if it's all shot up out of one community. It was bad for a while when they just had a quota for the whole area. Like so many belugas per year and they were all shot at Ivujivik or Salluit before it even got a chance to get our boat in the water. So we have to protect the hunters and that's my feeling – that each region should have a set quota that doesn't affect us in our area." – Resident of Kuujjuaq

In the end, what every participant wanted is a fair system. Many believe that any quota system will be unfair, and counterproductive. However, some believe in the necessity (or at least eventuality) of a quota system, and simply want it to be implemented in a way that takes into consideration the concerns of all the people that are affected by it.

6.0 Discussion

Bears in this sub-population occupy sea ice, costal, inland and island areas of Nunavut, Nunavik, Nunatsiavut and the south eastern coastal area of Greenland. As in other regions of the circumpolar North where Inuit reside, bears from this sub-population have been a central part of culture and survival for generations and the knowledge of these animals and the environment in which they exist is diverse and significant. The interviews with hunters and Elders in seven Nunavik communities presented in this report are evidence of that rich knowledge, a testament to the continued importance of polar bears, and

represent a significant contribution to future management and stewardship discussions regarding these animals.

6.1 Ecological and Biological information

Participants to this study provided a wealth of traditional and observation-based ecological and biological information on polar bears (see sections 5.4, 5.5, 5.6). This information provides significant insight into the state of polar bears in the region, and specifics about their behaviour and habitat.

The distribution and movement maps (Figures 7a, b, 8, and 9a, b) provide insight into the general geographic areas that are used by polar bears. They also provide insight into how the distribution of polar bears may have changed over time. Perhaps most importantly, these maps indicate areas that have been frequented by polar bears in recent years, as well as historically before 1990 when most participants indicated that the polar bear population was significantly lower than today. The Polar Bear Technical Committee (PBTC) also assessed the historic trend for Davis Strait polar bear as having likely increased based on a 2007 a physical mark recapture study that estimated a population size of 2,158 bears (Peacock et al. 2013). These overlapping current and historic areas may be of specific importance to polar bear populations, and may indicate areas of high-quality habitat.

This study also highlights the importance of seals in the diet of polar bears, and their preference as a prey species, consistent with scientific findings (Derocher et al. 2002; Thiemann et al. 2008). Many participants spoke of other food sources that polar bears make frequent use of as well, namely bird eggs and beluga whales, which could be an avenue of further investigation given the concern in the scientific community about polar bears losing access to ringed seals with climate change and changing ice conditions (Stirling and Parkinson 2006; Thiemann et al. 2008; Iverson et al. 2014).

6.1.1 Considerations

While identifying a wealth of knowledge and observations by Inuit of polar bears in the region, it is important to acknowledge that this information is limited to that shared only by participants of this study. It therefore does not represent all possible Nunavimmiut knowledge of polar bears from the region. Although all of the information gathered and presented in this report was verified and validated with expert hunters and elders, it is especially important to recognize that when there is an apparent absence of information it does not mean this knowledge does not exist. Further, as with any study of this type, results of the interviews may be influenced by factors such as the interviewer's gender or familiarity with the culture, and loss of information through translation (Brook and McLachlan 2005). While qualitative methods (e.g. purposeful sampling strategy) were used to ensure the quality and reliability of the results presented here, it is important to recognize these limitations.

An example of a situation where the information could be misinterpreted is in regards to the information presented on polar bear denning (section 5.6.3, Figure 12). The majority of information gathered indicated that polar bear denning occurs along shorelines of the coast and on islands. There is little indication from participants of polar bears denning farther inland. However, since the information gathered represents a minimum of ecological data on denning in the region, it does not suggest that denning does not occur inland. Indeed, it was fairly uncommon for participants to notice polar bear dens in general, including on shorelines and islands. Therefore, it is possible that inland dens would go unnoticed by participants, due to many factors including, for example, participants spending less time inland than along shorelines, or inland dens occurring in areas that are less accessible. There is therefore an observational bias inherent in the representation of knowledge towards those areas more frequently travelled and used by Inuit (Martinez et al., 2016).

Denning is just one example of how traditional ecological data could be misinterpreted or misrepresented, though it is possibly the starkest example in this study. Other biological and ecological data such as information on feeding behavior and diet, habitat selection, health, and patterns in movement can be misinterpreted in the same way. Similarly, it is important to remember that the absence of information in this IK study should not be used to indicate a lack of priority, knowledge or understanding of a topic among Inuit. When this knowledge is used for decision making, alone or alongside results from scientific ecological and other studies, it is important to note these issues that influence its interpretation and ultimate use (Furgal and Laing, 2012).

6.2 Polar bears and Nunavimmiut

The roles that polar bears play in the lives of Nunavimmiut are varied and diverse. These roles are affected by both a long history of interaction, as well as the current status of bear populations, and contemporary cultural and societal pressures from both within, and outside Inuit culture. It is also clear from the results of this study that the importance of polar bears to Nunavimmiut is not limited to the tangible, visible gains from hunting bears. Likewise, the role of polar bears in the lives of Inuit goes beyond the acknowledgement of their important position in arctic ecosystems and food webs. It is clear, from the results presented here that polar bears occupy a unique position in the psyche of Inuit of this region that goes beyond that which is typical of many other animals. Whether through actual vocabulary or subtle inferences, many participants speak about polar bears in a way that implies more of a species-to-species relationship rather than a human-resource interaction. Participants often spoke about polar bears in a way that implied a feeling of kinship, or even reverence, and of bears occupying a special role in Inuit culture. The origins of this unique role can only be speculated upon and contains aspects unique to individual participants. However, one theme that is frequently associated is the sometimes-turbulent relationship of sharing the position of top predator. Likewise, for Inuit, polar bears can play the role of prey, competitor, or even a dangerous predator. The nature of a human-bear interaction is entirely situational, and

can change quickly. Considering these points, it stands to reason that having respect for polar bears was a common theme when participants spoke about both interactions with bears, and traditional management or stewardship of the species.

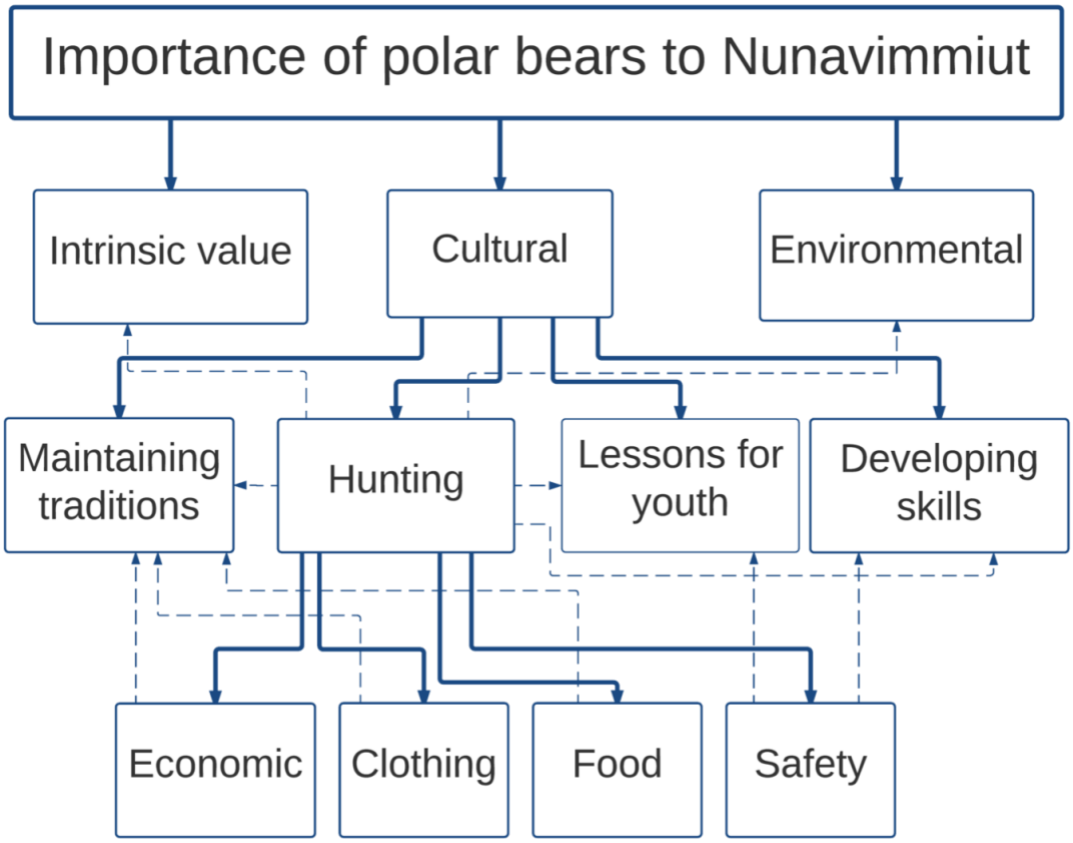

Figure 13: Flowchart depicting the ways polar bears were indicated to be important to participants, and the complex relationships between them.

The results of this study show that DS polar bears are important to Nunavimmiut for many different reasons, as both a cultural and natural resource. While it is useful to demonstrate and discuss the variety of individual reasons for which polar bears are important, it must also be acknowledged that these reasons are largely interrelated and connected (Figure 13). For example, the use of polar bear skins as an economic resource is not isolated from the ways in which polar bears are a cultural resource. Money has become a necessity for Inuit, stemming from colonial influences and modernization of communities. Even for those individuals maintaining traditions of subsistence and hunting, some level of income has become a necessity. The economic benefit of a polar

bear skin can be essential in supporting the maintenance of culture, by allowing individuals to support themselves financially, while maintaining cultural practices.

6.3 Abundance and Conservation

The majority of participants in all seven communities believe that polar bear numbers have either stayed stable or increased, at virtually any time scale, greater than a single year. Several participants were aware of the general international perception that polar bears are endangered, and felt strongly about pointing out that this is not the reality for in this region. Indeed, PBTC lists the recent population trend of the DS sub-population as "likely increasing" (ECCC 2017).

The complex relationship of polar bears and Nunavimmiut dictates that there is a great deal to consider in terms of what is important for polar bear management and conservation. While most of the world is concerned strictly with the conservation and ecological aspects of polar bear management, for Nunavimmiut polar bear management affects a whole suite of important issues. For the people living in the DS range in Nunavik concern over the status of polar bear populations is considered alongside issues fundamental to livelihood in the North such as personal safety, food and economic security, Inuit cultural identity, and the continuity of intergenerational knowledge transmission. Unlike for other stakeholders, Inuit are rightsholders and polar bears affect the daily lives of Inuit in much more intimate ways (ITK 2018). While their conservation was considered important by study participants, given the indications that populations are healthy in the area, the need for implementing new conservation measures and practices was not necessarily considered important, and in some cases was viewed as potentially damaging, especially when placed alongside other factors.

6.4 Management, stewardship and quotas

A primary objective of this study is to inform the NMRWB of the knowledge and values of Inuit of the seven DS communities to help inform the NMRWB in its deliberations about the establishment of a Total Allowable Take for polar bear hunting, as requested by the Government of Canada. Overall, while most participants do not favour the implementation of a quota, several factors identified by participants in section 5.9.1 could make a quota more acceptable, and less at odds with traditional practices. Creating competition between hunters, communities, and regions is a damaging side effect that several participants spoke passionately about. Most of the suggestions regarding the implementation of a quota would serve to mitigate the competition created by a quota, and are aimed at maintaining traditional Inuit stewardship practices and a system of fairness among communities.

It was clear that participants are concerned with both the health of polar bear populations, as well as the aspects of Inuit livelihood which are closely associated and integrated with polar bears. In order for conservation and management of polar bears to be effective, it is essential that any rules, measures, or regulations represent and respect the needs of the people who are affected by them (Berkes 2009). A quota system is not considered ideal by most of the participants of this study, and every effort should be made to ensure that the implementation of any quota considers the concerns and desires of participants to the highest degree possible.

6.5 Conclusions

This project gathered observations and knowledge from 76 Inuit elders, hunters and other expert knowledge holders (identified by the LNUKs due to criteria such as close encounters with polar bears, working with polar bear meant and hides, or spending large amounts of time in areas where polar bears are seen)in the seven Nunavik communities within the Davis Strait polar bear sub population boundary. It represents a sample of the depth and breadth of Inuit Knowledge on the topic. While it can only represent the

knowledge and observations of those participants involved, and should not be taken to reflect the entirety of Nunavimmiut knowledge on the topic, it presents a wealth of information both as narrative and mapped features to be considered in future discussions and decisions on polar bears in the NMR.

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8.0 Appendices

Nunavik Inuit Knowledge of Polar Bears

(Consent Form, Participant Index and Interview Guide)

Consent Form

Nunavik Inuit Knowledge of Polar Bears

(Ursus maritimus)

Primary Contact – Wildlife Liaison Officer: Bobby Epoo
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In 2014 the Nunavik Marine Region Wildlife Board (NMRWB) will coordinate a Nunavik wide research project to collect and document Nunavik Inuit Knowledge of polar bears (*Ursus maritimus*). This study is led by the NMRWB and is being conducted in partnership with researchers at Trent University. The purpose of this initiative, which is funded through the NMRWB, is to gain a better understanding of polar bear ecology and biology as well as traditional stewardship practices and the importance of polar bears for Nunavik Inuit. The results of this project will be presented to the NMRWB as part of their public hearing process and will help to inform their decisions for establishing Total Allowable Take (TAT) of polar bears in the Nunavik Marine Region (NMR).

My participation will consist of attending one 1-3 hour interview, either individually or with fellow hunters.

This information will be collected and recorded on a digital tape recorder (if I provide consent) or by personal note-taking. Some information will also be documented through drawings on a map. It is intended that there is no risk in participating in this project and I should feel comfortable with its nature at all times.

I understand that the contents will be used in a research project report to the NMRWB and potentially in other publications, which stem from this research. It is possible that media releases relating to the report may occur, but the information is not intended for any commercial use.

I understand that my confidentiality will be respected. No personal identifiers such as my name will be utilized and the information I provide will be used in a collective sense.

However, if there are circumstances where the researcher wishes to use a direct quote from my interview in any publication, I give them permission: **yes** ☐ **no** ☐

If ***yes***, I would like to have a made up name or term (e.g. 'resident of Inukjuak') instead of my real name ☐

or I would prefer to be attributed by my real name ☐

All information will be stored at the NMRWB office in Inukjuak, Nunavik, and will only be accessible to project team members, thought it is subject to access to information. A copy of this information will also be stored at Trent University during the project.

My participation in this project is voluntary and I am free to withdraw from the project at any time. I can refuse to participate and refuse to answer any questions. If I decide to withdraw from the project, any information I have given will be promptly destroyed and will not be included in the project in any way. I understand that my withdrawal will have no consequences and no judgements or prejudice will be held against me. I will receive compensation for my time after the completion of the interview and if I decide to withdraw my interview after it is completed, my payment will not be revoked.

There are two copies of the consent form, one of which I may keep for my records.

By signing below, I (_____) agree that I have been fully informed and understand the nature of the project, and agree to participate.

_____ _____
Signature of Respondent Date

_____ _____
Signature of Researcher - Witness Date

By signing below, I authorize the inclusion of my name in the acknowledgements section of the final report.

_____
Respondent's Authorization

Copy of interview transcript requested yes ☐ no ☐
If you would like it emailed to you please write email: _____
Copy of final written materials requested yes ☐ no ☐

I consent to be involved with the following activities:

Involvement (check all that apply)	**Recording** (check all that apply)
I agree to take part in an:	I agree to have my contributions to the project recorded using:
___ Interview	___ audio recording ___ audio & video recording ___ photographs ___ maps

Contact Address: _____
_____
Email: _____
Telephone: _____

– Protect this form when filled –

Participant information

Name: _____ Age: _____
Last First
Gender? M F

Interview information

Date : _____ Location:_____
yy-mm-dd *(general description; address; coordinates)*

Interpreter/Translator:_____
Last *First*

Interviewer(s):_____
Last *First*

Other people present (interview participants): _____

_____

_____

Consent form: ☐ Yes at the interview

Other information: _____

_____

_____

– Protect this form when filled –

INTRODUCTION TO PROJECT PURPOSE AND OBJECTIVES

This project is focused on Nunavik Inuit Knowledge (NIK) of polar bears and is being led by the Nunavik Marine Region Wildlife Board (NMRWB). There is currently very little documented NIK for the region, which leaves a significant gap in the understanding of polar bears. It is particularly important to address this gap in the context of the upcoming decisions related to establishing Total Allowable Takes (TAT) for the three polar bear populations (South-Hudson Bay, Fox Basin and Davis Strait) in the Nunavik Marine Region (NMR). The results of this work will help to ensure that the NMRWB has access to the best available information in order to make these decisions.

The main objective of this project is to document NIK of polar bear ecology and biology in Nunavik. Additionally, there is interest in learning more about the role and importance of polar bear to Inuit and traditional Inuit approaches to stewardship of polar bears, including best practices related to hunting.

Individual and small group interviews will be held in all 14 Nunavik communities throughout 2014. In each community, meetings will first be held with LNUK members in order to share information related to the project, identify key individuals to participate in the interviews, and to collect secondary data (e.g. harvesting records). Interviews will be done in three sessions related to the three sub-populations of polar bears, beginning with the South-Hudson Bay population. Following the interviews, preliminary reports for each population will be presented back to the communities for verification and validation, and to the NMRWB. The final reports, including a comprehensive report for all of Nunavik, will incorporate suggestions and additions from the verification and validation feedback. All documents will be available in English and Inuttitut.

For interviewers:

- Questions should be asked using an unbiased approach (i.e. not leading the participants). The first question is the most open-ended but additional questions are provided to prompt participants in the case that the first question was not easily understood (i.e. did not elicit a significant response) and to gain additional insights.
- Examples of issues or solutions should be used only if participants are stuck or unable to understand the intent of a question.
- Use map to record any observations which are associated with a location discussed by participants.

QUESTIONS

PART 1: Participant background information

Expert Information

- Where and when were you born?
- How long have you lived in this community?
- What other communities have you lived in?
- Did you hunt in those areas? If yes, where, when and amount of time?
- How old were you when you first hunted polar bears? (year?)
- How often do you hunt polar bears?
- Where are polar bear hunting areas? (*Draw on map*) Where have you hunted?
- Are there areas where you used to hunt but no longer hunt polar bears? If so, why it is that those areas were abandoned?
- Who do you hunt with?
- At which time of year do you hunt polar bears? Has this changed? Explain (earlier, later, shorter season)?
- What are the best practices for hunting polar bears? What methods and techniques do you use to hunt? Have your techniques, strategies changed over time or since you first hunted bears? If yes, how?
- What equipment do you currently use to hunt? Has that changed? If yes, how?

Importance of Polar Bears

- Are polar bears important to you? Why?
- When was the first time you got a polar bear? Can you tell me about that hunt? What did it mean to you, how did you feel?
- When was the last time you were polar bear hunting? Can you tell me about that hunt? Was it a successful hunt? (How many days were you out? Who was with you?)
- If you got a bear, what did you do with the hide? The meat? Any other part?
- What did it mean to you to go on that hunt? How did it make you feel?
- Do you eat polar bear meat?
- Is it important for you to continue to harvest polar bears? Why?
- Is it important for other Nunavimmiut to continue to harvest polar bears? Why? (Cultural? Economic? Food? Safety?)
- What do young Inuit learn from hunting polar bears? Why is this important for them? Can they learn these things from hunting any other animals or is there something particular about a polar bear hunt?

PART 2: Biology and Ecology of Polar Bears

Distribution and Migration

- At which times of the year do you see polar bears? Tracks? Do you see tracks inland?
- Where do you see polar bears? (*record on map*)

- Do you see family groups (i.e. females and cubs)? Size of groups?
- Do you also see males? Groups?
- Do males/females/family groups arrive in the area at the same time of year?
- Where are they coming from? (Direction? Inland? From ice?)
- Has the timing or location of where you see bears changed since you started hunting them? How?

Feeding

- Do you observe polar bears feeding while they are in the area?
- What are polar bears eating? How do you know that is what they are eating?
- Do you ever look at polar bear stomach contents? (If yes, can you identify any species?)
- Has anything changed about what the bears are eating? If yes, what? What tells you this?

Body Condition

- Do the polar bears you see look healthy? How can you tell?
- Are bears fat when you see them?
- Do you ever observe sick/dead polar bears? What have you observed?
- Do you ever see polar bears with bugs or worms on or in them?
- Do bears behave differently depending on their condition?
- Has their body condition changed in general since you started hunting? If yes, when and how?

Mating and Denning

- Do you know when and where polar bears mate? (*record on map*)
- Do you know when and where polar bears den? (*record on map*) (Differentiate between dens for shelter vs. birthing dens)
- How many cubs do you usually observe with a female?
- Has anything about where and when polar bears mate or den changed? If yes, what?

Habitat

- What makes for good polar bear habitat? For feeding? For denning?
- Have there been changes in the environment that have meant changes in polar bear habitat in the areas of Nunavik you hunt or travel ? If yes, how is this affecting polar bears?
- Does the health of bears depend on the health of other animals? If so, are you observing any changes in regards to interactions with other species?

Additional Behaviour

- Do bears that have been collared/tagged behave differently? Explain.
- Are there any other behaviours of bears or changes in their behaviour you have observed that you would like to discuss?
- Has anything about polar bear behaviour changed since you started hunting them that you would like to discuss?

Abundance

- How frequently do you see polar bears?
- When do you typically see them?
- Have you noticed any changes in the number of bears you see? Adults? Cubs and juveniles? Males? Females? Females with cubs?
- Are there natural fluctuations in the number of bears?
- Are there different groups / sub-populations of bears in your area? Can you tell the difference?
- Has anything else about the numbers of bears or how often you see them changed since you started hunting them?

PART 3: Interactions

Human – Bear Interactions

- Do you see bears while doing other things than specifically looking for and hunting polar bears?
- Do bears ever come into your community?
- Are there, or has there been any issues with these encounters? Aggressive bears?
- Has there been any destruction of cabins? Or individuals hurt?
- Has the frequency or location of these interactions changed since you started hunting bears? (more or less?)

Hunting Preference

- Do you have a preference of which type of polar bear to hunt? Male / female? Age? Size? Why?
- Is it easy to tell the sex of a bear before it is hunted?
- Do you hunt cubs? If so, why?
- Has anything changed about the bears you prefer to hunt or your ability to tell the difference between males and female bears?

Harvest Monitoring and Sampling

- How many bears have you hunted on average in the past 5 years? 10 years? Is this different from earlier hunting you have done?
- Do you always complete the Quebec hunter return form? If not, why?
- Do you always use the tags? If not, why?
- Have you ever harvested a bear that had previously been captured (i.e. w/ ear tags, lip tattoo, collar, etc.)? If so, did you report the tag numbers? If not, why?
- Has your reporting of harvests changed over the years?
- Are you aware of the sampling program run by Makivik?
- Do you send samples and take measurements of bears? If not, why? (Too much work? Not enough compensation? Lack of result communication? Not interested? Do you think it is not right to do this?)
- Does it ever happen that a bear has been shot, but cannot be recovered? Are these instances reported?
- Do you know of any incidences of poaching? (harvesting by non-beneficiaries)

Stewardship of Polar Bears

- For your community, what are traditional practices related to polar bear hunting? (Seasonal restrictions? Avoidance of certain groups or individual bears? Avoidance of areas that are important for bears (e.g. denning sites)?)
- Do you believe the number of bears hunted is sustainable? Should the number taken be increased? Decreased? How can you tell?
- The NMRWB is in the process of establishing a Total Allowable Take (TAT) for all populations of polar bears, as requested by Canada's Minister of Environment. Do you have any advice for the board as they make these decisions? Do you have any suggestions for an alternative management system to a quota system?

Extent of knowledge

- For each season can you draw the extent of where you are familiar and have knowledge and experience of the area. Not specific to polar bear. (Where you hunt, fish, travel, camp)

CLOSING

Is there anything else that you would like to add or think we should know about polar bears in Nunavik, what is changing, or their importance to you and other Inuit? Do you have any other concerns related to bears in the region?

THANK YOU

Thank you for your time and sharing your information in this interview.

The interview team held interviews in (name previous communities and times) and will also be holding interviews in (name next communities and times). In all interviews, experts, like yourself, are being asked to discuss similar issues in relation to their communities. Once interviews are completed preliminary findings will be shared with the NRWRB. Any publications related to this work will only be published following full verification by participants and subsequent approval by the NMRWB. Any reports will be shared with all communities.

If you have any questions about the project or the information you shared please contact any of the people listed on the Consent Form to get more information.

Thank you!