Fisheries and Oceans Canada | Pêches et Océans Canada

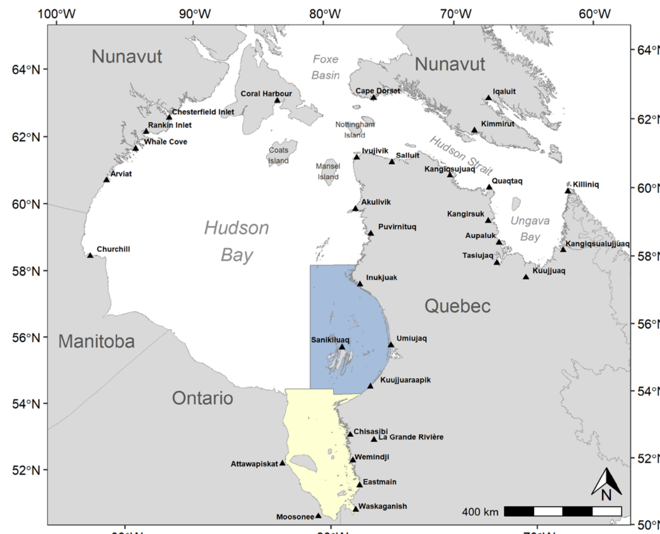
Ecosystems and Oceans Science | Sciences des écosystèmes et des océans

National Capital Region

Canadian Science Advisory Secretariat
Science Advisory Report 2022/024

ᐊᓐᓂᑐᕐᓂᐅᒐᔾᕐᑐᒧᑦ ᐃᒫᖕᒉᕈᑏᑦ ᐅᑯᓂᖕᒐ ᑰᒃᔪᐊᕌᓘᑉ ᔩᒥᓯ ᐯᓪᓗ ᕿᓚᓗᒐᖕᖏᓐᓂᒃ (*DELPHINAPTERUS LEUCAS*)

ᕿᓚᓗᒑᑦ (*Delphinapterus leucas*).ᐊᑦᔨᓕᐅᕆᔪᕕᓂᖅ ᕕ.ᓗᓃᔾ (DFO)



ᐊᑦᔨᖑᐊᖅ 1.ᓄᓇᖕᖑᐊᖅ ᓄᐃᑕᑎᑦᓯᔪᖅ ᔩᒥᓯ ᐯᒥᒃ ᑕᓯᐅᔭᕐᔪᐊᒥᒃ, ᓄᓈᒥᒃ, ᐅᖓᕙᒥᓪᓗ) ᓄᓇᓖᑦ ᓄᐃᑕᑎᑕᐅᑦᓯᑎᒃ. ᑐᖑᔪᕐᑕᒥᒃ ᑕᐅᑦᑐᓕᒃ ᓄᐃᑕᑎᑦᓯᔪᖅ ᓴᓂᑭᓗᐊᒥ ᐅᐱᕐᖓᒥ ᕿᓚᓗᒐᖅᓂᖕᒐᓂᒃ ᐅᐊᓐᓂᐸᓯᖕᒐᓂᓪᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ (ᓴᓂᑭᓗᐊᖅ ᐅᐊᓐᓂᖕᒐᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ) ᕿᓚᓗᒑᑦ. ᖁᕐᓯᑕᒥᒃ ᑕᐅᑦᑐᓕᒃ ᓄᐃᑕᑎᑦᓯᔪᖅ ᐱᑕᖅᕐᓂᕆᓲᖕᖏᓐᓂᒃ ᐅᐱᕐᖓᒥ ᔩᒥᓯ ᐯ ᐃᒪᖕᒐᓂ. ᓴᓂᑭᓗᐊᖅ ᓄᓇᓕᒃ ᕿᑭᕐᑕᓃᑦᓯᓂ (ᓄᓈᑦ).

ᐋᓚᓯᒪᔪᕐᑕᖏᑦ

*ᒪᕐᖁᐃᑦ ᓄᓇᓯᒪᔪᑦ ᑯᐯᒃ ᑖᕐᕋᖕᒐᓂ (ᓄᓇᕕᒃ) ᕿᓚᓗᒐᕐᓂᒃ ᐊᓐᓂᑐᓲᑦ (*Delphinapterus leucas*) ᓯᑕᒣᓂᑦ ᕿᓚᓗᒐᕐᓂᑦ ᓄᓈᒃᑯᓯᓂᑦ ᐃᖏᕐᕋᕕᒋᒻᒥᓯᒍ:ᑰᒃᔪᐊᕌᓘᑉ ᐸᑎᕐᑑᓗ ᕿᓚᓗᒐᓪᓴᔭᖏᑦ ᐅᐱᕐᖓᒥ ᑕᑌᑕ ᑕᓯᐅᔭᕐᔪᐊᑏᓰᑦ, ᐅᑭᐅᒥ ᑲᑎᒪᑦᓯᑎᒃ ᓄᓈᒥ, ᑌᐸᑐᐊᓪᓗ ᐃᒪᖕᒐᓂ. ᐅᖓᕙᑏᓰᑦ ᕿᓚᓗᒑᑦ ᖃᐅᔨᒪᓇᕐᓯᐊᖏᑦᑐᒥᒃ ᐋᐅᓚᓂᖃᓰᑦ ᑭᓯᐊᓂ ᐅᑭᐅᕐᓯᐅᖃᑎᖃᓲᖕᖑᑐᐃᓐᓇᕆ ᐊᓖᑦ ᑕᓯᐅᔭᕐᔪᐊᒥᓲᓂᒃ. ᑖᒃᑯᐊᓴᓐᓇᐅᖏᑦᑐᑦ ᕿᓚᓗᒑᑦ ᔩᒥᓯ ᐯᒦᓰᑦ ᐅᐱᕐᖓᒥ ᐅᑭᐅᒥᓗ ᓅᓲᖑᑐᐃᓐᓇᕆᐊᖃᕐᒥᓯᑎᒃ ᓯᑯᖅᖃᔾᔪᖕᖏᑐᒧᑦ ᔩᒥᓯ ᐯᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ.2020ᐅᑎᓪᓗᒍ, ᑲᑎᖕᖓᔫᑦ ᐆᒪᔪᐃᑦ ᓄᖑᐃᓐᓇᑐᐃᓐᓇᓂᐊᖕᖑᕇᔭᐅᓕᕐᑐᑦ ᐱᓪᓗᒋᑦ ᑲᓇᑕᒥ (COSEWIC) ᓇᓗᓂᔫᓚᐅᔪᔪᑦ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᒐᓪᓴᔭᖏᑦ ᓴᒥᓯ ᐯᓪᓗ ᐃᓱᒫᓗᓐᓇᖏᓐᓂᕋᕐᓯᒋᑦ, ᐸᑎᕐᑑᑉ ᕿᓚᓗᒐᓪᓴᔭᖏᑦ ᐃᓱᒫᓗᓐᓇᑎᓪᓗᒋᑦ, ᐊᒻᒪᓗ ᐅᖓᕙᐅᑉ ᕿᓚᓗᒐᖏᑦ ᓄᖑᑐᐃᓐᓇᕆᐊᖃᓕᕐᓂᕋᕐᓯᒋᑦ.*

ᐊᓐᓂᑐᕋᓯᐊᕐᓂᐅᓲᖅ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᒐᓪᓴᔭᖏᓐᓂᒃ ᓄᓇᕕᒻᒥ ᓄᓇᓕᓐᓄᑦ ᐋᐅᓚᑕᐅᒍᑎᑕᓕᒃ ᐊᕐᕌᒍᓄᑦ ᐊᒥᓱᓄᑦ ᐃᓂᓪᓚᓯᒪᑦᓯᓂ ᐸᕐᓇᑕᐅᓯᒪᑦᓯᑎᒃ ᓄᐃᑕᐅᑦᓯᑎᓪᓗ ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᕿᐅᑕᓕᕆᔨᓄᑦ ᐃᔫ ᐊᓪᓚᑦ ᑕᕆᐅᕐᕿᐅᑕᓕᕆᔨᖕᖏᓐᓄᓗ ᐊᖏᕐᖃᐅᓯᒪᑦᓯᑎᒃ ᑐᕐᖃᑕᕐᕕᒧᑦ ᐃᒪᕐᐱᓕᕆᓂᕐᒧᑦ ᐃᖃᓗᓕᕆᓂᕐᒧᓗ ᑕᕆᐅᒥᑦᑐᓂᒃ. ᒫᓐᓇᐅᑎᓪᓗᒍ ᐋᐅᓚᔫᒍᑎᖃᕐᓂᐅᑉ ᐱᑦᔪᑎᖏᑦ ᓯᕐᑯᐃᑐᒥᒃ50% ᒦᖏᓐᓇ ᖁᓪᓗᒋᑦ ᐅᖓᑖᓂᓘᓐᓃᑦ ᓯᕋᓗᐊᑦᑕᐅᒍᓐᓂᑎᓪᓗᒋᑦ ᐅᓄᕐᓂᖏᑦ 3400 ᐊᕌᒍᐃᑦ ᑖᓕᒪᑦ ᐊᓂᒍᕐᑎᓗᒋᑦ. ᑕᒪᑦᓯᒥᖕᒐ

ᐱᔭᖃᕋᓱᐊᕈᑕᐅᑦᓱᓂ ᐊᓐᓂᑐᕈᓐᓇᓂᖅ ᐃᓱᓕᑦᑕᕕᓕᐅᕐᑕᐅᓯᒪᔪᖅ ᐅᓄᕐᓂᓕᐅᕐᑕᐅᓯᒪᖕᖏᑲᓗᐊᕐᑎᓗᒋᑦ ᐱᖁᔭᑎᒍᑦ (ᓄᓇᕕᒻᒥ ᓇᓪᓕᐅᑎᑦᑕᑐᒥᓪᓗ ᓄᕐᖃᖓᑎᕋᖃᑦᑕᓂᖅ ᕿᓚᓗᒐᕐᓂᐊᑐᓂᒃ) ᐊᒻᒪᓗ ᐱᖁᔭᑎᒍᑦ ᐃᓱᓕᑦᑕᕕᓕᐊᖑᓯᒪᔪᑦ.

ᐊᐅᓚᑕᐅᒍᑎᑕᖃᕈᑎᖏᑦ ᕿᓚᓗᒑᑦ ᓄᓇᕕᒻᒥ ᑐᖕᖓᕕᖃᓲᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᒍᑎᒋᓯᒪᔭᖏᓐᓂᒃ ᐱᑕᖃᕐᓂᖏᑦᑕ ᕿᓚᓗᒑᑦ ᐅᐱᕐᖏᕕᒋᓲᒥᓐᓂ, ᐊᒻᒪᓗ ᑐᑭᓯᒪᓂᕐᒥᒃ ᐊᓐᓂᑐᕋᓱᐊᕐᓂᒥᒃ ᓇᓪᓕᖏᐅᒻᒪᖔᑕ ᕿᓚᓗᒑᑦ, ᑕᒣᑕ ᖃᖓᒃᑯᓂᖓ ᒪᓕᑦᓱᒍ ᐊᕋᕐᒋᓲᖑᖕᖏᑐᑦ ᐃᓂᖏᑦᑕᓗ ᓇᓈᓐᓂᖏᑦ ᒪᓕᑦᓯᒋᑦ. ᑰᒃᔪᐊᕌᓘᑉ ᔦᒥᓯ ᐯᓪᓗ ᕿᓚᓗᖓᖏᑦ ᑭᓯᑕᐅᓯᒪᔪᑦ ᔪᓓ ᐊᐅᒃᑐᓯᒥᓗ 2015ᒥ. ᓄᑖᑦ ᑭᓯᕋᑐᑎᕕᓃᑦ ᑖᒃᑯᓈᓂ ᒪᕿᓂ ᐃᓅᓐᓂ ᖃᖓᑦᑕᔫᒃᑯᑦ ᐋᑐᑎᔭᕕᓂᖅ ᔫᓓ-ᐊᐅᒃᑐᓯ 2021.

ᐱᑦᔪᑏᑦ

ᐱᑦᔪᑎᐅᓚᐅᔪᔪᑦ ᕿᒥᕈᓂᕐᒍᑦ ᑲᑎᖕᖓᓂᖃᕐᑎᒍᒋᑦ ᐅᑯᐊᖑᓯᒪᔪᑦ:

- *ᕿᒥᕈᓯᑎᒃ 2021ᒥ ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᕋᑐᑎᕕᓂᕐᓂᒃ ᕿᓚᓗᒐᕐᓂᒃ, ᖃᐅᔨᔭᐅᒍᑎᕕᓃᑦ ᒥᑦᓴᐅᓵᕈᑏᓪᓗ ᑑᒃᔪᐊᕌᓘᑉ ᔦᒥᓯ ᐯᓪᓗ ᕿᓚᓗᖏᑦᑕ ᐱᑕᖃᕐᓂᖏᓐᓂᒃ.*
- *ᕿᒥᕐᖁᓯᒋᑦ ᐱᑕᖃᕐᓂᖏᑦᑕ ᖃᓄᐃᓕᖓᓂᖏᑦ ᐃᓕᖓᔪᑦ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᖓᑦᓴᖏᓐᓄᑦ ᐊᒻᒪᓗ ᐃᒫᖕᒋᕈᑎᒋᑦᓯᒋᑦ ᓄᖑᐃᓐᓇᑎᕋᐅᓕᓂᐅᖏᓐᓇᓗᓂᓗ ᐊᓐᓂᑐᕋᓱᐊᕈᓯᕐᒥᒃ ᓯᖁᐃᐅᑐᒥᒃ ᐃᑭᓕᕙᓪᓕᐊᖁᓇᒋᑦ ᑖᒃᑯᐊ 3400 ᐆᒪᔪᐃᑦ ᐅᖓᑖᓃᕐᑌᓕᓗᓂ 50% ᐊᕐᕌᒍᓂ ᑕᓪᓕᒪᓂ, ᐃᓯᒪᒋᓗᒋᑦ ᓇᓅᓐᓂᖏᑦ ᖃᖓᒃᑯᓂᖓᓗ ᕿᓚᓗᒐᕐᓂᐊᓂᑦ, ᐃᓚᐅᒻᒥᑎᓪᓗᒍ ᐊᐅᖃᑎᒌᓴᔭᐅᖕᖏᑐᑦ ᑲᑎᒪᔩᖑᓂᖏᑦ.*
- *ᒥᑦᓴᐅᓵᕐᓯᒪᓗᒋᑦ ᐊᓐᓂᑐᕐᑕᐅᒍᓐᓇᑐᑦ ᐅᓄᕐᓂᐸᐅᒍᓐᓇᓂᕆᒍᓐᓇᑕᖏᑦ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᑦᓴᖏᓐᓂᑦ ᐃᓂᓂ ᓇᓪᓗᐃᓐᓇᖏᓐᓂ ᐅᓄᕐᓯᒋᐊᕋᔭᕐᓗᑎᓪᓗ ᐊᕐᕌᒍᓂ 10ᓂ.*
- *ᓇᓗᓃᕐᓗᒋᑦ ᐱᑕᖃᕐᓂᖏᑦᑕ ᖃᓄᐃᓕᖓᓂᖏᑎᒍᑦ ᐊᑐᕐᑕᐅᒍᓐᓇᓱᒍᓐᓇᒪᖔᑦ ᔦᒥᓯ ᐯᒥ ᐱᑕᖃᕐᓂᖏᑦᑕ ᒥᑦᓴᐅᓵᕐᓯᒪᐅᑎᑦᓴᖏᓐᓄᑦ ᐃᒫᖕᒋᕈᑎᐅᒍᓐᓇᓗᓂᓗ ᐊᓐᓂᑐᕐᑕᐅᔪᑦᓴᑦ ᑲᒪᒋᔭᐅᓕᕐᐸᑕ*
- *ᓇᓗᓃᕐᓗᒋᑦ ᐊᓐᓂᑐᕋᓱᐊᕐᓂᒧᑦ ᐱᐅᓯᑦ ᐊᕋᕐᒋᖕᖏᓂᖏᑦ ᐱᕕᑦᓴᖅ ᒪᓕᑦᓱᒍ ᖃᖓᐅᓂᖓᓗ ᐊᕐᕌᒍᒥ ᐊᑐᕐᓗᑎᒃ ᐊᖏᕐᑕᐅᓯᒪᔪᓂᒃ ᖃᐅᔨᓚᓱᐊᕈᑎᓂᒃ ᓇᑭᖕᖓᓂᑕᑦᓴᔭᐅᖕᒪᖕᖓᑕ;*
- *ᓄᐃᑕᑎᓗᒋᑦ ᐊᑑᑎᑐᐃᓐᓇᓇ ᐊᓖᑦ ᐃᑭᓕᒋᐊᕐᑎᓯᓂᕐᒧᑦ ᓇᑭᖕᖓᓂᑕᑦᓴᔭᐅᓂᖏᑎᒍᑦ ᒪᓕᓪᓗᒋᑦ(PBR) ᖃᑦᓯᒦᓐᓂᖏᑦ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᑦᓴᔭᖏᑦ ᔦᒥᓯ ᐯᓗ, ᐅᖓᕙᐅᓪᓗ.*

ᑖᒃᑯᐊ ᖃᐅᔨᒪᒍᑎᑦᓴᓕᐊᖑᓯᒪᔪᑦ ᐃᑲᔪᕐᓯᒪᓚᖓᔪᑦ ᓴᐳᒻᒥᓂᕐᒧᑦ ᐱᑦᔪᔨᕕᒻᒥᒃ ᐱᒍᓐᓇᓯᒍᑎᒋᒍᑦ ᐱᑕᖃᕆᐊᖃᕐᑎᑕᐅᓯᒪᔪᓂᒃ ᓄᑕᐅᓯᓕᑎᕐᓯᒪᓗᑎᒃ ᕿᒥᕈᒍᑎᐅᓯᒪᔪᑦ ᓄᓇᕕᐅᑉ ᕿᓚᓗᖏᓐᓂᒃ ᑐᕋᕈᑕᐅᓯᒪᓂᖏᑦ ᐱᑕᖃᕆᐊᖃᕐᒪᑕ ᐊᒥᕆᑲᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ ᒪᓕᒐᕐᑎᖕᖓᓂ ᓴᐳᒻᒥᓂᕐᒧᑦ ᐊᓐᓂᑐᕐᑕᐅᒍᓐᓇᑐᑦ ᐱᒍᓐᓇᑎᑕᐅᒍᑎᖏᑎᒍᑦ (ᑖᒃᑯᐊᓕ ᑰᒃᔪᐊᕌᓘᑉ ᕿᓚᓗᑦᓴᖏᑦ ᔦᒥᓯ ᐯᓪᓘᓐᓂᑦ ᓇᓗᓃᔭᕐᑕᐅᓲᑦ ᐊᓐᓂᑐᕐᑕᐅᔪᑦ ᑕᑯᑦᓯᒋᑦ).

ᓈᓚᑎᕐᓯᒪᔪᑦ

- ᖃᓄᐃᑦᑐᓴᔭᐅᓂᖏᓐᓂᒃ ᖃᐅᔨᓴᕈᑏᑦ 3000 ᒥᑦᓯᑎᓐᓃᑐᓂᒃ ᕿᓚᓗᒐᕐᓂᒃ ᑕᓯᐅᔭᕐᔪᐊᒥᑦ ᖃᐅᔨᒍᑎᐅᓯᒪᔪᖅ ᓯᑕᒣᖑᓂᖏᓐᓂᒃ ᕿᓚᓗᒑᑦ (ᑕᓯᐅᔭᕐᔪᐊᕐ ᐅᐊᓐᓂᖓᓂᑦ, ᑕᓯᐅᔭᕐᔪᐊᒥᑦ, ᔦᒥᓯ ᐯᒥᑦ, ᐃᑭᕋᓵᕐᔪᐊᒥᓗ) ᐊᒻᒪᓗ ᖃᐅᔾᒥᓱᑎᒃ ᐊᓯᖃᕐᒥᒋᐊᖏᓐᓂᑦ ᓴᓂᑭᓗᐊᒥ.
- ᓴᓂᑭᓗᐊᒦᓲᑦ ᕿᓚᓗᒑᑦ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᐅᐊᕈᑎᕆᓲᑦ ᐅᐱᕐᖔᒥᓗ ᓇᓗᓇᕐᓱᓂ ᓇᓪᓕᖏᑦ ᐆᒪᔪᐃᑦ ᓇᓪᓕᐊᓂᑦ ᐱᓯᒪᒻᒪᖔᑕ ᕿᓚᓗᒐᕐᓯᐅᓇᐅᓂᖓᓂ ᐅᕝᕙᓗᓗᓐᓃᑦ ᑭᓯᑕᐅᓂᖏᓐᓂ ᖃᖓᑦᑕᔫᒃᑯᑦ. ᑌᒫᒪᑦ, ᑖᒃᑯᐊ ᕿᓚᓗᒑᑦ ᖃᐅᔨᓴᕐᑕᐅᓂᖏᓐᓂ ᒪᕿᒃ ᑲᑎᑎᑕᐅᓯᒪᔫᒃ ᓴᓂᑭᓗᐊᒦᓲᑦ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ.
- ᑲᑎᑦᓯᒋᑦ ᕿᓚᓗᒐᕐᑕᐅᔪᕕᓃᑦ ᓄᓇᕕᒻᒥ 344/ᐊᕐᕌᒍᑕᒫᑦ 2016-ᒥᑦ 2021-ᒧᑦ. 366 ᕿᓚᓗᒐᕐᑕᐅᔪᕕᓂᐅᑎᓪᓗᒋᑦ 2021-2022-ᒥ.
- ᓄᑖᑦ ᖃᐅᔨᓴᕈᑏᑦ ᐊᑐᕐᓯᒋᑦ ᕿᓚᓗᒐᕐᓂᐊᓇᖅ ᐋᕐᕿᒋᐊᕐᑕᐅᓚᐅᔪᔪᖅ ᐊᒥᓱᖕᒍᓇᐊᕐᑎᓯᑦᓱᓂ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᕿᓚᓗᒐᕐᑕᐅᔪᓂᒃ. ᐊᓯᑦᔨᕈᑎᒻᒪᕆᐅᑎᓪᓗᒋᑦ ᖃᐅᔨᔭᐅᓯᒪᔪᑦ ᑕᓯᐅᔭᕐᔪᐊᒥ ᐅᑭᐊᒥ, ᑕᓯᐅᔭᕐᔪᐊᕐ ᑕᕐᕋᖓᓂ ᐅᑭᐊᒥ ᓴᓂᑭᓗᐊᒥᓗ (ᓴᓂᑭᓗᐊᖅ ᓄᓇᕗᑦ) ᕿᓚᓗᒐᕐᓂᐊᑐᓂ.

- ᓄᕗᒻᒥᐅᓂ, ᐅᓄᕐᓂᓴᐅᒻᒥᔪᑦ ᑕᓯᐅᔭᕐᔪᐊᒥ ᓴᓂᑭᓗᐊᒥᓗ ᕿᓚᓗᒐᕐᑕᐅᔪᑦ ᐅᑭᐊᒥ, ᐅᐱᕐᙵᓴᒥ ᐃᑭᓐᓂᓴᐅᑦᓱᑎᒃ. ᐆᒃᑑᐱᓇᒥ ᓅᕙᒻᐱᓇᒥᓗ. ᑕᓯᐅᔭᕐᔪᐊᒥ ᓴᓂᑭᓗᐊᒥᓗ ᕿᓚᓗᒐᕐᑕᐅᔪᑦ 50% ᑭᓯᐊᓂ ᐃᑭᓪᓕᐅᒻᒥᒥᓱᓂ 10%-ᒧᑦ ᓅᕙᒻᐱᓇᐅᑉ ᐱᓇᓱᐊᕈᓯᙳᑕ ᐱᙳᔪᐊᓂ.
- ᑖᒃᑯᐊ ᓄᑖᑦ ᖃᐅᔾᒪᓂᕐᓱᑎᑦ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᐊᕐᕌᒍᑕᒫᑦ ᕿᓚ;ᒐᖅᑕᓯᒪᔪᑦ 95-ᓂᒃ 2016-ᒥᑦ 2021-ᒧᑦ ᓄᓇᕙᒻᒥᐅᑦ ᐊᖑᓇᓱᑦᑎᙱᓐᓄᑦ. ᒥᑦᓴᐅᓴᕐᓱᑎᑦ 139 ᕿᓚᓗᒐᕐᑕᐅᔪᕙᓐᓃᑦ 202-21-ᒥ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ.
- ᓴᓂᑭᓗᐊᒥ, ᑖᒃᑯᐊ ᑭᓯᑕᐅᒍᑏᑦ ᖃᐅᔾᒪᓂᕐᓱᑎᑦ ᓄᑖᓪᓗ ᑕᓯᐅᔭᕐᔪᐊᒦᑦᑐᑦ ᓴᓂᑭᓗᐊᒥᓗ ᕿᓚᓗᒋᑦ, 24-ᓂᒃ ᐆᒪᔪᖅᑕᓯᒪᔪᑦ ᐊᕐᕌᒍᑕᒫᑦ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ 2016-ᒥᑦ 2021-ᒧᑦ. ᒥᑦᓴᐅᓴᕐᓱᑎᑦ 19 ᕿᓚᓗᒐᕐᑕᐅᔪᕙᓐᓃᑦ 2020-21-ᒥ.
- ᐊᑑᑎᖃᑦᑕᓚᐅᔪᑎᒍᑦ, ᑭᓯᑦᓯᖃᑦᑕᓚᐅᔫᒪᑕ ᑐᑭᒧᐊᑯᑖᑦᑐᓂᒃ ᒪᓂᑦᓱᑎᒃ ᔪᓓᒥ ᐊᐅᓐᒍᓯᒥᓗ 2021 ᑭᓯᑦᓯᓱᑎᒃ ᕿᓚᓗᒐᕐᓂᒃ ᑕᓯᐅᔭᕐᔪᐊᒦᑦᑐᓂᒃ ᔦᒥᓯ ᕓᒥᓗ. ᐅᖓᕙᒥ ᑭᓯᑦᓯᓂᖅᑲᓇᐊᖅᑲᙱᓐᓇᑐᖅ.
- ᓄᑖᑦ ᖃᐅᔨᓴᕈᑎᓂᒃ ᐋᕐᕿᒋᐊᓇᒍᑎᕙᓃᑦ ᐋᕐᕿᑕᐅᓚᐅᔪᑦ ᐱᑕᖅᑲᕐᓂᙱᓐᓂᒃ ᑐᑭᓯᒪᔭᐅᓂᙱᓐᓂᓗ ᐊᑐᕐᑕᐅᑎᑕᐅᑦᓱᑎᓪᓗ.
- ᑭᓯᑦᓯᓂᖅ ᐋᕐᕿᒋᐊᕐᑕᐅᓚᐅᔫᒪᑦ ᒥᑦᓴᐅᓴᕐᓯᒪᔪᑦ 16,300 ((95% CI=9,800-27,200) ᔦᒥᓯ ᕓᒥ 2,300 (95% CI=1,300-4,200) (ᑭᓯᑕᐅᓂᖓ ᖃᓂᓪᓗᑎᕐᓱᒍ 100) ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᕿᓚᓗᒐᕐᓄᑦ.
- 2021-ᒥ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᑭᓯᑕᐅᔪᑦ ᒥᑦᓴᐅᓴᕐᑕᐅᒍᑎᙱᑦ ᐃᑭᓐᓂᑲᓐᓃᑦᑐᑦ ᐳᕿᐊᓇᕐᓂᐸᐅᓚᕿᑦᓱᑎᒃ.
- ᖃᑦᓯᐅᓂᙱᓐᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ ᖃᖓᑦᑕᔫᒃᑯᑦ ᖃᐅᔨᓴᕈᑎᐅᓂᐊᕐᑐᑦ ᒥᑦᓴᐅᓴᕈᑎᐅᓗᑎᒃ ᐋᕐᕿᒋᐊᕐᑕᐅᓚᐅᔪᔪᑦ ᕿᓚᓗᒐᕐᑕᐅᔪᕙᓐᓃᑦ ᑐᓴᕐᑎᓯᒍᑎᐅᓯᒪᔪᑦ ᖃᑦᓯᐅᓂᙱᓪᓗ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒦᑦᑐᓗ ᒪᓂᑦᓱᑎᑦ ᑐᑭᓯᑎᑦᓯᒍᑎᑖᕐᓱᑎᒃ ᖃᑦᓯᐅᓂᙱᓐᓂᒃ ᐊᒻᒪᓗ ᐆᒪᔪᕐᑕᐅᒍᓐᓇᑐᓂᒃ ᐋᕐᕾᒍᑎᑦᓴᓂᒃ.
- ᓴᓂᑭᓗᐊᒦᑦᑐᑦ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᕿᓚᓗᒋᑦ, 2015-ᒥ ᒥᑦᓴᐅᓴᕈᑎᐅᓯᒪᔪᑦ 3,500 ᐃᑭᓪᓕᐅᒥᓯᒪᔪᑦ 2,700-ᒧᑦ (95% CI=1,500-3,700) ᕿᓚᓗᒋᑦ 2021-ᒥ ᐃᑭᓪᓕᐸᓪᓕᐊᓱᒃ 4%-ᒧᑦ ᐊᕐᕌᒍᑕᒫᑦ.
- ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᖃᐅᔨᓴᕈᑏᑦ 2021-ᒥ ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑦᓯᒍᑎᐅᓚᐅᔪᑦ ᐊᒥᓱᓈᕐᑎᓂᙱᑎᒍᑦ 48%. ᑖᒃᑯᐊ ᒥᑦᓴᐅᓴᕈᑎᐅᓚᐅᔪᔪᑦ 3,900-ᓂᒃ 2015-ᖑᑎᓪᓗᒍ, ᐃᑭᓪᓕᕆᐊᕐᓯᒪᔪᑦ 3,200-ᕉᕐᓱᑎᒃ (95% CI=1,600-4,600) ᕿᓚᓗᒋᑦ 2021-ᒥ ᐊᕐᕌᒍᑕᒫᑦ ᐃᑭᓪᓕᕆᐊᕐᓱᑎᒃ 3%-ᓄᑦ.
- ᑖᒃᑯᐊ ᐃᑭᓪᓕᕙᓪᓕᐊᔪᑦ ᐆᒪᔪᕐᑕᐅᒍᓐᓇᑐᑦ ᐅᖓᑖᓅᖅᑕᓂᙱᓐᓄᑦ ᑭᓯᑕᐅᑦᓯᐊᓯᒪᔪᕙᓂᐅᖖᒋᓂᙱᓐᓄᓗ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᕿᓚᓗᒋᑦ ᐆᒪᔪᕐᑕᐅᔪᑦ.
- ᔦᒥᓯ ᕓᒥ, 2021-ᒥ ᑭᓯᑕᐅᓯᒪᔪᑦ 19,200 (95% CI=12,500-25,100). ᑭᖑᓪᓕᐸᒦ ᑭᓯᑕᐅᓚᐅᔪᑦᓱᑎᓂᑦ ᐅᓄᕐᓯᕆᐊᕐᓯᒪᔪᑦ. ᑖᒃᑯᐊ ᕿᓚᓗᒐᕐᕙᐅᖅᑕᓯᑦ 335-ᓂᒃ ᐊᕐᕌᒍᑕᒫᑦ.
- ᓴᓂᑭᓗᐊᒦᑦᑐᑦ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᐊᐅᓚᑕᐅᒍᑎᙱᑦ 50%-ᙱᓐᓂᒃ ᐅᓄᕐᓂᓴᐅᑎᑦᓯᒐᓱᐊᕐᑐᑦ 2015-ᒥ ᑭᓯᑕᐅᓚᐅᕐᓯᒪᔪᓂᑦ 3,400-ᓂᒃ ᐊᕐᕌᒍᐃᑦ ᑕᓪᓕᒪᑦ ᐊᒻᒪᓗ ᕐᑯᓕᑦ ᑭᖑᓂᖓᒍᑦ. ᑖᒃᑯᐊ ᒥᑦᓴᐅᓴᕉᓰᑦ ᐆᒪᔪᕐᑕᐅᖅᑕᑎᓐᓇᕆᑦ 0 ᐊᒻᒪᓗ 20 ᕿᓚᓗᒋᑦ ᑖᒃᑯᓂᖓ ᑐᕋᒐᐅᔪᓂᒃ ᒪᓕᒐᔭᕐᑐᑦ. ᐊᓯᐊᒍᖑᓛᖅ ᑭᓯᑦᓯᒍᓯᕐᑎᒍᑦ, 2021-ᒥ 48%-ᒧᑦ ᐊᒥᓲᓂᙱᒍᑦ, 48-ᓂᑦ 65-ᓄᑦ ᕿᓚᓗᒐᖅᑕᐸᑕ ᓰᓯᑦᓴᓯᐊᕋᔭᕐᑐᑦ ᐊᐅᓚᑕᐅᒍᑎᙱᓐᓂᒃ ᐊᕐᕌᒍᐃᑦ ᑕᓪᓕᒪᑦ ᑯᓕᓪᓗ ᑭᖑᓂᖓᒍᑦ.
- ᑌᒣᒐᓗᐊᕐᑎᓗᒍ, ᑭᖑᓪᓕᐸᒥ ᖃᐅᔨᓴᕐᓂᖅᑲᓚᐅᔪᑎᓪᓗᒍ, ᓄᑖᑦ ᐱᕙᑦᓴᐅᔪᑦ ᐋᕐᕿᒋᐊᓇᒍᑏᓪᓗ ᐊᑐᓕᕐᑎᑕᐅᓯᒪᓕᕐᑐᑦ ᓄᑖᓂᒃ ᖃᐅᔨᓴᕈᑎᕙᓂᕐᓂᒃ ᒥᑦᓴᐅᓴᕈᑎᐅᓯᒪᔪᓂᒃ ᐱᑕᖃᓕᕐᑐᖅ. ᑖᒃᑯᐊᓕᒫᑦ ᐊᓯᑦᔾᔨᒍᑎᐅᓯᒪᔪᑦ ᒥᑦᓴᐅᓴᕈᑎᐅᓯᒪᔪᓂᒃ 2015-ᒥ 3,500-ᖑᓂᕈᓯᒪᒻᒪᑕ ᐅᕝᕙᓗᓐᓃᑦ 3,900 ᓇᓪᓕᐊ ᐊᑐᕐᑎᑕᐅᓂᖓ ᒪᓕᑦᓱᒍ. ᓄᑖᑦ ᑎᑭᑦᑕᕙᓕᐊᖑᓯᒪᔪᑦ ᐊᑐᕐᓗᒋᑦ (3,500 ᐅᕝᕙᓗᓐᓃᑦ 3,900),

ᐆᒪᔪᕐᑕᐅᒍᓐᓇᑐᑦ ᐃᑭᓪᓕᒋᐊᕐᑕᐅᒋᐊᖃᕐᑐᑦ 0-65-ᒨᑦ ᓴᓂᑭᓗᐊᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ ᐋᕿᖏᓐᖓᐅᓰᑦ ᒪᓕᓪᓗᒋᑦ ᐱᕕᑦᓴᖓᓗ. ᓄᖑᑕᐅᕚᓪᓕᐊᓂᖏᑦ 5 ᐆᒪᔪᐃᑦ/ᐊᕐᕌᒍᑕᒫᑦ ᐅᑎᕐᐸᓕᐊᓂᑦᓴᖃᕐᓯᓂ 0.1-ᒥᒃ.

ᖃᓄᐃᑦᑑᓂᖏᑦ

ᕿᓚᓗᒑᑦ ᐊᖏᔪᕐᔪᐊᕌᓘᖕᖏᑐᑦ ᑭᒍᑎᖃᕐᓯᑎᒃ ᐊᒻᒪᓗ ᑕᕐᕋᒥᓲᖑᑦᓯᑎᒃ. ᕿᑐᕐᖓᓴᓕᐅᓯᓱᒃ ᐅᑭᐅᒥ ᐅᐱᕐᖓᓴᕐᖃᒥᐅᑎᓪᓗᒍᓘᓐᓃᑦ. ᕿᓚᓘᓛᕓᑦ ᐃᓅᓖᓱᑦ ᑕᕐᕿᓂ 14 ᓂ ᐃᓪᓕᐊᖑᓚᐅᑲᑦᓯᑎᒃ ᐊᒫᒪᓱᖑᑦᓯᑎᒃ ᑕᕐᕿᓂ 18ᓂ. ᕿᓚᓘᓛᕓᑦ ᐊᓈᓇᒥᓃᓱᑦ ᐊᕐᕌᒎᓂ ᒪᕐᕉᓂ ᐱᖓᓱᓄᑦ ᑎᑭᑦᓯᒋᑦ ᐊᓈᓇᒥᓃᓐᓂᒥᓂ ᐃᓚᐅᖃᑦᑕᓱᑦ ᐊᐅᓚᑎᓪᓗᒋᑦ ᕿᓚᓗᒌᑦ ᐃᖏᕐᕋᓇᕐᓯᐅᓕᑐᐊᕋᒥᒃ ᐊᕐᕌᒍᒥ ᓇᓪᓕᐅᑎᒻᒪᑦ. ᐃᓱᒪᒋᔭᐅᓯᒪᔪᖅ ᑖᒃᑯᐊ ᐊᓈᓇᒥᓃᓱᖑᒻᒪᑕ ᐊᑯᓂ ᖃᐅᔨᒍᑎᐅᒍᓐᓇᕋᔭᕐᓂᐊᖑᓇᔭᐅᑦᓯᑎᒃ ᐃᖏᕐᕋᕕᒋᓱᖏᓐᓂᒃ ᓇᐅᒃᑰᓱᖑᒻᒪᖕᖓᑕ. ᐊᕐᕌᒍᐃᑦ ᐱᖓᓱᑦ ᑕᒫᑦ ᑭᓯᐊᓂ ᕿᓚᕋᓛᓖᕋᕐᑖᓱᑦ. ᕿᑐᕐᖏᕈᓐᓇᓯᓱᖑᓂᐊᖕᖑᓇᔭᐅᔪᑦ ᐅᑭᐅᖃᓕᕋᒥᒃ ᐊᑯᓐᓂᖏᓐᓂ 8-14, ᐆᒪᒍᓐᓇᓂᐊᖕᖑᓇᔭᐅᑦᓯᑎᓪᓗ ᐊᕐᕌᒍᓂ 60 ᐅᖓᑖᓄᓪᓗ. ᕿᓚᓗᒑᑦ ᐱᐅᓯᖏᑦ ᐃᖏᕐᕋᓕᕋᒥᓪᓗ ᐱᐅᓯᖏᑦ ᐊᑕᐊᐅᓯᐅᓕᖓᔫᒃ. ᐃᓚᖏᑦ ᐆᒪᔪᐃᑦ ᐊᐅᓪᓚᓰᖑᖕᖏᑐᑦ ᖃᖓᓘᓐᓃᑦ ᐃᓂᒥᓐᓂᑦ, ᐃᓚᖏᓪᓗ ᓇᓪᓕᐅᑎᑦᑕᑐᒥᒃ ᐱᐅᓯᖃᓰᑦ ᐊᕐᕌᒍᖅ ᒪᓕᑦᓯᒍ ᐊᐅᓚᓯᖃᑦᑕᓯᑎᒃ ᓅᑦᓯᑎᒃ.

ᐋᓂᑐᕋᓯᐊᕐᓂᖅ

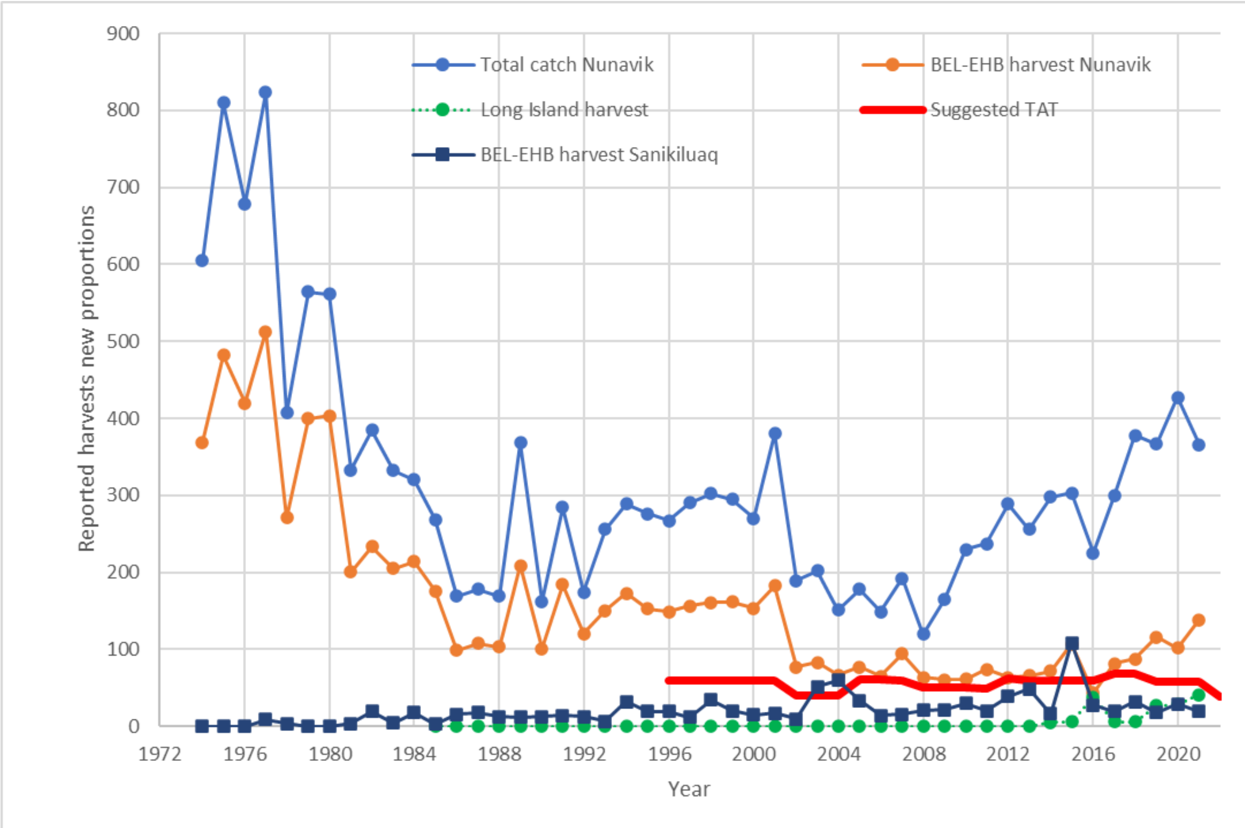
ᔦᒥᓯ ᐯᒥᑦᑐᑦ ᕿᓚᓗᒑᑦ (JAM)

ᐊᑑᑎᖃᑦᑕᓯᒪᔪᑦ ᑕᑯᑦᓯᒋᑦ, ᐊᔪᐃᓐᓇᕈᑕᐅᖃᑦᑕᓯᒪᔪᑦ ᐱᒋᐊᕐᑎᓯᓚᓯᐊᕐᓯᑎᒃ ᐊᑭᓖᓗᑎᒃ ᐃᖃᓗᓐᓂᐊᖃᑦᑕᕋᔭᕐᑐᓂᒃ ᑲᔪᓯᒍᓐᓇᓯᒪᖕᖏᒪᑕ ᐃᓚᖕᖏᑕᐅᓯᒪᓂᖏᑦ ᐃᑉᐱᓇᓪᓗᐊᖏᓚᕿᔪᑦ. ᑕᒪᓐᓇ ᐱᑦᔪᑕᐅᑎᓪᓗᒍ, ᔦᒥᓯᐯᒥᑦᑐᑦ ᕿᓚᓗᒑᑦ ᐃᑭᓕᔭᐅᓚᐅᕐᓯᒪᖕᖏᓚᕿᔪᑦ ᑌᒣᖃᑦᑕᓯᒪᑎᓪᓗᒋᑦ ᐊᓯᖏᓐᓂ ᐃᓂᓖᑦ. ᐃᐸᓇᓪᓚᕆᑦᑐᒥᒃ ᐃᓂᒋᓰᖏᑦ ᐊᓯᑦᔨᓯᒪᓪᓚᕆᑦᑐᑦ ᐊᓯᑦᔨᑎᑕᐅᓚᕿᓯᒪᑦᓯᑎᒃ ᐃᑯᒪᐅᑎᓕᐅᕐᑎᓄᑦ ᐅᐊᓐᓂᖓᓂ ᔦᒥᓯ V, ᑭᓯᐊᓂ ᖃᓄᑎᒋ ᓲᕐᐅᓯᒪᓰᖑᒻᒪᖓᑕ ᖃᐅᔨᒪᔭᐅᖕᖏᑐᑦ.ᖃᒻᒥᑯᑦ ᐃᓱᓕᑦᑕᕕᓕᓐᓂᒃ ᐋᓂᑐᕋᓯᐊᕈᓐᓇᐅᑎᑖᕐᓯᒪᔪᑦ, ᐋᓂᑐᕐᑕᐅᔪᕕᓃᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᓯᒪᔪᑦ 2021 41ᕌᕐᑐᕕᓂᐅᒋᐊᖏᑦ (ᐊᑦᔨᖑᐊᖅ 2).

ᓴᓂᑭᓗᐊᒥ ᐊᒻᒪᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐊᑐᐊᕐᓂᖓᓂ (BEL-EHB) ᕿᓚᓗᒑᑦ

ᑮᓇᐅᔭᓕᐅᕈᑎᒋᑦᓯᒍ ᐃᖃᓗᓴᓯᐊᕐᓂᐅᖃᑦᑕᓯᒪᔪᖅ 1900 ᐊᕐᕌᒍᖏᓐᓂ ᐊᑑᑎᑎᑦᓯᓯᒪᔪᖅ ᐃᑭᓕᑎᑦᓯᓯᓂ ᕿᓚᓗᖓᕐᓂᒃ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐊᑐᐊᕐᓂᖓᓃᑦᑐᓂᒃ. ᒪᓐᓇᓗ ᐋᓂᑐᕐᑕᐅᕚᓂᑯᖏᓐᓄᑦ ᐊᒥᓱᖕᖑᖃᔦᒪᓚᕿᔪᕕᓂᐅᒍᓐᓇᒥᑦᓯᑎᒃ. ᐊᕐᕌᒍᖏᑦ 1980 ᐊᑐᓕᕐᑎᓗᒋᑦ, ᐃᓱᓕᑦᑕᕕᓕᐅᕐᑕᐅᓚᐅᕐᓯᒪᔪᑦ ᐱᕐᑯᔭᑎᒍᑦ ᐋᓂᑐᕐᑕᐅᒍᓐᓇᓂᖏᑦ ᒪᓕᒻᒥᑎᓪᓗᒋᑦ ᐃᓱᓕᑦᑖᕕᑦ ᐅᓄᕐᓂᖏᓐᓄᑦ ᐋᓂᑐᕐᑕᐅᒍᓐᓇᑐᑦ(TAT) ᐊᒻᒪᓗ ᓄᓇᕕᓕᒫᖅ ᐊᕐᕌᒎᓪᓗ ᓇᓪᓕᐅᓂᖏᑦ ᒪᓕᑦᓯᒋᑦ ᕿᓚᓗᒐᕐᓂᐊᖃᕐᑎᑕᐅᓯᒪᑦᓯᑎᒃ ᐅᑯᓇᓂ ᐸᑎᕐᑐᖅ, ᕿᓚᓗᒐᕐᓯᐅᕕᒻᒥᓗ. ᐋᓂᑐᕋᓯᐊᓂᖅ ᐅᐊᓐᓂᖓᓂ ᑕᓯᐅᔭᕐᔪᐊᑉ ᓄᕐᖃᖓᑎᑕᐅᓯᒪᔪᖅ ᐱᒋᐊᕐᓯᓂ 2001ᒥ ᑎᑭᑦᓯᒍ 2006, ᐊᒻᒪᓗ ᐸᑎᕐᑑᖅ ᕿᓚᓗᒐᕐᓯᐅᕕᓪᓗ ᐅᒃᑯᐊᓯᒪᖏᓐᓇᑐᐃᓐᓇᑑᒃ ᐅᒪᖕᖓᓂᑦ ᐋᓂᑐᕋᓯᐊᕈᓐᓇᓯᓚᐅᕐᓯᒪᑎᓪᓗᒋᑦ 2007ᒥᓂᑦ.

366 ᕿᓚᓗᒐᕐᑕᐅᓯᒪᒋᐊᖏᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᓯᒪᔪᑦ ᓄᓇᕕᒻᒥᐅᓄᑦ ᐃᓚᐅᑎᓪᓗᒋᑦ 41 ᖁᑦᒥᐅᑕᓂᑦ 2021-2022 ᕿᓚᓗᒐᕐᓂᐊᓇᐅᑎᓪᓗᒍ (ᐊᑦᔨᖑᐊᖅ 2). ᐊᓯᒋᐊᓪᓚᖏᓪᓗ ᕿᓚᓗᒑᑦ 30 ᐋᓂᑐᕐᑕᕕᓂᐅᑦᓯᑎᒃ ᓴᓂᑭᓗᐊᒥ (ᓄᓇᕗᑦ)(ᐊᑦᔨᖑᐊᖅ 2). 2021ᒥ ᐋᓂᑐᕐᓂᖅ ᓄᓇᕕᒻᒥ ᐅᖓᑖᓅᕐᑐᕕᓂᖅ ᐋᓂᑐᕐᑕᐅᖓᔫᓰᑦ 344 ᐊᕐᕌᒍᑕᒫᑦ ᑕᑯᑦᓯᒋᑦ 2016-2021ᒧᑦ ᑎᑭᑦᑐᑦ ᑭᓯᑕᐅᒪᐅᑏᑦ.

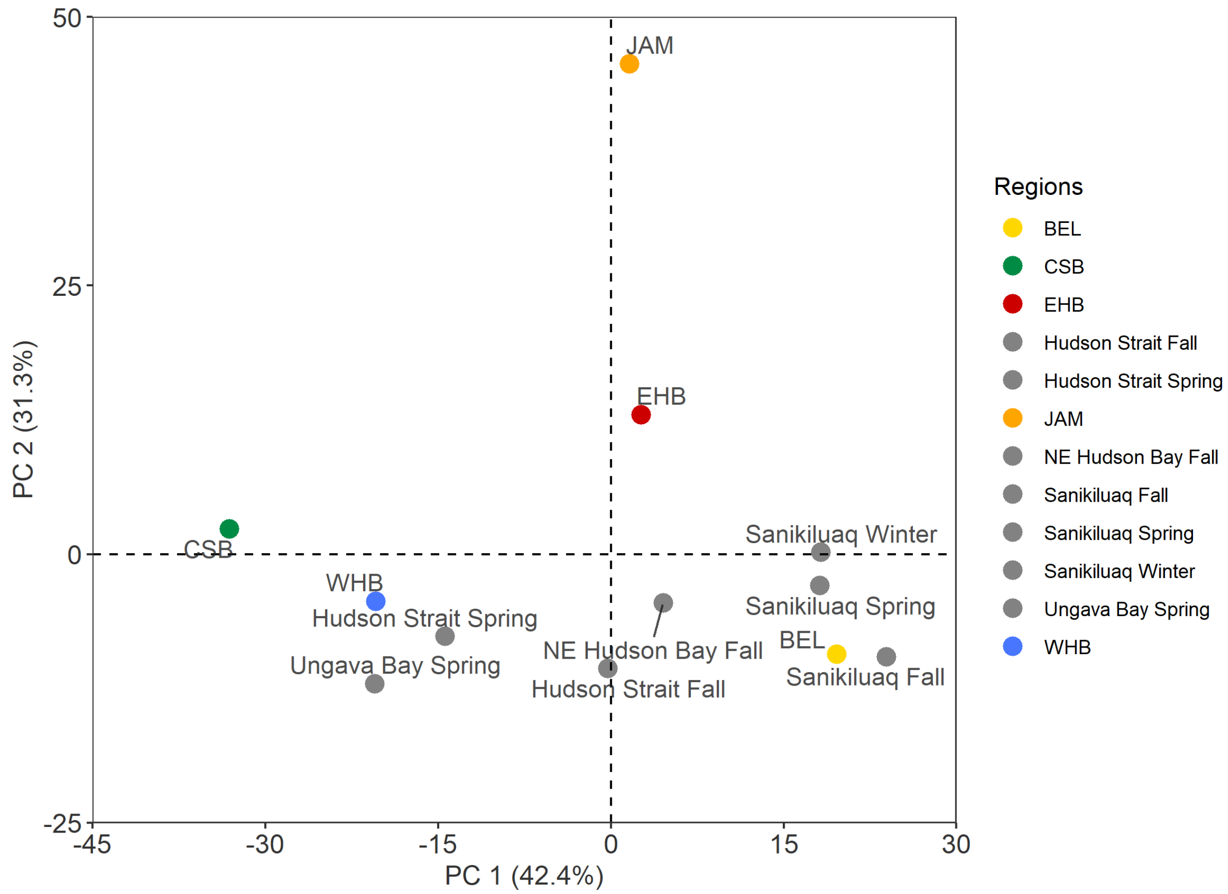


ᐊᑦᓱᕐᑑᐊᖅ 2. ᐊᓐᓂᑐᕐᑕᐅᓯᒪᓂᖏᑦᑕ ᕿᓚᓗᒋᑦ ᐅᓄᕐᓂᖏᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᓯᒪᔪᑦ ᓄᓇᕕᒻᒥ (ᑐᖓᔪᕐᑕᒧᑦ ᐊᕙᓗᓯᒪᔪᖅ), ᒥᑦᓴᐅᓭᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᑦ ᓴᓂᑭᓗᐊᒥ ᐅᐊᓐᓂᖓᓂᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ ᕿᓚᓗᒐᖏᑦᑕ ᓄᓇᕕᒻᒥ (ᐊᐅᐸᓚᖓᔪᖅ) ᒥᑦᓴᐅᓭᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᑦ ᓴᓂᑭᓗᐊᒥ BEL-EHB ᕿᓚᓗᒋᑦ ᓴᓂᑭᓗᐊᒥ (ᓄᓇᕗᑦ ᑐᖓᔪᕐᑕᐅᓯᑎᒃ ᓯᒃᑭᑌᑦ), ᐊᒻᒪᓗ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᒋᐊᖏᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᓯᒪᔪᖅ ᖁᒻᒥᐅᑕᓂ (ᓄᓇᐅᔭᖅ). BEL-EHB ᕿᓚᓗᒋᑦ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᖅ ᑐᖕᖓᕕᓃᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᓯᒪᔪᓂᒃ ᐃᓂᖏᑎᒍᑦ ᒪᓕᑦᓯᒋᑦ ᐃᓚᖏᓪᓗ ᐱᓯᒪᑦᓯᑎᒃ ᐊᐅᖏᑎᒍᑦ ᖃᐅᔨᓴᕐᑕᐅᒍᑎᒋᓯᒪᔭᖏᓐᓂᑦ. ᐊᐅᐸᕐᑐᖅ ᑎᑦᑕᖅ ᐱᖁᔨᒍᑎᐅᓯᒪᔪᑦ ᐊᓐᓂᑐᕐᑕᐅᒐᔭᕐᐸᑕ (TAT) BEL-EHB ᕿᓚᓗᒐᖏᑦ. ᐅᓄᕐᓂᕆᒐᔪᑦᑕᖏᑦ ᕿᓚᓗᒐᕐᑕᐅᔪᑦ ᑖᒃᑯᓈᓂ ᐃᓂᓐᓃ BEL-EHBᕿᓚᓗᒐᕐᑕᐅᔪᕕᓃᑦ ᓄᓇᕕᒻᒥ 344 ᐊᒻᒪᓗ 95 ᐊᑯᓐᓂᖏᓐᓂ 2016-2021.

ᕿᒥᕐᕈᔭᐅᓯᒪᐅᑎᖏᑦ

ᐱᑕᖃᕐᓂᖏᑦᑕ ᐃᓂᓪᓚᓯᒪᒍᓯᖏᑦ

ᐱᑕᖃᕐᓂᖏᑦᑕ ᐃᓂᓪᓚᓯᒪᒍᓯᖏᑦ ᕿᓚᓗᒋᑦ ᐅᐱᕐᖖᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓃᑦ-ᓄᕗᒻᒥᓗ ᖃᐅᔨᔭᐅᓯᒪᔪᑦ ᐊᑐᕐᓯᑎᒃ ᐊᐅᖏᑎᒍᑦ ᖃᐅᔨᓴᐅᑎᓂᒃ(mtDNA) ᐊᐅᓚᑕᐅᔪᖅ ᓄᓇ(615 nucleotides). ᖃᐅᔨᓴᕐᑎ ᒥᑦᓯᒋᑦᓴᓯᒪᔪᖅ WHB ᐊᒻᒪᓗ EHB ᕿᓚᓗᒐᖏᑦ ᒪᓗ ᓇᓗᓓᕐᓯᒍᓐᓇᓯᑦᓯᓂ ᐊᑐᕐᓯᓂ ᖃᐅᔨᔭᐅᒍᑎᐅᖃᑦᑕᓯᒪᔪᓂᒃ ᑭᖑᓂᕐᒥ (234 nucleotides). ᑖᒃᑯᐊ ᑕᑭᔫᑦᓯᑎᒃ ᖃᐅᔨᓴᐅᑏᑦ ᓇᓗᓓᕐᓯᒍᑎᐅᓯᒪᒻᒥᔪᑦ ᐱᑕᖃᓇᐊᖏᑦ ᔦᒥᓯ ᐯᒥ (JAM), ᓯᑯᓪᓚᕐᒥᓗ ᕿᓚᓗᒋᑦ (CSB) ᓇᓗᓓᕐᓯᖄᒻᒥᐅᒥᑦᓯᑎᓪᓗ ᓴᓂᑭᓗᐊᒥ, (BEL) ᕿᓚᓗᒐᕐᓂᒃ (ᐊᔾᔨᖑᐊᖅ 3).



ᐊᑦᔨᖑᐊᖅ 3. ᑐᓐᖓᕕᒻᒪᕇᑦ ᖃᐅᔨᓴᕐᑕᐅᓯᒪᔪᓄᑦ (PCA)ᐊᑐᕐᓯᑎᒃ ᑕᑭᔪᓂᒃ ᐊᐅᖕᒋᑎᒍᑦ ᖃᐅᔨᓴᐅᑎᓂᒃ (615 nucleotides)ᐃᓕᖓᔪᑦ ᐊᐅᖕᒋᑎᒍᑦ ᖃᐅᔨᓴᕐᑕᐅᒍᑎᓄᑦ ᓯᐊᒻᒪᓯᒪᑎᓪᓗᒋᑦ ᐊᐅᓚᑕᐅᒍᑎᓕᑦᑕᖕᒋᑎᒍᑦ ᕿᓚᓗᒐᕐᓂᒃ ᐊᑦᔨᒌᖕᖏᑑᑦᓯᑎᒃ ᑕᓪᓕᒣᖑᑦᓯᑎᒃ ᑕᐅᑦᑐᖕᒋᑎᒍᑦ; WHB, JAM, EHB, BEL, CSB) ᐊᓂᑐᕐᑕᐅᓯᒪᔪᓂᓪᓗ ᓄᓇᕕᒻᒥ ᓴᓂᑭᓗᐊᒥᓪᓗ ᐊᐅᓚᑕᐅᒍᑎᖕᒋᑎᒍᑦ (ᓯᓇᕐᓇᖅ). ᐅᖓᓯᑦᑕᕇᓐᓂᖕᒋᑦ ᐱᑕᖃᕐᓂᖕᒋᑦᑕ ᕿᓚᓗᒋᑦ ᐃᓂᖕᒋᑎᒍᑦ ᐊᐅᓚᕐᓱᒍᑎᑕᓕᓐᓂᓘᓐᓂᑦ ᐋᑐᑎᔪᑦ ᒪᓕᑦᐅᒋᐊᓕᒻᒥᒃ ᑭᓯᕐᓱᒍᑎᑎᒍᑦ ᐊᑦᔨᒌᖕᖏᓂᖕᒋᑦ ᒪᓕᑦᓯᒋᑦ ᐊᐅᖕᒋᑎᒍᑦ ᓇᑭᕐᖓᓂᑕᑦᓵᔭᐅᓂᖕᒋᑦᑕ ᐊᕕᑦᑐᑕᐅᓯᒪᐅᑎᖕᒋᑎᒍᑦ.

ᑐᓐᖓᕕᒋᑦᓯᒋᑦ ᖃᒻᒥᓂᑕᐅᓂᕐᐹᑦ ᖃᐅᔨᓵᕈᑎᐅᓯᒪᔪᑦ ᐱᓯᒪᑦᓯᑎᒃ ᓴᓂᑭᓗᐊᒥᑦ, ᐃᒻᒥᒎᕐᑐᑦ ᓇᓗᓃᕐᑕᐅᓯᒪᓕᕐᒪᑕ ᕿᓚᓗᒐᐅᖅᑎᕆᑦᑖᖃᒻᒥᓂᒃ ᐅᕝᕙᓗᒨᓐᓃᑦ ᐊᓯᑦᔨᐸᓪᓕᐊᓂᐅᔫᖅ ᐱᐅᓯᐅᑦᓯᓂ ᑕᒪᓐᓇᐅᓴᕐᐸᑦ. ᖃᐅᔨᓴᕐᑕᐅᖃᑦᑕᓯᒪᔪᑦ ᑭᖑᓂᕐᒥ ᐊᑐᕐᓯᒋᑦ ᐊᐅᓐᓂᐊᕈᑏᑦ, ᓴᓂᑭᓗᐊᑉ ᕿᓚᓗᒐᖕᒋᑦ ᐃᓚᒋᓕᐅᑦᔭᐅᓯᒪᔪᑦ ᑕᓯᐅᔾᔪᐊᑉ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖕᒋᓐᓄᑦ, ᐱᑦᔪᑕᐅᓗᐊᖕᖑᐊᑎᓪᓗᒍ ᐊᑦᔨᒋᓂᒃ ᐊᐅᒻᒥᑎᒍᑦ ᖃᐅᔨᔭᐅᒍᑎᖃᕐᓯᒪᒻᒪᑕ ᐱᑕᖃᓇᐊᖕᒋᑦ.ᕋᓗᐊᕐᑎᓗᒍ, ᐊᑯᓂ ᐊᐅᖕᒋᑎᒍᑦ ᖃᐅᔨᔭᐅᒐᓯᐊᕈᑎᐅᓯᒪᔪᑦ ᖃᐅᔨᔭᐅᓯᒪᐅᑎᖕᒋᑦ ᐊᑐᕐᓯᒋᑦ ᓄᐃᑦᓯᓯᒪᒻᒪᑕ ᐱᑕᖃᕐᓂᐸᐅᒋᐊᖕᒋᑦ ᐱᓯᒪᔪᑦ ᐅᐊᓐᓂᒥᑦ ᐊᑦᔨᐅᖕᒋᑦᑑᓯᑎᒃ ᑖᒃᑯᓈᖕᖓᑦ.ᓴᓂᑭᓗᐊᑉ ᕿᓚᓗᒐᖕᒋᑦ ᐊᑦᔨᖃᕐᓂᖕᒋᑦᑐᑦ ᐊᐅᖕᒋᑎᒍᑦ ᑕᓯᐅᔾᔪᐊᑉ ᐅᐊᓐᓂᖓᓂᓖᑦ ᕿᓚᓗᒋᑦ ᐊᐅᖕᒋᓐᓂᒃ, ᕋᓗᐊᕐᑎᓗᒍ ᑕᒪᕐᒥᒃ ᑕᓯᐅᔾᔪᐊᒥ ᐃᓂᖃᓖᖕᒋᓐᓈᒃ.

ᐃᒻᒥᓂᕿᑦᓯᑎᒃ ᐱᓇᓱᓐᓂᐅᕆᐊᓕᕕᓃᑦ ᐃᑭᑦᑐᕕᓃᑦ ᐱᓇᓱᑦᑕᐅᒍᑎᖕᒋᑦ(19.7%) ᓴᓂᑭᓗᐊᒧᑦ ᐱᑕᖃᕐᓂᖕᒋᑦ ᐃᓱᒪᓗᓐᓇᖕᒋᓐᓂᖕᒋᓪᓗ (69.4%) ᑕᓯᐅᔾᔪᐊᑉ ᐅᐊᓐᓂᖓᓄᑦ ᐱᑕᖃᕐᓂᖕᒋᑦ ᐃᓱᒪᕆᑦᓯᒋᑦ ᑕᓪᓕᒣᖑᓂᖕᒋᑦ.ᑕᒪᓐᓇ ᐱᒍᓐᓇᐅᑎᖃᕈᑎᐅᔪᖅ ᐊᕕᖃᑎᕆᒍᑎᐅᓗᑎᒃ ᑖᒃᑯᐊ ᒪᕐᕈᐃᑦ ᕿᓚᓗᒋᑦ ᐊᐅᒥᑎᒍᑦ ᐊᒥᓲᖕᖏᑐᑦ ᐱᓯᒪᑦᓯᑎᒃ ᑕᓯᐅᔾᔪᐊᑉ ᐅᐊᓐᓂᖓᓂᑦ. ᑕᓯᐅᔾᔪᐊᑉ ᐅᐊᓐᓂᖓᓃᑦ ᓴᓂᑭᓗᐊᒥᓗ ᐅᐱᕐᖓᒥ ᒥᕐᕿᓯᓕᕋᒥᒃ ᒪᕐᕈᐃᖑᕆᐊᖕᒋᑦ

ᐊᕙᑦᑐᑕᐅᓯᒪᐅᑎᓖᑉ, ᑕᒪᓐᓇ ᓄᐃᑦᓯᓯᒪᔪᖅ ᐱᐅᓯᐅᒥᓯᒪᒋᐊᖓ ᓇᒻᒥᓂᖅ ᐊᐅᓚᑦᓱᒍ ᐱᓇᓲᓐᓂᖅ ᖃᐅᔨᒪᒐᓱᐊᕐᓂᓂᒃ (84.7%). ᑌᒣᒪᑦ,ᓯᑕᒣᖑᓂᖏᑦ ᐊᐅᙱᑎᒍᑦ ᖃᐅᔾᔭᐅᓯᒪᐅᑎᖏᑦ ᒪᓕᑦᓱᒋᑦ ᑐᑭᖃᕐᑎᑕᐅᔪᑦᓴᐅᕚᑦ ᐊᐅᙱᑎᒍᑦ ᐊᑦᔫᒌᖕᖏᑑᒋᐊᖏᑦ,ᐅᑯᐊᖑᑦᓱᑎᒃ ᐅᐊᓐᓂᖓ ᑕᓱᐅᔭᕐᔪᐊᑉ, ᔦᒥᓯ V, ᓴᓂᑭᓗᐊᓪᓗ, ᕿᓚᓗᒐᖏᑦ ᐊᒻᒪᓗ ᓴᓂᑭᓗᐊᑉ-ᑕᓱᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ.

ᐃᓚᖏᑦ ᓴᓂᑭᓗᐊᑉ-ᑕᓱᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᒐᑦᑕᓯᒪᔪᑦ ᐊᒃᓚᑕᐅᓯᒪᐅᑎᖏᑦ ᐊᐅᓚᑦᓯᒍᑎᑕᓕᓐᓂ ᒪᓕᑦᓱᒋᑦ ᐊᒻᒪᓗ ᐅᐱᕐᖓᓴᓂᑌᑦ(ᕙᕈᐊᕆ-1ᐊᐅᒡᒍᓯ 31) ᐊᒻᒪᓗ ᐅᑭᐊᒥ (1ᓯᑉᑎᒻᐱᕆ-ᔭᓄᐊᕆ 31) ᐊᓐᓂᑐᕋᓱᐊᓇᖅ ᒥᑦᓴᐅᓵᕐᑕᐅᔫᖅ ᐊᑐᕐᓱᒋᑦ ᕿᓚᓗᒐᐅᑉ ᓄᑭᖏᑦ ᖃᐅᔨᒐᓱᐊᕈᑎᑦᓴᑖᖑᓯᒪᔪᑦ ᕿᓚᓗᒐᕐᓂᐊᑐᓂᑦ. ᓴᓂᑭᓗᐊᒥ, ᕿᓚᓗᒐᕐᓂᐊᓇᖅ ᐊᕙᑦᑐᑕᐅᓯᒪᔫᖅ ᓯᑕᒣᓕᖕᒐᑦᓱᓂ ᐊᕐᕌᒍᒥ; ᐅᐱᕐᖓᓴᖅ (ᐁᕆᓕ 1, ᔫᓂ 3ᔾ), ᐅᐱᕐᖔᒥ (ᔫᓚ 1-ᐊᐅᒡᒍᓯ 31), ᐅᑭᐊᒥ (ᓯᑉᑎᒻᐱᕆ 1-ᓅᕙᒻᐱᕆ 30) ᐅᑭᐅᒥᓗ (ᑏᓯᒻᐱᕆ 1-ᒫᑦᓯ 31) (ᐊᕙᑦᑐᓯᒪᕙᒃ ᑕᑯᓗᒍ 1).

ᐊᕙᑦᑐᓯᒪᕙᒃ 1. ᐊᐅᙱᑎᒍᑦ ᐊᑦᔫᒌᖕᖏᓂᖓᑕ ᖃᐅᔨᓴᕐᑕᐅᒍᑎᒋᓯᒪᔭᖏᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓱᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦᑕ ᐊᓐᓂᑐᕐᑕᐅᒐᑦᑕᓯᒪᔪᑦ ᓄᓇᕙᒻᒥ ᐊᒻᒪᓗ ᓴᓂᑭᓗᐊᑉ ᐊᐅᓚᑕᐅᕙᓐᖓᓂ ᐊᕙᑦᑐᓯᒪᓂᖏᑎᒍᑦ ᑕᕐᕋᐸᓯᖓ ᑕᓱᐅᔭᕐᔪᐊᑉ (NE): ; Ns: ᐅᓄᕐᓂᖏᑦ ᖃᐅᔨᓴᐅᑎᐅᓯᒪᔪᑦ; Nv:ᐅᓄᕐᓂᖏᑦ ᐅᓪᓗᖏᑦᑕ ᐊᓐᓂᑐᕋᓱᐊᕐᓃᑦ ᑕᒃᑲᓂᑦᓴᓇᐅᖕᖏᑐᖅ (ᐊᑑᑎᔪᑦ) ; P: ᐱᑕᖃᕐᓂᖏᑦ; 95% CI: 95% ᐃᓱᒦᓗᓐᓇᖏᑦᑐᑦ. [1] ᐱᑕᖃᕐᓂᖏᑦ ᓄᕗᒻᒥ ᐅᐱᕐᖓᓴᒥ ᐊᑐᕐᑕᐅᔪᑦ ᐱᑦᔪᑕᐅᑎᓪᓗᒍ ᖃᐅᔨᓴᐅᑏᑦ ᐊᑑᑎᕙᐊᓯᒪᖕᖏᓂᖏᓐᓄᑦ ᐅᕝᕙᓗᓘᓐᓃᑦ ᐊᓐᓂᑐᕋᓱᐊᕐᑐᕙᓃᑦ ᐱᐅᓯᕙᓂᖓ ᑐᑭᓯᓇᕙᐊᕋᓂ; [2] ᐱᓯᒪᔪᑦ ᓄᕗᒻᒥᑦ ᐅᑭᐊᒥ ᐊᑐᕐᑕᐅᓚᕿᓯᒪᔪᑦ ᓈᒻᒪᓈᕙᐊᓂᖕᖏᒪᑕ ᖃᐅᔨᓴᐅᑏᑦ ᕿᒥᕐᕈᔭᐅᒍᑎᖏᑦ ᖃᐅᔨᓴᕐᑕᐅᒐᑦᑐᕙᓂᕐᓂ ᐊᑯᓐᓂᖏᓐᓂ 1994-2021.

ᐊᐅᓚᑦᓯᒍᑎᑖᑦ		BEL-EHB ᐱᑕᖃᕐᓂᖏᑦ (%)	
ᐊᕙᑦᑐᓯᒪᑦᓱᑎᒃ	Ns/Nv	P	95% CI
ᓄᓇᕙᒃ			
ᐅᐱᕐᖓᓴᒥ			
ᓄᕗᒃ	824/364	12.3	8.6-16.5
NE ᑕᓱᐅᔭᕐᔪᐊᖅ[1]	2/1	12.3	8.6-16.5
ᐅᖓᕙ	143/87	4.7	0.8-11.8
ᐅᑭᐊᒥ			
ᓄᕗᒃ	512/202	44.0	35.1-53.0
NE ᑕᓱᐅᔭᕐᔪᐊᖅ	45/19	50.1	23.9-76.2
ᐅᖓᕙ [2]	6/6	44.0	35.1-53.0
ᓴᓂᑭᓗᐊᖅ			
ᐅᐱᕐᖓᓴᖅ	229/99	62.8	51.5-73.4
ᐅᑭᐊᖅ	49/35	61.0	35.1-83.9
ᐅᑭᐅᖅ	76/11	39.9	13.0-70.8

ᒪᕐᑫᑏᑦ ᐅᖃᕐᓯᒪᔪ5 ᑖᒃᑯᐊ ᓴᓂᑭᓗᐊᑉ ᑕᓱᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐃᖏᕐᕋᓱᑦᓴᐅᑎᒋᓂᖅᓴᐅᓰᑦ ᓄᕗᒃᑰᓱᑎᒃ ᐊᓱᙱᓐᓂ ᕿᓚᓗᒐᕐᓂᑦ ᐸᑎᕐᑑᑉ ᕿᓚᓗᒐᑦᓴᔭᖏᓐᓂᑦ.ᑕᒪᓐᓇᐅᑐᐃᓐᓇᕆᐊᖃᕐᓂᖓ ᖃᐅᔨᒐᓱᐊᕐᑕᐅᓯᒪᔪᖅ ᐃᖏᕐᕋᓕᕐᒪᑕ ᖃᐅᔨᒪᒐᓱᐊᓰᓄᑦ ᕿᓚᓗᒐᕐᓂᒃ/ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᑦ (ᑕᑯᓗᒍ ᑭᓯᑦᓯᕙᐅᓯᒪᔪᖅ 2). ᐃᓚᖏᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓱᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐊᒥᓱᐊᓘᓚᐅᔪᑦ ᐅᑦᑑᐱᕿᐅᑎᓪᓗᒍ ᓅᕙᒻᐱᕆᓗ ᐱᒋᐊᕐᖃᒥᐅᑎᓪᓗᒍ, ᐃᑭᓕᓯᓚᐅᔪᒻᒥᔪᑦ ᓅᕙᒻᐱᕆᐅᑉ ᑕᕐᕿᖓᑕ ᕿᑎᖓᓂ ᐃᒣᓪᓗᐊᑐᓂᒃ 10.4% ᑕᕐᕿᖅ ᐊᑐᕐᑐᑐᖃᐅᓕᕐᑎᓗᒍ.

ᑭᓯᕐᓯᕕᐅᓯᒪᔪᖅ 2. ᐊᐅᕐᕆᑎᒍᑦ ᐊᕐᕋᓰᖕᖏᓂᖓᑕ ᖁᒥᕿᔭᐅᓯᒪᐅᑎᖏᑦ ᑖᒃᑯᐊ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦᑕ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᑦ ᓄᕗᒻᒥ ᐊᕐᕌᒍᓕᒫᒥ. Ns: ᐅᓄᕐᓂᖏᑦ ᖃᐅᔨᓴᕈᑏᑦ ᐊᑐᕐᑕᐅᓯᒪᔪᑦ; Nv:ᖃᕐᓯᐅᓂᖏᑦ ᐅᓪᓗᐃᑦ ᐊᓐᓂᑐᕋᓯᐊᕐᕕᐅᓯᒪᔪᑦ (ᐊᑑᑎᔪᕕᓃᑦ) P: ;ᖃᕐᓯᐅᓂᖓ 95% CI: 95%ᐃᓱᒫᓗᓐᓇᖏᑦᑐᖅ ᑎᑭᐅᑎᕕᐅᓯᒪᓂᖓ; ND: ᓇᓗᓀᕐᑕᐅᓯᒪᖕᖏᑐᑦ (ᖃᕐᓯᐅᓂᖏᑦ ᖃᐅᔨᓴᕈᑎᐅᓯᒪᔪᑦ ᖃᕐᓯᓂᓪᓗ ᐅᓪᓗᓂ ᐊᓐᓂᑐᕋᑐᐊᕐᓂᒪᖔᑕ <10). ᖃᐅᔨᓴᐅᑎᑦᓴᐅᑎᓪᓗᒋᑦ ᓄᐊᑕᐅᖃᑦᑐᕕᓃᑦ ᐊᑯᓐᓂᖏᓐᓂ ᐊᕐᕌᒍᖏᑦᑕ 1994-2021.

ᖃᖓᐅᓂᖓ	Ns/Nv	ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ(%) P	95% CI
ᒣ	6/6	ND	-
ᔫᓂ	577/230	12.4	7.9-17.7
ᔪᓚ	223/114	11.0	5.6-18.0
ᐊᐅᒃᒍᓯ	18/14	13.7	0.0-57.4
ᓯᑉᑎᒻᐱᕆ	26/7	ND	-
ᐅᑦᑑᐱᕆ	223/104	47.3	34.7-60.1
ᓅᕕᒻᐱᕆ	263/91	45.1	33.0-57.6
ᓅᕕᒻᐱᕆ. 1-10	167/62	51.5	39.0-63.9
ᓅᕕᒻᐱᕆ 11-20	96/29	33.9	13.9-57.6
ᓅᕕᒻᐱᕆ. 21-30	49/13	10.4	0.9-29.5

ᖃᖓᑦᑕᔫᕐᑐᓄᑦ ᑭᓯᑕᕕᓃᑦ

ᐯᑕᑯᔭᒥᓂᒃ ᖃᖓᑕᑦᓯᑎᒃ ᑎᑦᑕᑕᐅᓯᒪᔫᒃᑯᑦ ᑭᓯᑦᓯᔪᑦ ᐊᑑᑎᔭᐅᓚᐅᔪᔪᖅ ᔪᓚ-ᐊᐅᒃᒍᓯᒥᓗ 2021 ᖁᓚᐅᖃᑦᑕᓯᒋᑦ ᔦᒥᓯ ᐯ ᐅᐊᓐᓂᖓᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ ᓯᑦᔭᑎᔫᕐᓯᑎᒃ ᓄᓇᖕᖑᐊᒥ ᓇᓗᓀᒃᑯᑕᖓ 81°W of longitude, ᐅᖓᓯᓐᓂᓕᒃ 60 ᑭᓚᒦᑕᓂᒃ ᓴᓂᑭᓗᐊᒥᑦ (ᑕᑯᓗᒍ ᑭᓯᑕᐅᒪᐅᑎ 1.). ᓯᑦᔭᐅᑉ ᑭᓪᓕᖓᒎᕐᓯᑎᒃ ᖃᖓᑕᖃᑦᑕᓚᐅᔪᔪᑦ ᐱᖓᓯᕕᑦᓯᑎᒃ ᕿᓂᕐᓯᑎᒃ ᕿᓚᓗᒐᕐᓂᒃ ᑲᑎᒪᔪᓂᒃ ᓯᑦᔭᑯᑦ ᑲᖏᕐᓯᑎᒍᓪᓗ. ᐅᐊᓐᓂᖓᓂ ᑕᓯᐅᔭᕐᔪᐊᑉ, ᕿᓚᓗᒐᕐᓯᐅᕕᒃ ᐸᑎᕐᑑᓗ ᑰᖏᒃ ᑭᓯᑦᓯᕕᐅᒍᒪᓗᐊᖕᖑᐊᓚᐅᔫᒃ ᐊᕐᖁᓵᕐᑕᐅᖏᓐᓇᓕᒫᖃᑦᑕᓚᐅᔫᒃ ᑌᒪᖕᖓᑕᒫᑦ ᖃᖓᑕᓕᒪᑕ (ᖃᖓᑕᑲᑦᓯᑕ ᑕᒪᒃᑯᑎᒎᓇ ᑎᑦᑕᑕᐅᓯᒪᔫᒃᑯᑦ ᐅᙯᓗᓘᓐᓃᑦ ᒥᓚᐅᕐᑐᖃᑦᑕᓯᑕ ᒥᙯᑎᒎᕆᐊᖃᖃᑦᑕᓯᑕ). ᓯᓚ ᐱᕕᑦᓴᐅᓂᖓ ᒪᓕᑦᓯᒍ.

2021ᖑᑎᓪᓗᒍ ᑭᓯᑦᓯᔪᖃᓚᐅᔪᖕᖏᑐᖅ ᖃᖓᑦᑕᔫᒃᑯᑦ ᐅᖓᕙᒥ ᑕᓯᐅᔭᕐᔪᐊᒥᓗ.

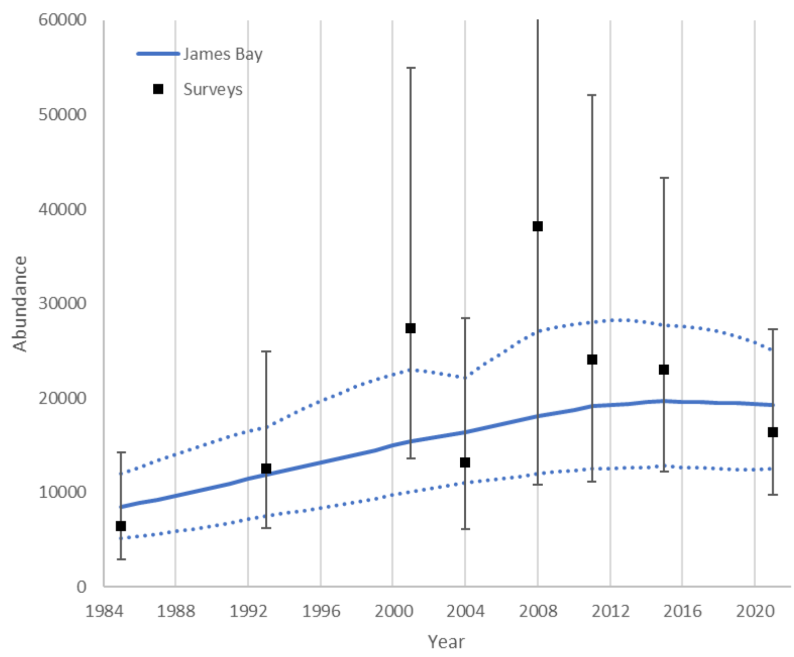
ᑭᓯᑕᐅᒪᐅᑎ 3. ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑕᐅᒪᐅᑏᑦ ᒪᑦᑕᐅᒍᑎᑭᑭᐊᓕᖏᑦᑕ ᑕᒻᒪᓯᒪᓂᕕᓂᖏᑦ (SE)ᒥᑦᓴᐅᕌᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦᑕ, ᐊᒻᒪᓗ Western Hudson Bay (WHB), ᔦᒥᓯ ᐯ (JAM) ᐊᒻᒪᓗ ᐅᖓᕙ(UB) ᕿᓚᓗᒉᑦ ᐱᑕᖃᕐᓂᖏᑦ ᑕᑯᔭᐅᓯᒪᔪᑦ ᖃᖓᑦᑕᔫᕐᑐᓄᑦ.ᒪᓕᑦᑕᐅᓯᑎᒃ ᐋᕐᕿᕆᐊᕐᑕᐅᓯᒪᔪᑦ ᐊᑐᐃᓐᓇᓕᐊᕆᔭᐅᑦᓯᑎᒃ ᓈᒻᒪᓈᕐᑐᓕᐊᕆᔭᐅᑦᓯᑎᓪᓗ.

ᐊᕐᕌᒍᖓ	ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᒥᑦᓴᐅᕌᕐᑕᐅᓯᒪᐅᑎᖏᑦ (SE)	WHB ᒥᑦᓴᐅᕌᕐᑕᐅᓯᒪᐅᑎᖏᑦ (SE) [1]	JAM ᒥᑦᓴᐅᕌᕐᑕᐅᓯᒪᐅᑎᖏᑦ(SE)	UNG
1985	6,967 (3,240)	-	6,477 (2,727)	*
1987	-	31,124 (6967)	-	-
1993	4,061 (1,961)	-	12,497 (4,549)	*

ᐊᕐᕌᒍᖓ	ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ (SE)	WHB ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ (SE) [1]	JAM ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ(SE)	UNG
2001	4,430 (2,428)	-	27,373 (10,046)	*
2004	7,153 (3,276)	51,761 (15,875)	13,226 (5,383)	-
2008	4,164 (2,265)	-	38,191 (27,307)	*
2011	5,060 (2,879)	-	24,085 (9,851)	-
2015	8,205 (4,053)	54,473 (5,329)	23,036 (7,602)	-
2021	2,315 (734)	-	16,349 (4,332)	-
-	-	-	-	<100

[1] ᑭᖑᓪᓕᐹᒥ ᑭᓯᑕᐅᒍᑎᕚᓃᑦ 2015.
* ᕿᓚᓗᒐᕐᔨᓯᒪᖕᖏᑐᑦ ᐅᖓᕙᐅᑉ ᑎᑎᕐᑕᐅᓯᒪᓂᖓᒍᑦ. ᖃᒥᓂᑕᐅᓂᕐᐹᑦ ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᓂ ᐅᖓᕙᒥ ᐃᑭᓐᓂᓴᐅᓂᕋᕐᑕᐅᔪᑦ 100ᓂᑦ

ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑦᓯᓂᐅᓯᒪᔪᑦ ᔦᒥᓯ ᐯᒥ ᐊᒻᒪᓗ ᐅᐊᓐᓂᖓᓂ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐋᕐᕿᒋᐊᕐᑕᐅᓯᒪᔪᑦ ᑕᑯᓗᒍ ᑭᓯᑕᐅᒪᐅᑎ 1) ᕿᓚᓗᒐᕐᓄᑦ ᖃᐅᔨᔭᐅᓐᓂᖏᑦᑐᓄᑦ ᖃᐅᔨᔭᐅᖕᖏᓚᕿᑦᓱᑎᒃ ᐊᕐᖃᐅᒪᒐᒥᒃ ᖁᓚᐅᑕᐅᓕᕐᓱᑎᒃ (ᐱᑕᖃᕆᐊᖏᑦ ᖃᐅᔨᔭᐅᑦᓯᐊᓯᒪᖕᖏᑐᑦ), ᐊᒻᒪᓗ 2) ᕿᓚᓗᒐᕐᓄᑦ ᐳᐃᒪᔪᓄᑦ ᑕᑯᔭᐅᓐᓂᖏᑦᑐᓄᑦ ᑭᓯᑦᓯᔪᓄᑦ (ᖃᐅᔨᒪᓇᕐᓯᐊᖏᑦᑐᖅ). ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᔦᒥᓯ ᐯ ᕿᓚᓗᒐᖏᑦᑕ 2021ᒥ ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑕᐅᑦᓱᑎᒃ ᐃᒣᓪᓗᐊᑐᕚᓃᑦ 16,300 (95% CI=9,800-27,200, ᖃᓂᓐᓂᐸᐅᒍᓐᓇᕚᓕᒫᖓᓄᑦ 100) (ᑭᓯᑕᐅᒪᕖᒃ4).



ᑭᓯᑕᐅᒪᕖᒃ 4. ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑦᓯᒍᑎᕚᓃᑦ ᐊᒻᒪᓗ ᖃᓄᖅ ᐱᑕᖃᕐᓂᖏᑦ ᖃᐅᔨᔭᐅᓲᖑᒻᒪ ᖕᒋᑕ ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᔦᒥᓯ ᐯᒥ ᕿᓚᓗᒡᑦ 95% ᐱᑕᖃᕐᓂᖏᑦᑕ ᐊᕚᑦᑐᓯᒪᓂᖏᑦ 1985-2021.

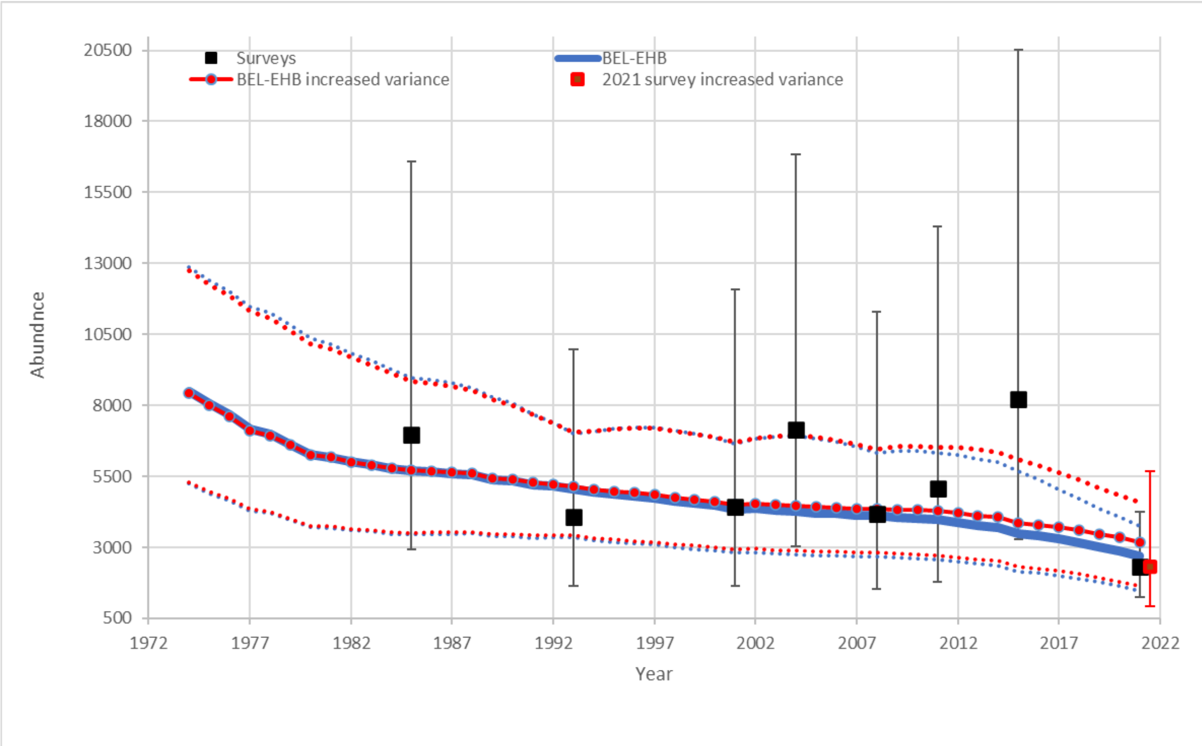
ᒥᑦᓴᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᐱᑕᖃᕐᓂᖏᑦᑕ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦᑕ ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑕᐅᑦᓱᑎᒃ ᐃᒣᓪᓗᐊᑐᕚᓃᑦ 2,300 (95% CI=1200-3400)(ᑭᓯᑕᐅᒪᕖᒃ 3; ᐊᑦᔨᖑᐊᖅ 4). ᐊᒃᓚᓯᒪᔪᓂᑦ, ᐊᑑᑎᖃᑦᑕᑎᓪᓗᒋᑦ ᐱᖓᓱᕚᑦᓱᑎᒃ ᑭᓯᑦᓯᓱᑎᒃ ᖃᖓᑦᑕᔫᒃᑯᑦ ᐸᑎᕐᑑᑉ ᐃᒪᖓᓂ (6, 17, 20 ᐊᐅᒃᑐᓯ)

ᕿᓚᓗᒐᕐᓯᕙᐅᓂᖏᑦᑐᖅ;ᑭᓯᐊᓂᓕ, 200-300 ᑕᑯᔭᐅᔪᕙᓂᑦ ᐱᖓᓲᔪᕐᑐᕙᑦᓱᑎᒃ ᖃᖓᑕᑦᓱᑎᒃ ᐱᖓᓱᕙᑦᓱᑎᒃ ᕿᓚᓗᒐᕐᓯᐅᕙᒃᑯᓱᑎᒃ ᔪᓓ 27, ᐊᐅᒃᒍᓯ 6,12,**15,16**,17; ᕿᓂᓪᓚᕆᑦᓱᑎᒃ).

ᑕᑯᑦᓴᐅᑎᑦᓯᒍᑏᑦ ᐱᑕᖃᕐᓂᖏᓐᓂᒃ ᕿᓚᓗᒌᑦ ᐊᒻᒪᓗ ᓱᕐᕓᓯᒪᐅᑎᖏᑦ ᐊᓐᓂᑐᖃᑦᑕᓃᑦ

ᐱᑕᖃᕐᓂᖏᑦ ᖃᓄᐃᓕᖓᒻᒪᖔᑕ ᐊᑐᓕᕐᑎᑕᐅᓯᒪᔪᑦ ᓄᑕᐅᓯᓕᑎᕐᓯᒪᑦᓱᑎᒃ ᖃᐅᔨᒪᒍᑎᑦᓴᑦ ᐊᓐᓂᑐᕐᓂᐅᓲᑦ ᐱᓪᓗᒋᑦ ᑭᓯᑕᐅᒪᐅᑏᑦ ᐊᒻᒪᓗ ᓇᓪᓕᖏᐅᓂᖏᑦ ᕿᓚᓗᒌᑦ ᐃᓚᒋᓕᐅᑦᔭᐅᓯᒪᔪᖅ ᔦᒥᓯ V ᕿᓚᓗᒋᓐᓄᑦ ᐊᒻᒪᓗ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓄᑦ ᖃᖓᑦᑕᔩᒃᑯᑦ ᑭᓯᑕᐅᒍᑎᕙᓂᖏᑎᒍᑦ ᐱᑕᖃᕐᓂᖏᑦ (ᑭᓯᑕᐅᔭᕙᒃ 4, 5). ᕿᓚᓗᒐᕐᑕᐅᖃᑦᑕᓯᒪᔪᑦ ᕐᑰᒥᐅᑌᑦ ᓴᓂᐊᓂ ᐃᓚᒋᓕᐅᑦᔭᐅᓯᒪᔪᑦ ᔦᒥᓯ Vᒥ ᕿᓚᓗᒐᕐᑕᕙᓂᑦ ᑭᓯᑕᐅᒪᐅᑎᖏᓐᓄᑦ (ᑭᓯᑕᐅᒪᐅᑎ 2).

ᐃᓚᒋᓕᐅᑦᔫᓂᖅ ᑭᓯᑕᐅᒪᐅᑎᓂᒃ ᔦᒥᓯ V ᕿᓚᓗᒋᓐᓄᑦ ᐱᑕᖃᕐᓂᖏᓐᓂᒃ ᒥᑦᓴᐅᓵᕐᓱᒋᑦ ᐃᒣᓪᓗᐊᑐᒧᑦ ᑎᑭᐅᑎᓯᒪᔪᑦ 8,500 (95% CI=5,100-12,000) 1985ᖑᑎᓪᓗᒍ ᐅᓄᕐᓯᒋᐊᕐᑐᕙᓂᑦ ᐃᒣᓪᓗᐊᑐᖕᖑᓱᑎᒃ, 19,700 2015ᖑᑎᓪᓗᒍ ᓱᕗᓂᖓᒍᑦ ᑎᑭᐅᑎᓚᐅᕋᑎᒃ ᓱᓕ19,200 (95% CI=12,500-25,100) 2021ᖑᑎᓪᓗᒍ ᑕᑯᓗᒍ (ᑭᓯᑕᐅᒪᐅᑎ 4,). ᐃᓚᒋᓕᐅᑦᔫᓂᖅ ᑭᓯᑦᓯᓂᕐᒧᑦ ᐱᐅᓯᕐᒥᒃ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓄᑦ, ᐱᑕᖃᕐᓂᖏᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᑦᓱᑎᒃ 8,500 (95% CI=5,200-12,900) 1974ᖑᑎᓪᓗᒍ, ᐃᑭᓕᒋᐊᕐᑐᕙᓂᑦ ᐃᒣᓪᓗᐊᑐᖕᖑᓱᑎᒃ2700 (95% CI=1,500-3,700) 2021ᖑᑎᓪᓗᒍ (ᑭᓯᑕᐅᒪᐅᑎ 5). ᖃᓄᐃᓪᓗᐊᑐᒥᒃ ᐃᑭᓕᒋᐊᕐᒪᖔᑕ ᖃᐅᔨᒪᒍᑎ ᖃᐅᔨᒪᓇᕐᓯᑎᑦᓯᓯᒪᓕᕐᑐᖅ ᐃᑭᓕᐅᒥᓯᒪᒋᐊᖏᑦ ᐊᕐᕋᒍᑕᒫᑦ ᐃᒣᓪᓗᐊᑑᓚᔪᑦᓱᓂin 2021 1.3% ᐊᑯᓐᓂᖏᓐᓂ 2004-2014, ᐊᕐᕋᒍᑕᒫᑦ ᐃᒣᓪᓗᐊᑑᓚᔪᓕᕐᑐᕙᓂᖅ 4% ᐊᑯᓐᓂᖏᓐᓂ 2015 ᐊᒻᒪᓗ 2021. 2021ᒥ ᖃᖓᑦᑕᔩᒃᑯᑦ ᑭᓯᑦᓯᓂᕙᓂᖅ ᒥᑦᓴᐅᓵᕐᑕᐅᒍᑎᖏᑦ ᐃᑭᓐᓂᓴᓪᓚᕆᐅᓯᒪᔪᑦ ᓈᒻᒪᓈᑦᓯᐊᓂᕐᓴᐅᓱᑎᓪᓗ ᑭᖑᓂᕐᒥ ᑭᓯᑦᓯᓂᐅᖃᑦᑕᓯᒪᔪᓂᑦ. ᑖᓐᓇ ᑭᓯᑦᓯᓂᕙᓂᖅ ᓱᕐᕓᓚᕆᑦᑐᖅ ᐱᑕᖃᕐᓂᖏᓐᓂᒃ. ᑐᑭᓯᔭᐅᑎᓗᒍ ᓱᕐᕓᓂᖓ ᑕᒪᑦᓱᒪ ᑭᓯᑦᓯᓂᐅᑉ ᐱᐅᓯᖓᑕ, ᑐᖓᓕᐊᓂ ᑭᓯᑦᓯᓯᓕᕐᒥᓱᑎᒃ ᐅᕿᓕᐅᒥᑎᑦᓯᔪᕙᓂᐅᒐᓗᐊᑦ ᑭᓯᑕᐅᒍᑎᕙᓂᑦ ᑭᖑᓪᓕᓂᑕᕐᓂᒃ ᐋᑐᑎᔭᐅᓕᑐᐊᕐᒪᑦ ᑭᓯᑕᐅᒪᐅᑎᓂᒃ ᑲᑎᒪᑎᑦᓯᓂᖅ ᐊᒥᓱᖕᖑᒥᓯᒪᔪᓂᒃ ᓄᐃᑕᑎᑦᓯᓯᓂ ᐊᑦᔫᕐᖕᖏᓕᕐᑕᓱᑎᒃ 32% ᓂᑦ ᑎᑭᑦᓱᒋᑦ 48%. ᑭᓯᑦᓯᒍᓯᖅ ᑲᓯᕐᑎᑕᐅᑦᓱᓂ ᐃᓚᒋᓕᐅᑦᔭᐅᓱᑎᒃ ᓄᑖᑦ ᑭᓯᑕᐅᒪᐅᑏᑦ 2021ᒥᓂᑌᑦ ᖃᖓᑦᑕᔩᒃᑯᑦ ᑭᓯᑦᓯᒍᑎᕙᓂᑦ ᕿᓚᓗᒐᕐᓂᒃ. ᑕᒪᓐᓇ ᓄᐃᑦᓯᓯᒪᔪᖅ ᒥᑦᓴᐅᓵᕐᓱᒋᑦ 2021ᒥ ᐃᒣᓪᓗᐊᑐᑦ 3,200 (95%= 1,600-4,600) (ᑭᓯᑕᐅᒪᐅᑎ 5). ᖃᓄᐃᓪᓗᐊᑐᒥᒃ ᐃᑭᓕᕚᓪᓕᐊᒻᒪᖔᑦ ᑕᒃᑲᓂ ᑭᓯᑦᓯᓂᕙᓂᐅᑉ ᓄᐃᓯᒪᔭᖓᓂ ᐊᒥᓱᖕᖑᓇᐊᕐᑐᕙᓂᖅ 1% ᐊᕐᕋᒍᑕᒫᑦ ᐊᑯᓐᓂᖏᓐᓂ 2004-2014 ᐃᒣᓪᓗᐊᑐᖕᖑᓱᓂ 3% ᐊᕐᕋᒍᑕᒫᑦ ᐊᑯᓐᓂᖏᓐᓂ 2015-2021. ᐃᑭᓕᒋᐊᕐᓯᒪᓚᕿᐅᑎᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᓲᖑᓕᕐᒪᑕ ᐊᒥᓱᑦ ᐅᖓᑖᓄᑦ ᐊᓐᓂᑐᕈᓐᓇᐅᑎᑖᕐᑎᓱᒍᑎᐅᓯᒪᔪᑦ ᐊᕐᕋᒍᓂ ᐊᒥᓱᓂ ᐊᓂᒍᕐᑐᓂ ᐊᒻᒪᓗ ᐃᑭᓗᐊᕐᑐᓂᒃ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᐅᑎᖃᕐᓂᒪᑕ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᑖᒃᑯᓇᓂ ᐊᓐᓂᑐᐊᓐᓇᓯᐅᕐᑎᓗᒋᑦ.



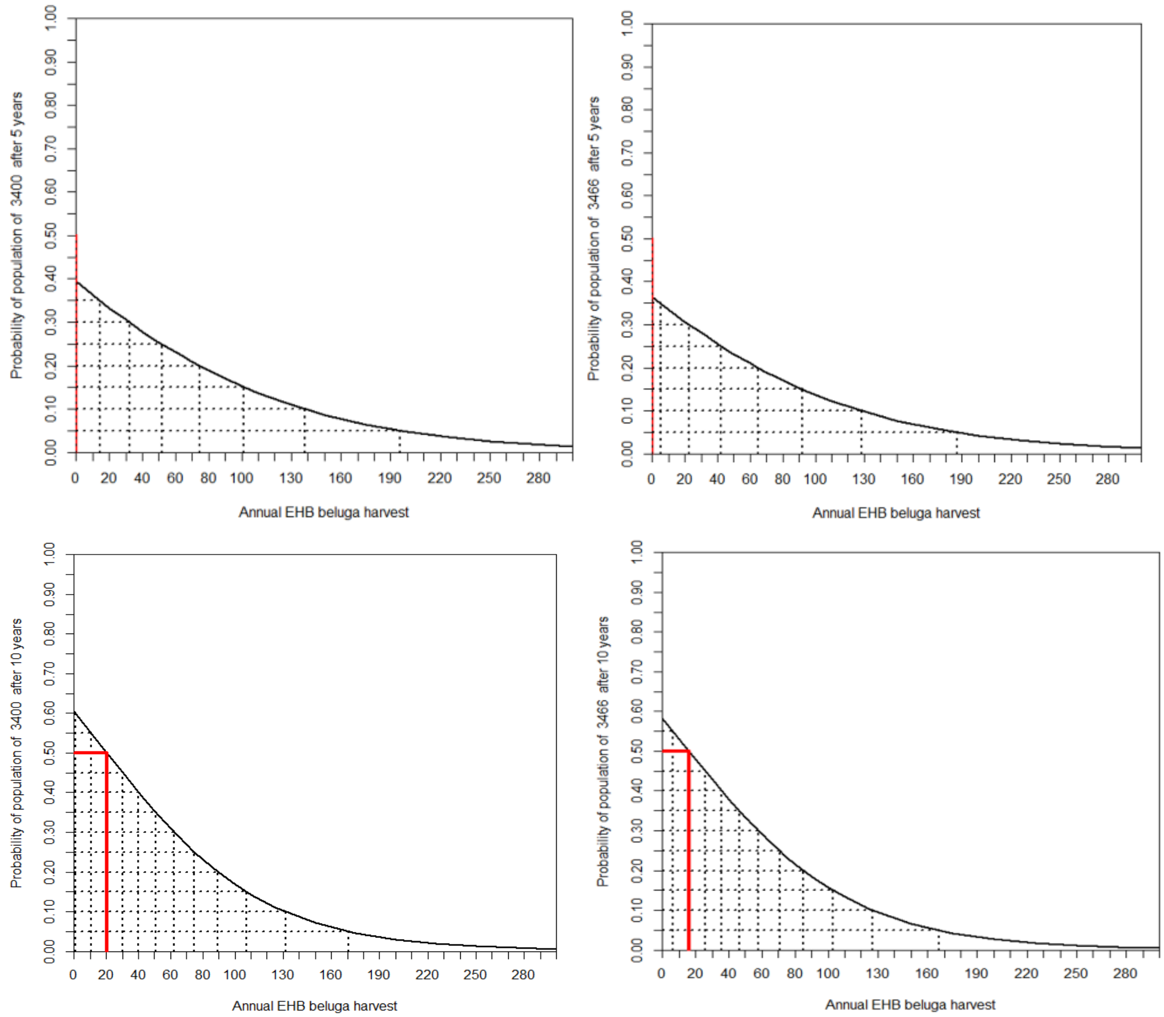
ᑭᓯᑕᐅᒪᐅᑎ5. ᖃᓪᓚᑦᑕᕿᒃᑯᑦ ᑭᓯᕐᓯᓂᖅ (ᕿᕐᓂᑕᖅ) ᓄᐃᑕᑎᕐᓯᓯᓂ95% ᐃᓱᒫᓗᓈ ᖏᓐᓂᖏᓐᓂᒃ, ᐱᑕᖃᕐᓂᖏᑦᑕ ᖃᓄᐃᓕᖓᓂᖏᑦᑕ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᑖᒃᑯᐊ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦᑕ ᐱᑕᖃᕐᓂᖏᑦ ᐊᒻᒪᓗ95%ᐃᓱᒫᓗᓈ ᖏᓐᓂᕋᕐᑕᐅᓯᒪᓂᖏᑦ 1974-2021ᒧᑦ. ᒪᕿᐃᓕᖓᔪᒥᒃ ᑭᓯᕐᓯᓂᕕᓃᒃ ᐱᔭᓇᕐᑕᐅᓯᒪᔫᒃ. ᓯᓹᓪᓚᒥ ᑭᓯᕐᓯᓂᕕᓂᖅ ᖃᓪᓚᑦᑕᕿᒃᑯᑦ ᑐᖑᔪᕐᑕᒥᒃ ᑕᐅᑦᑐᓕᒃ). ᑐᓪᓕᐊᓂ ᖃᓪᓚᑦᑕᕿᒃᑯᑦ ᑭᓯᕐᓯᓂᕕᓂᕝᒃ ᓄᐃᑕᑎᕐᔪᖅ (ᕿᓐᑕᐅᑦᓱᑎᒃ ᓱᒃᑭᑌᑦ) ᐊᒥᓲᖑᓇᐊᕐᓯᒪᔪᓂᒃ ᓄᐃᑦᓯᓯᒪᔪᖅ ᐊᕐᔩᖏᓂᖏᑎᒧᑦ 2021ᖑᕆᐊᕕᓐᓂᓴᐅᓕᕐᑎᓗᒍ ᑭᓯᑕᐅᑦᓱᑎᒃ ᒥᑦᓴᐅᓵᕐᑕᐅᔪᕕᓃᑦ 32% ᓂᑦ ᑎᑭᑦᓱᕆᑦ 48% (ᐊᐅᐸᕐᑐᖅ ᓱᒃᑭᑕᖅ).

ᐊᓐᓂᑐᕋᓱᐊᕐᓂᒧᑦ ᐃᒫᖕᒉᕈᑏᑦ

ᐊᐅᓚᑦᓯᒍᑎᑕᖃᓇᐊᖓ ᖃᐅᔨᒪᓇᖕᖏᑐᖅ ᕿᓚᓗᒐᕐᓄᑦ ᔦᒥᓯ V ᐃᒪᖓᓃᓰᓄᑦ. ᒪᓐᓇᐅᓂᐊᖕᖑᓇᔭᐅᔪᖅ ᐊᐅᖏᑎᒧᑦ ᐃᓚᖕᖏᑕᐅᓯᒪᓂᖏᑦᑦᑕ ᖃᐅᔨᒪᒍᑕᐅᒍᓐᓇᓂᐊᖕᖑᓇᔭᐅᔪᑦ ᐃᒉᓗᐊᑑᒍᓇᐅᑦᓱᒃ ᐊᓐᓂᑐᕐᑕᐅᓯᒪᔪᑦ 335 ᕿᓚᓗᒉᑦ ᑲᑎᓕᒫᕐᓱᑎᒃ16,800 ᐊᒻᒪᓗ ᐅᓄᕐᓯᑎᑦᓯᕆᐊᕐᓚᕈᒪᓂᕐᒧᑦ ᐱᑦᔪᑎ 1.

ᐊᐅᓚᑦᓯᒍᑎᑕᖃᕐᑎᓯᓂᕐᒧᑦ ᐱᑦᔪᑏᑦ ᐃᓕᖓᔪᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓄᑦ ᐃᑭᓕᕆᐊᕐᑎᓯᑦᑌᓕᒍᑎᐅᑦᓯᓂ 3,400 ᓂᒃ ᕿᓚᓗᒐᕐᓂᒃ ᐅᖓᑖᓄᓪᓘᓃᑦ ᐊᕐᕋᒍᐃᑦ ᑕᓪᓚᒪᑦ ᐊᓂᒍᕋᓱᐊᕐᓂᖏᓐᓂ. ᐊᓐᓂᑐᕐᑕᐅᒍᓐᓇᑐᑦ ᑎᑭᐅᑎᑦᑕᕕᖏᑦ ᐋᕐᕿᑕᐅᓯᒪᔪᑦ ᖃᐅᔨᒪᑦᓯᕆᑦ ᐃᑭᓕᕆᐊᓚᕿᒍᓐᓇᓇᐊᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᖃᑦᑕᓂᕝᒥᓄᑦ ᑎᑭᐅᑎᑦᑕᕕᓕᐅᕐᑕᐅᓯᒪᑦᓯᓂ 50% ᐅᖓᑖᓅᕐᑌᓕᕆᐊᖃᕐᓯᓂ. ᐊᕐᕋᒍᐃᑦ ᑕᓪᓚᒪᑦ ᐊᓂᒍᕋᓱᐊᕐᓂᖏᓐᓂ, ᐊᓐᓂᑐᕐᑕᐅᖃᑦᑕᑐᑦᓴᐅᖏᑦᑐᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᓰᓯᑦᓴᕈᑕᐅᓗᓂ ᐊᐅᓚᑦᓯᒍᑎᑕᖃᓚᕿᓂᐅᑉ ᑐᖕᖓᕕᖏᓐᓂᒃ. ᐊᕐᕋᒍᐃᑦ ᖁᓕᑦ ᐊᓂᒍᕋᓱᐊᕐᓂᖏᓐᓂ, ᐊᓐᓂᑐᕈᓐᓇᓂᖅ 20ᓂᒃ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔾᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ ᓰᓯᑦᓴᓂᐅᒐᔭᕐᑐᖅ ᐊᐅᓚᑦᓯᒍᑎᐅᑉ ᑐᖕᖓᕕᖏᓐᓂᒃ. ᕋᓗᐊᕐᑎᓗᒍ ᐃᓱᓕᕝᕕᐅᓂᕋᕐᑕᐅᔪᑦ 3,400 ᑐᖕᖓᕕᓖᑦ ᐃᓂᓪᓚᓯᒪᐅᑎᒧᑦ ᐊᑐᕐᑕᐅᕌᕐᑐᕕᓂᕐᒧᑦ 2015ᒥ ᑭᓯᑦᓯᔪᕕᓂᐅᓕᕐᑎᓗᕆᑦ ᑭᖑᓂᖓᒍᑦ ᐊᒻᒪᓗ ᒥᑦᓴᐅᓵᕐᑕᐅᒍᑎᖏᑦ ᐊᓯᐊᒍᑦ ᐊᑐᕐᑕᐅᖃᑦᑕᓯᒪᔪᑦ ᒥᑦᓴᐅᓵᓇᒍᑕᐅᑦᓱᑎᒃ ᐋᕐᕿᕆᐊᕐᑕᐅᒍᑎᖏᑦ ᑖᒃᑯᓂᖓᑦᓴᓇᖅ ᐊᑐᐃᓐᓇᐅᕆᕐᑐᓂᒃ ᖃᐅᔨᒪᒍᑎᓴᓂᒃ ᐊᑐᕈᑕᐅᓯᒪᓕᑎᒃ ᐊᒻᒪᓗ ᖃᓄᐃᓕᖓᓂᐊᖕᖑᓇᔭᐅᒍᑎᖏᑦ ᐋᕐᕿᕆᐊᕐᑕᐅᒍᑎᖏᑦᑕ ᐱᑦᔪᑎᖏᑦ ᑌᒉᓕᖓᔪᑦ ᐊᑐᕐᑕᐅᓯᒪᐅᑎᖏᑎᑐᑦ ᑖᒃᓚᓂ ᖃᐅᔨᒪᓕᓱᐊᕐᓂᒥ. ᓈᒻᒪᓈᕐᑎᓯᓂᕐᒧᑦ ᐃᓂᓪᓚᓯᒪᐅᑎᒥᒃ ᐊᑐᕐᓗᕆᑦ ᓄᑖᑦ ᖃᐅᔨᒪᔭᐅᒍᑎᐅᓕᕐᑐᑦ ᖃᓄᐃᓕᖓᓂᐊᖕᖑᓇᔭᐅᒍᑎᖏᑦ ᐋᕐᕿᕆᐊᕐᑕᐅᒍᑎᖏᑦᑕ ᐱᑦᔪᑎᖏᑦ 2021ᒥᓗ ᑭᓯᑕᐅᒍᑎᕕᓃᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᓱᑎᒃ

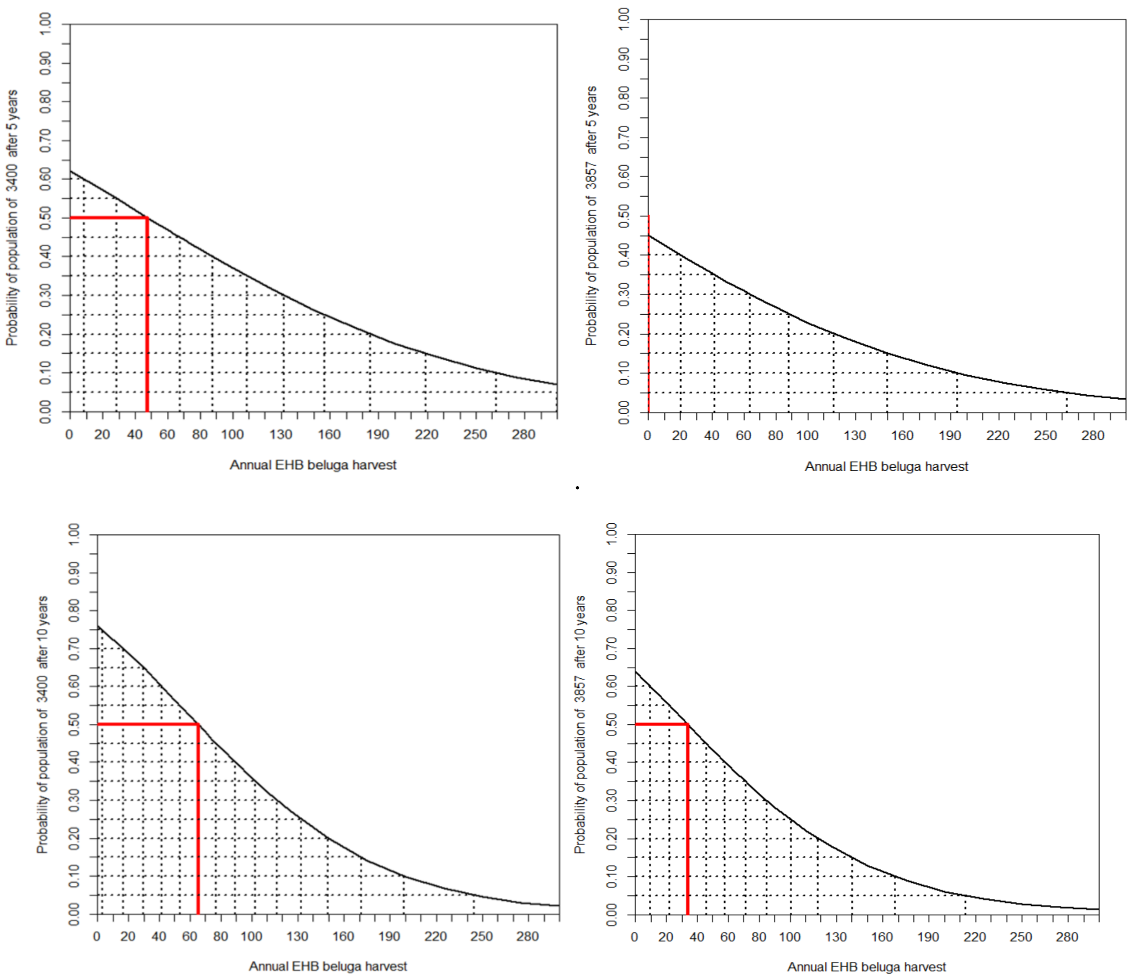
ᖃᐅᔨᓴᐅᑐᑎᕙᓃᑦ 2015ᒥ 3,500 ᕿᓚᓗᒌᑦ. ᐋᑦᑎᑦᓯᐊᑕᐅᓚᖓᑉᐸᑕ ᐊᐅᓚᑦᓯᑐᑎᐅᑉ ᐱᑦᔪᑎᖏᑦ ᐊᕐᕌᒍᓂ ᑕᓪᓕᒪᓂ, ᐊᓂᕈᕐᑕᐅᕆᐊᖃᕐᓂᐊᖏᑦᑐᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᕿᓚᓗᒌᑦ ᐱᒍᓐᓇᕙᖃᕐᑎᑕᐅᔪᑦᓴᐅᕚᑦ, ᐊᑐᕐᓗᒍ ᑎᐅᑎᑦᑕᕙᒃ 3,500 ᕿᓚᓗᒌᑦ. ᐊᓂᒍᕐᐸᑕ ᐊᕐᕌᒍᐃᑦ ᕐᑯᓕᑦ 10 ᐱᕙᑦᓴᓕᐅᕐᑕᐅᓯᒪᐅᑎᕙᓂᖏᑦ, ᐊᓂᕈᕐᑕᐅᔪᕙᓃᑦ ᑐᓴᕐᑎᓯᐅᑏᑦ ᓄᐃᑕᐅᓕᕐᐸᑕ 18 ᐅᖓᑖᓅᓇᐊᖃᕋᔭᖕᖏᑐᑦ (ᑭᓯᑕᐅᒪᐅᑎ 6).



ᑯᓯᑕᐅᒪᐅᑎ 6.ᑌᒣᑐᐃᓐᓇᐅᓇᐊᓖᑦ (y-axis) ᑖᒃᑯᐊ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐊᒥᓷᓂᖅᓴᐅᓗᑎᒃ 3,400ᓃᑦ (ᑐᙵᕕᒋᑦᓯᒋᑦ ᒥᑦᓴᐅᕞᕉᑕᐅᓯᒪᔪᑦ 2015ᒥ ᐱᑕᖃᕐᓂᖏᑦ ᑭᖑᓪᓕᐸᒥ ᑭᓯᑕᕙᓂᐅᓕᕐᓯᑎᒃ) ᐅᕝᕙᓗᓘᓐᓃᑦ ᒥᑦᓴᐅᕞᕐᑕᐅᓯᒪᔪᑦ ᐱᑕᖃᓇᐊᖏᑦ 3,500 (ᖃᓂᓐᓂᐸᐅᑎᓪᓗᒋᑦ 100ᒧᑦ) ᕿᓚᓗᒌᑦ 2015ᖑᑎᓪᓗᒍ ᐊᑐᕐᓯᒋᑦ ᖄᒥᓂᑕᐅᓂᕐᐹᑦ ᑭᓯᑦᓯᑐᑎᕙᓃᑦ ᐊᒻᒪᓗ ᐋᕐᕿᒋᐊᕆᓂᕐᒧᑦ ᐱᑦᔪᑕᐅᖃᑦᑕᓯᒪᔪᑦ ᐊᕐᕌᒍᐃᑦ ᑕᓪᓕᒪᑦ ᐊᓂᒍᕋᓯᐊᕐᓂᖏᓐᓂ (ᖃᓪᓕᐹᖅ ᑎᑦᑕ), ᐅᕝᕙᓗᓘᓐᓃᑦ ᐊᕐᕌᒍᐃᑦ 10 (ᐊᓪᓕᖅ ᑎᑦᑕᖅ). X-axisᐊᓂᕈᕐᑕᐅᓯᒪᔪᑦ ᑐᓴᕐᑎᓯᐅᑎᐅᖃᑦᑕᓯᒪᓂᖏᑦ. ᐊᐅᐸᕐᑐᖅ ᑎᑦᑕᖅ ᐊᓂᕈᕐᓂᐅᓯᒪᔪᑦ ᐃᑭᓕᒋᐊᓚ ᕿᑐᐃᓐᓇᐅᓇᐊᖃᓕᕐᑎᓗᒋᑦ 50%.

ᓈᒻᒪᓈᕐᑎᓯᓂᖅ ᐊᑐᕐᑕᐅᕆᐊᓕᒻᒥᒃ ᐊᑦᔨᒌᖕᖏᓂᖏᑦ ᐱᓕᐅᒥᓯᒪᓕᕐᑎᓗᒋᑦ ᐃᒣᓗᐊᑐᒧᑦ48% ᐊᑐᓕᕐᑎᑕᐅᑦᓱᑎᒃ 2021ᒧᑦ ᑭᓯᑕᐅᑐᑎᕙᓃᑦ ᖃᐅᔨᓴᐅᑐᑎᖏᓐᓄᑦ 2015ᖑᑎᓪᓗᒍ ᒥᑦᓴᐅᕞᕐᑕᐅᓱᑎᒃ 3,900. ᕿᒥᕐᕈᔭᐅᒍᓂ ᐊᕐᕌᒍᐃᑦ ᑕᓪᓕᒪᑦ ᐊᓂᒍᕋᓱᐊᕐᓂᖏᓐᓂ ᐊᓂᕈᕐᕙᐅᖃᑦᑐᑦᓴᐅᖏᑦᑐᑦ ᐊᑐᕐᓗᒍ ᐃᓱᓕᑦᑕᕙᖏᑦ 3,900 ᕿᓚᓗᒌᑦ. ᐊᑐᕐᓯᒋᑦ ᐃᓱᓕᑦᑖᕚᑦ 3,400 ᕿᓚᓗᒌᑦ, ᐊᓂᕈᕐᑕᐅᒍᑎᒃ 48 ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᑦ ᓲᓯᑦᓴᓂᐅᒐᔭᕐᑐᖅ ᐊᐅᓚᑦᓯᑐᑎᐅᑉ ᐱᑦᔪᑎᖏᓐᓂᒃ.ᐊᕐᕌᒍᐃᑦ ᕐᑯᓕᑦ ᐊᓂᒍᕋᓯᐊᕐᑎᓗᒋᑦ, ᐊᓂᕈᕐᓂᖅ 65ᓂᒃ ᓴᓂᑭᓗᐊᑉ

ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ ᓲᓯᑦᓴᓂᐅᒐᔭᕐᑐᖅ 3,400ᓂᒃ ᑲᑕᒋᐊᕐᑎᑕᐅᑦᑌᓕᔪᓂᒃ, ᐊᓐᓂᑐᕐᑕᐅᐸᑕᓗ 34 ᓲᓯᑦᓴᓂᐅᒐᔭᕐᓯᓂ ᐃᓱᓕᑦᑕᕙᒻᒥᒃ ᐃᑭᓕᒋᐊᕐᑎᓯᑦᑌᓕᓂᕐᒧᑦ 3,900ᓂᒃ (ᑭᓯᑕᐅᒪᐅᑎ 7). ᐊᑑᑎᑐᐃᓐᓇᓇᐊᓕᒃ ᐊᓐᓂᑐᕐᑕᐅᑎᓪᓗᒋᑦ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ 5 ᕿᓚᓘᑦ ᐊᕐᕌᒍᒥ ᐃᓱᒪᒋᓗᒍ ᐊᒥᓲᖑᓇᐊᓪᓚᑎᑦᒐᓱᐊᕐᓂᖅ 0.1.



ᑭᓯᑕᐅᒪᐅᑎ 7. ᑐᐃᓐᓇᓇᐊᓕᒃ(y-axis) ᑖᒃᑯᐊ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐊᒥᓲᓂᖅᓴᐅᓗᑎᒃ 3,400ᓂᒃ (ᓴᐅᒥᒻᒥ) ᐅᕝᕙᓗᓘᓐᓃᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᓂᖏᑦ ᐱᑕᖃᓇᐊᖏᑦᑕ 3,900 ᕿᓚᓘᑦ 2015ᖑᑎᓪᓗᒍ ᐊᑐᕐᓯᑎᒃ ᖃᒻᒥᓂᑕᐅᓂᕐᐹᓂᒃ ᐋᕿᒋᐊᕐᓇᒍᑎᒋᑦᓯᒋᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᒍᑎᖏᓐᓂᒃ 2021ᒥ ᑭᓯᑦᓯᓂᖃᕐᑎᓗᒍ 48% (ᑕᓕᕐᐱᐊᓂ) ᐊᕐᕌᒍᐃᑦ ᑕᓪᓕᒪᑦ ᐊᓂᒍᕋᓱᐊᕐᓂᖏᓐᓂ (ᖄᖓᓂ) ᐅᕝᕙᓗᓘᓐᓃᑦ 10ᐊᕐᕌᒍᐃᑦ (ᐊᑖᓂ). ᐊᐅᐸᕐᑐᖅ ᓄᐃᑕᑎᑦᓯᔪᖅ ᐊᓐᓂᑐᕐᑕᐅᔪᑦ ᑎᑭᐅᑎᑦᑕᕕᖓᓂᒃ (x-axis) ᐃᓚᖃᕐᓯᓂ 50% ᐊᑑᑎᑐᐃᓐᓇᓇᐊᓕᒻᒥᒃ ᐅᖓᑖᓅᕐᓗᓂ ᑎᑭᐅᑎᑦᑕᕙᓕᐊᖑᓯᒪᔫᑉ.

ᐱᑦᔪᑎᐅᒍᓐᓇᑐᑦ ᓱᕐᖁᐃᓱᑦᓯᐊᖏᓐᓂᒧᑦ

2021ᒥ ᖃᖓᑦᑕᔫᒃᑯᑦ ᑭᓯᑕᐅᒍᑎᐅᓯᒪᔪᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᒍᑎᖏᑦ ᐃᑭᑦᑐᐊᐱᕙᓃᑦ, ᐊᒻᒪᓗ ᓈᒻᒪᓈᕐᓯᒪᓂᕐᓴᐅᓱᑎᒃ ᐊᑐᕐᑕᐅᓲᓂᑦ ᑭᓯᑦᓯᓕᑐᐊᕐᒪᑕ ᕿᓚᓗᕐᓂᒃ.ᑕᒪᒃᑯᐊ ᐊᑦᔨᒌᖕᖏᓂᖏᑦ ᐱᑐᑦᓯᒪᔪᑦ ᐊᒥᓱᐃᖑᑦᓱᑎᒃ ᐅᓄᕐᓂᓇᓲᖏᓐᓄᑦ ᐊᒻᒪᓗ ᐊᒥᓲᑦᓱᑎᒃ ᑕᑯᔭᕙᓂᕐᓄᑦ, ᖏᒃᑲᓗᐊᕐᐸᑕᓘᓐᓃᑦ, ᖃᖓᑕᒦᖑᓂᖓᓗ. ᐱᑦᔪᑏᒃ ᖃᐅᔨᒪᔭᐅᖕᖏᑐᑦ ᐊᒥᓱᐃᖑᑦᓱᑎᒃ ᐅᓄᕐᓂᓇᓲᖏ ᑐᑭᓯᒪᔭᐅᑦᓯᐊᖏᒪᑕ, ᑭᓱᐊᓂ ᐱᑐᑦᓯᒪᑐᐃᓐᓇᓇᐊᓕᒃ ᐊᒥᓱᓂᓕᕋᒥᒃ ᐱᐅᓯᖏᓐᓄᑦ, bathymetry, ᐱᐅᓲᑦ ᒪᕐᒐᓐᓂᒧᑦ, ᐊᒻᒪᓗ ᐆᒪᔪᐃᑦ ᐅᓄᕐᓂᖏᑦ. ᐃᓱᒪᒋᑦᓯᒋᑦ ᐊᒥᓱᕙᒐᓚᑦᓯᑎᒃ ᑖᒃᑯᐊ

ᑭᓯᑕᐅᖃᑦᑕᓯᒪᓕᕐᒪᑕ ᖃᖓᑦᑕᕚᒃᑯᑦ, ᑐᑭᓯᒪᓂᕐᑖᕆᓯᒪᓕᕐᑕᕗᑦ ᒫᓐᓇᐅᑎᓪᓗᒍ ᕿᓚᓗᒐᕐᓄᑦ ᐃᓱᒫᓗᓐᓇᑐᖅ ᐊᓯᑦᔨᕋᓱᒋᐊᖏᑦ ᑭᖑᓪᓕᐹᒥ ᒥᑦᓴᐅᓵᕈᑎᕙᓃᑦ ᐊᑐᕐᑕᐅᓯᒪᔪᑦ ᐱᐅᓯᖅᑭᑕᐅᑦᓱᑎᒃ.

ᓄᑖᑦ ᑭᓯᑕᐅᒪᐅᑏᑦ ᓄᐃᑕᐅᓚᐅᔪᔪᑦ ᐊᑐᕐᓱᑎᒃ ᐊᑦᔨᓕᐅᕈᑎᓂᒃ ᑭᕙᒪᓃᓂᒃ 2003ᒻ 2004ᒥᓗ. ᓄᑖᑦᑭᓯᑕᐅᒪᐅᑏᑦ ᓄᐃᑕᐅᓚᐅᔪᔪᑦ ᖃᖓᑦᑕᕚᒃᑯᑦ ᑭᓯᑦᓯᒍᑎᕙᓅᑦ 2015ᒥ 2021ᒥᓗ. ᐃᓱᒪᒋᓗᒋᑦ ᐊᓯᑦᔨᓯᒪᓪᓗᐊᖏᒋᐊᖏᑦ ᑕᒣᑎᒍᑦ, 6 ᕚᑦᓱᑎᒃ ᖃᖓᑦᑕᕚᒃᑯᑦ ᑭᓯᑦᓯᓂᐅᓯᒪᔪᑦ ᒥᑦᓴᐅᓵᕐᑕᐅᓯᒪᐅᑎᖏᑦ ᐊᑯᓐᓂᖏᓐᓂ 1985, 2011 ᐋᕐᕿᒋᐊᕐᑕᐅᓯᒪᔪᑦ ᐱᐅᓯᐅᒋᐊᓖᑦ ᒪᓕᑦᓱᒋᑦ. ᐋᒃᓚᑕᐅᑉᐸᑕ ᐊᕐᕌᒍᑕᒫᑦ ᐊᑦᔨᒌᖕᖏᓂᕆᓲᖏᑦ ᓱᕐᕓᓖᕐᒥᔪᑦ ᑭᓯᑦᓱᒋᑦ ᒥᑦᓴᐅᓵᕈᑎᑖᕙᓂᕗᓐᓂᒃ.

ᓄᑖᖑᑦᓱᓂ ᐊᐅᖏᑎᒍᑦ ᓇᕿᖕᒐᓂᑕᑦᓴᔭᐅᓂᖏᓐᓂᒃ ᖃᐅᔨᓴᐅᑎ ᐱᕚᓪᓕᑎᑦᓯᓯᒪᓕᕐᑐᖅ ᑐᑭᓯᒪᓂᑦᑎᓂᒃ ᕿᓚᓗᒐᕐᓂᒃ ᐃᓂᓕᓐᓂᒃ ᑖᒃᑯᓂᖓ ᑕᓯᐅᔭᕐᔪᐊᒥ ᓄᕗᒻᒥ ᓘᓲᓂᒃ.ᕋᓗᐊᕐᑎᓗᒍ, ᓲᕐᑯᐃᓱᑦᓯᐊᖏᑦᑑᖏᓐᓇᑐᒍᑦ ᕿᓚᓗᒐᕐᓂᒃ ᐊᐅᖏᑎᒍᑦ ᖃᐅᔮᓴᐅᑏᑦ ᐊᑐᕐᑕᐅᓯᐊᕐᓯᒪᖕᓂᑯᖏᓐᓄᑦ ᐋᑎᐅᔮᐅᑉ ᓯᑦᔭᖓᓂ ᑕᓯᐅᔭᕐᔪᐊᒦᑦᓱᓂ, ᑕᕐᕋᖓᓂ ᔦᒥᓯ V, ᐊᒻᒪᓗ ᓯᕿᓂᖓᓂᑦ ᐅᖓᕙᐅᑉ (ᒪᕐᕋᓕᒃ ᑰᒃ). ᖃᐅᔮᓴᕈᑎᑦᓴᒋᐊᓪᓚᐅᒐᔭᕐᑐᑦ ᑭᖕᖑᒪᓇᕐᑐᑦ ᓴᓂᑭᓗᐊᑉ ᕿᓚᓗᒐᖏᓐᓃᓕᖓᔪᑦ ᐊᒻᒪᓗ ᖃᕙᖕᖓᓂᖓᓂᑦ ᑕᓯᐅᔭᕐᔪᐊᑉ, ᐱᕚᓪᓕᑎᑦᓯᒐᔭᕐᓱᑎᒃ ᐊᐅᖏᑎᒍᑦ ᖃᐅᔮᓴᕐᑕᐅᓂᐅᓲᓂᒃ ᓇᕿᖕᒐᓂᑕᑦᓴᔭᐅᒻᒪᖔᑕ.

ᐊᐅᖏᑎᒍᑦ ᖃᐅᔮᓴᕐᑕᐅᒍᑎᕙᓃᑦ ᓇᓗᓀᕐᓯᒍᑕᐅᓯᒪᔪᑦ ᒪᕐᕈᐃᖑᒋᐊᖏᓐᓂᒃ, ᓴᓂᑭᓗᐊᑉ ᐊᒻᒪᓗ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᑦᓴᔭᖏᑦ, ᐊᓂᑐᕐᑕᐅᖃᑦᑕᓲᑦ ᑕᓯᐅᔭᕐᔪᐊᑉ ᖃᕙᖕᖓᓂᖓᓂ ᐊᒻᒪᓗ ᓄᕗᒻᒥ. ᕋᓗᐊᕐᑎᓗᒍ, ᓲᕐᑯᐃᑕᐅᓯᒪᑦᓯᐊᖏᑦᑐᑦ ᑎᑭᑦᑕᕙᖏᑦ ᓇᓪᓕᐅᑎᓯᒪᓕᕐᑎᓗᒋᑦ ᓇᓪᓕᖕᒋᐅᑦᓯᐊᓲᖑᒻᒪᖔᑕ,ᖃᓄᐃᓪᓗᐊᑎᒋᔪᒥᒃ ᐅᐊᕈᑎᕇᓲᖑᓂᖏᑦ ᐱᑕᖃᓕᕋᒥᒃ ᐊᒻᒪᓗ ᖃᓄᑎᒋ ᐱᑕᖃᕐᒪᖔᑕ ᐊᑐᓂ ᐊᐅᖏᑎᒍᑦ ᐃᓚᕇᑦᓴᕉᑦ. ᒫᓐᓇᐅᑎᓪᓗᒍ ᓯᑯᑦᓴᔭᕐᑯᑏᑦ ᑭᓯᑦᓯᒍᑎᐅᓯᒪᔪᑦ ᑕᒣᓐᓂᒃ ᐅᐱᕐᖖᒥ ᑕᑯᑦᓴᐅᑎᑦᓯᒍᑏᑦ ᐊᕙᑦᑐᑕᐅᓯᒪᑎᓐᓇᒋᑦ ᐊᐅᖏᑎᒍᑦ ᓇᕿᖕᒐᓂᑕᑦᓴᔭᐅᓂᖏᑦ. ᐅᑎᒻᒪᑦ ᖃᓄᑎᒋ ᐱᑕᖃᕐᒪᖔᑕ ᖃᐅᔨᒪᔭᐅᖕᖏᓚᕿᔪᑦ.

ᓄᓇᒥᑦᑐᓄᑦ ᑕᑯᓐᓇᑕᐅᔪᑦ ᖁᑭᕐᑕᐅᑎᓪᓗᒋᑦ ᑐᖁᑕᐅᑎᓪᓗᒋᓪᓗ, ᐊᓐᓀᔭᐅᔪᑦ, ᑐᓴᕐᑎᓯᒍᑎᐅᓯᒪᖕᖏᑐᓪᓘᓃᑦ ᐱᒻᒪᕆᐅᔪᖅ ᐱᕙᑦᓴᐅᓱᓂ ᖃᐅᔨᒪᓇᖕᖏᑐᓄᑦ.

ᓄᕐᖃᕆᐊᕈᐅᑏᑦ ᐃᒫᖑᕈᐅᑏᓪᓗ

ᐊᐅᖏᑎᒍᑦ ᖃᐅᔮᓴᕆᐊᑦᓯᐊᑕᐅᓂᖅ ᐊᑐᕐᑕᐅᖃᑦᑕᓯᒪᔪᓂᒃ ᐊᐅᖏᑎᒍᑦ ᖃᐅᔮᓴᕐᓂᒧᑦ ᓄᐃᑦᓯᓯᒪᒻᒪᑕ ᓄᑖᓂᒃ ᓴᓂᑭᓗᐊᑉ ᕿᓚᓗᒐᖏᓐᓂᒃ ᑖᒃᑯᐊ ᖃᐅᔨᒪᓇᖕᖏᓚᕆᓲᑦ ᖃᑦᓯᐅᒍᓇᐅᒻᒪᖔᑕ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓄᑦ ᐅᐱᕐᖓᒥ ᐅᐊᕈᑎᐅᓕᕋᒃ.

ᔦᒥᓯ V ᕿᓚᓗᒐᒋᑦ ᐅᓄᕐᓯᒋᐊᕐᓯᒪᔪᑦ 19,700ᕈᕐᓱᑎᒃ 2015ᖑᑎᓪᓗᒍ ᑌᒪᖕᖓᓂᒃ ᐃᑭᓕᒋᐊᕐᓯᒪᔪᑦ 19,200ᖑᓕᕐᓱᑎᒃ 2021ᒥ.

ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᑦ ᐃᑭᓕᕙᓪᓕᐊᔪᑦ. ᐊᓐᓂᑐᕐᑕᐅᓂᕆᓲᖏᑦᑕ ᐅᓄᕐᓂᖏᑦ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ ᐅᖓᑖᓄᐊᓗᒃ ᕿᓚᓗᒐᕈᓐᓇᑕᒥᑕ ᑌᒪᖕᖓᑦ ᐊᓐᓂᑐᕐᕚᐅᓲᑦ.ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ ᐃᑭᓕᒋᐊᕐᓯᒪᓕᕐᑐᑦ 3,500- 3,900 ᑭᖑᓂᖓᒍᑦ ᑭᓯᑕᕙᓂᐅᓕᕐᑎᓗᒋᑦ 2015, ᐅᓪᓗᒥ ᐱᑕᖃᕐᓂᕋᕐᑕᐅᓂᖏᑦ ᐃᒣᓗᐊᓕᕐᑐᑦ 2,700-3,200 ᐱᑦᔪᑎᒋᑦᓱᒍ ᒪᓕᑦᓱᒍ ᐃᓂᓪᓚᑕᐅᓯᒪᐅᑎᖓ. ᐊᒥᓱᖕᖑᕆᐊᕐᓂᐊᑉᐸᑕ ᐊᓐᓂᑐᕐᑕᐅᓗᐊᕈᓐᓀᓕᐅᒥᒋᐊᓖᑦ 0-65 ᓴᓂᑭᓗᐊᑉ ᑕᓯᐅᔭᕐᔪᐊᓗ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖏᓐᓂᒃ, ᒪᓕᓪᓗᒋᑦ,ᐊᐅᓚᑦᓯᒍᑎᐅᑉ ᑐᖕᖓᕙᖏᑦ ᐊᒻᒪᓗ ᐱᕙᑦᓴᓕᐅᕐᑕᐅᓯᒪᐅᑎᖏᑦ.

ᐊᓯᖏᑦ ᐃᓱᒪᒋᔭᑦᓴᐅᒥᔪᑦ

ᕿᓚᓗᒃᑦ ᐊᐅᓚᒐᔪᑦᑐᑦ ᑲᑎᒪᑦᓱᑎᒃ.ᐊᑦᔨᒌᖕᖏᑑᑦᓱᑎᒃ ᐱᐅᓯᖏᑦ ᐊᓐᓂᑐᕐᑕᐅᓂᖏᑦᑕ ᐊᑦᔨᒌᓲᖑᖕᖏᒪᑕ ᐊᕐᕌᒍᑕᒫᑦ ᐃᓱᒫᓗᓐᓇᓚᕆᑦᑐᖅ ᐃᓘᓐᓇᒋᓐᓂᒃ ᓄᖑᐃᓐᓇᑎᑦᓯᑐᐃᓐᓇᓂᐊᖕᖖᖑᕆᔭᐅᑦᓱᑎᒃ, ᑕᒪᓐᓇᓗ ᓱᕐᕙᒍᓐᓇᓱᓂ ᐊᐅᖏᑎᒍᑦ ᐊᑦᔨᒌᖕᖏᒋᐊᖏᑦ ᐃᓚᐅᒻᒥᑎᓪᓗᒍ ᖃᐅᔨᒪᐅᓯᖅ ᑭᖑᕝᕙᑐᐃᒍᑎᐅᕆᐊᖃᕐᓂᖓ. ᓄᐃᑕᐅᓚᕿᓯᒪᔪᑦ

ᐱᓇᓱᒍᑎᑦᓴᐅᓂᐊᕐᑎᓗᒋᑦ ᑲᔪᓯᔪᒥᒃ ᐱᑕᕐᕿᓐᓇᓂᐊᕐᑯᓪᓗᒋᑦ. ᐊᓐᓂᑐᕐᑕᐅᒍᓐᓇᑐᑦ ᐅᓄᕐᓂᕆᒍᓐᓇᑕᖏᑦ ᐋᕐᕿᑕᐅᓯᒪᔪᑦ 50% ᐃᑭᓕᒋᐊᑐᐃᓐᓇᕆᐊᖅᕐᓂᖏᑦ ᕿᓚᓗᒌᑦ ᐊᕐᕌᒍᓂ ᑕᓪᓕᒪᓂ ᕐᑯᓕᓂᓘᓐᓃᑦ. ᑕᒪᓐᓇ ᐱᐅᓯᓕᐊᖑᓯᒪᔫᖅ ᐊᒥᓱᖕᖑᕆᐊᕆᓂᐅᖕᖏᑐᑦ ᕿᓚᓗᒐᕐᓂᒃ ᐊᒻᒪᓗ ᐱᕕᑦᓴᖅᑎᓯᒐᓂ ᕿᑲᐅᑦᔭᐅᕐᓇᓂᕐᒥᒃ ᐱᕕᑦᓴᖅᕕᐅᓚᕿᒐᔭᕐᒪᑕ ᖃᐅᔨᒪᒐᓱᐊᕆᐊᑦᓯᐊᓂᕐᒥᒃ, ᖃᓄᖅ ᐊᓐᓂᑐᕋᓱᐊᖅᑕᒪᖔᑕ, ᑐᕐᑯᐃᓐᓇᓯᒪᔪᑦ ᖃᓄᐃᓕᓐᓂᒪᖔᑕ, ᐅᕝᕙᓗᓘᓐᓃᑦ ᐊᕙᑎ ᐱᑦᔪᑕᐅᑎᓪᓗᒍ. ᐃᑭᑦᑐᑦ ᐊᑑᑎᓚᕿᑎᑦᓯᒍᓐᓇᒥᔪᑦ ᓱᒃᑫᑐᒥᒃ ᐊᒥᓱᖕᖑᐸᓪᓕᐊᓂᖏᓐᓂᒃ (i.e. Allee effects) ᑕᒪᓐᓇ ᐱᐅᖕᖏᓕᐅᒥᑎᑦᓯᒍᓐᓇᑐᑦ ᐊᒥᓱᖕᖑᑎᑕᐅᒐᓱᐊᕐᓂᖏᓐᓂᒃ ᓱᒃᑫᓕᐅᒥᑎᑦᓯᓗᑎᒃ.

ᐊᑎᖏᑦ ᑲᑎᖕᖓᔪᓄᑦ ᐃᓚᐅᔪᕕᓃᑦ

ᐊᑎᖓ	ᐱᑐᑦᓯᒪᕕᖓ
ᐁᐸᔭᖃ, ᑯᓇᔅᑏᓐ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᐹᔅᑐᕕᐅᓪ, ᒫᒃ	ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ
ᐸᑮᖕ ᐹᑉ	LGL Ltd.
ᐹᓂ, ᑲᓚᐅᑎ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᐳᐊᑐᔪ,ᔭᕕᔩ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᐴᕗᓐ, ᑖᓐ	ᑖᓪᖃᐅᓯ ᐃᓕᓐᓂᐊᕕᕐᔪᐊᖅ
ᑲᐹᓐ, ᐋᓐ ᒪᓃ	ᓄᓇᕕᒻᒥ ᑕᕆᐅᕐᒥᐅᑕᓕᕆᔩᑦ
ᑯᑎᓇᐋᓪ, ᐹᓪ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ ᐱᑦᓴᑖᕐᕕᐅᒍᓐᓇᑐᓂᒃ ᐊᐅᓚᑦᓯᔩ
ᑎᓐ ᕿᔦ, ᑯᐊᓃᓕᐊ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᑑᓂᐅᓪ-ᕚᓪᑯᔩ, ᑖᒪᔅ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᕘᑲᓴᓐ, ᓯᑏᕝ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᕖᓇ, ᓚᐅᔭ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᑲᔫᓪ, ᕐᑯᓵᒻ	NWMB
ᑳᔅᒣᓐ, ᔮᓐ ᕙᕌᓐᓯᐊ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᑯᔩ, ᐱᐋᕐ ᔩ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᖃᒥᐋᓪ, ᒣᒃ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ
ᖃᕐᕙᐃ-ᕞᓗᔩ	ᐃᒪᕐᐱᓕᕆᔩ ᓱᑯᐃᔩ

ᐊᑎᖓ	**ᐱᑐᑦᓯᒪᕕᖓ**
ᖄᑉ, ᖀᑐᕆᒃ	ᐃᒻᒥᔫᕐᑐᖅ
ᖃᑦᓴᔅ,ᔭᔅᑏᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᔮᓐ, ᑖᔨ	NCN ᐃᒪᕐᐱᒥᐅᔭᑦ ᓂᕐᑮᑦ
ᔮᓐᑖᓐ, ᑎᐋᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ CSAS
ᑖᖕ, ᓯᓕ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᑖᓴᒡ, ᔮᒃ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᓖ, ᑕᕕᑦ	ᓄᓇᕗᑦ ᑐᖕᖓᕕᒃ
ᓚᓴᔅ, ᕕᕈᓂᒃ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒫᑯᓈᑦᓯ, ᓵᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒪᔨᐅᔅᑭ, ᓰᓇ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒪᕐᑰ ᒪᕆᐋᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒫᓯᐅᔅ, ᑰᕆ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒫᓐᑖᓇ,ᓘᑲ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᒪᔅᓃ, ᐊᕐᓅ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᓂᑰᓪ, ᓕᓐᑕ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᓄᐊᑦᓯᑐᕋᒻ, ᓵᑦ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᐸᖀᓐ ᔨᓂᕙᐋᕝ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᐴᔅᒪ, ᓕᐋᓇ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᐳᕈᕚᓐᓯ ᓰᓐ ᐱᐋᕐ, ᐋᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᓯᑎᕙᓂ ᕿᑎᐋᓪ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ
ᕆᕕᐋᕐ, ᐋᓐᑐᐊᓐ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ ᐊᐅᓚᑦᓯᓂᓕᕆᕕᖓ
ᓵᑦᔭᑭ ᓵᓐᑎᐋᓪ	ᐃᒪᕐᐱᓕᕆᔨ ᓱᑯᐃᔭᔨ

ᐊᑎᖓ	**ᐱᑐᕝᓯᒪᕙᖓ**
ᓯᑎᐅᓂᖕᑕᓐ, ᓵᓴ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ CSAS
ᓯᑎᐋᓐᓴᓐ ᑭᐊᔨ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ
ᑎᖕᑯ, ᑎᒻ	ᐃᓪᒥᔫᕐᑐᖅ
ᑐᕈᓯᖕᑭ, ᑰᑦ	ᐃᓪᒥᔫᕐᑐᖅ
ᑕᑯ, ᓯᑐᕋᖄᓐ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ
ᕚᓐᑐᓛᓐ ᐋᓐᔨᓚᐊ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ
ᕗᐊᑦ (ᕗᐃᓗ), ᑯᐊᑦᓂ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ
ᕗᕈᑦ, ᐳᓇᐋᓇ	ᐃᒪᕐᐱᓕᓂᔨ ᓱᑯᐃᔪᔨ

ᖃᐅᔨᒋᐊᕐᕕᐅᒍᓐᓇᑐᑦ ᑐᑭᓯᒪᒍᑎᑦᓴᓂᒃ

ᑖᓐᓇ ᓱᑯᐃᔪᑎᐅᓯᒪᑦᓱᓂ ᑐᓴᕐᑎᓯᐅᑎ ᓄᐃᑕᕙᓂᖅ ᕙᕈᐊᕆ 14-18, 2022 ᑲᓇᑕᒥ ᐃᒪᕐᐱᒥᐅᑕᓂᒃ ᐆᒪᔪᓂᒃ ᕿᒥᕐᕈᐃᑦ ᑲᑎᒪᔩᖏᑦ (NMMPRC) ᑲᑎᒻᒪᑎᓪᓗᒋᑦ ᖃᐅᔨᒪᔭᐅᕐᓯᑎᒃ ᖃᓄᑎᒌ ᕿᓚᓗᒐᖃᕐᒪᖔᑦ ᓄᓇᕕᒥ (ᑯᐯᒃ ᑕᕐᕿᖓ). ᐊᓯᒋᐊᓪᓚᖏᑦ ᑐᓴᕐᑎᓯᔫᑎᑦ ᖃᓇᑕᐅᔾᒥ ᑕᑯᔭᐅᑎᑕᐅᓛᕐᑐᑦ ᐅᕙᓂ [Fisheries and Oceans Canada (DFO) Science Advisory Schedule ᐊᑐᓇᕈᕐᓯᒪᓕᑐᐊᕐᐸᑕ.]

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ᑖᒃᑯᐊ ᑐᓴᕐᑎᓯᐅᑏᑦ ᐊᑐᐃᓐᓇᐅᑎᑕᐅᔪᑦ ᐅᕙᓂ:

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˜ᓈᒻᒪᓈᕐᓯᒪᔪᓂᒃ ᑐᑭᓯᓇᕈᑎᑕᓖᑦ ᑕᒃᒍᖓᓕᖓᔪᓂᒃ:

ᑲᑕᐅᑉ ᑲᕙᒪᖓᑕ ᐃᒪᕐᐱᓕᕆᔩᖏᑦᑕ ᐃᒫᖅᑫᕈᑎᖏᑦ ᐊᓐᓂᑐᕋᓱᐊᕐᓂᒧᑦ ᑕᓯᐅᔭᕐᔪᐊᑉ ᐅᐊᓐᓂᖓᑕ ᕿᓚᓗᒐᖕᓂᒃ ᐊᒻᒪᓗ ᔪᐃᓯ ᐯDFO. 2022. (*Delphinapterus leucas*). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2022/024.

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Also available in English:

DFO. 2022. Harvest advice for eastern Hudson Bay and James Bay beluga (Delphinapterus leucas). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2022/024.