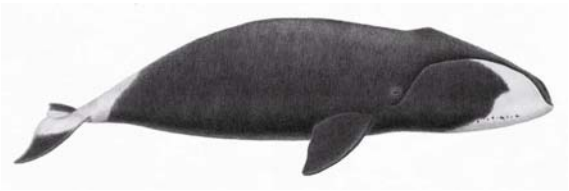
Fisheries and Oceans Canada | Pêches et Océans Canada
Science | Sciences

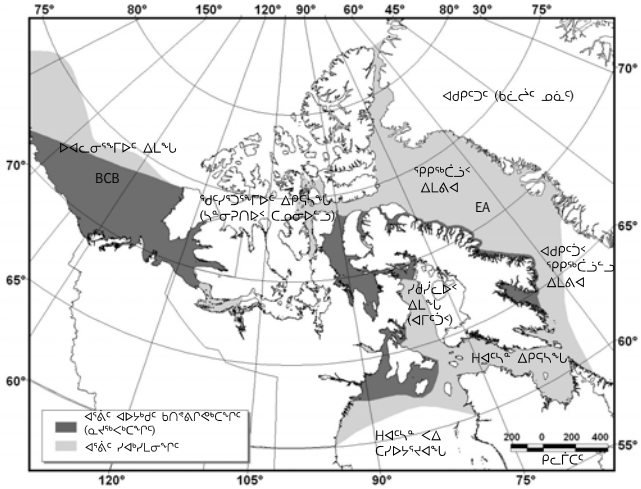
ᑲᓇᑕᐅᑉ ᐃᒪᖕᒥᐅᑕᓕᕆᔨᖕᒋᑦ
ᑭᓪᓕᓯᓂᐊᖅᑏᑦ
ᐅᑭᐅᖅᑕᖅᑑᑉ ᕿᑎᐊᓄᑦ ᐅᖅᑯᐊᓄᓪᓗ

ᑲᓇᑕᒥ ᑭᓪᓕᓯᓂᐊᖅᑏᑦ ᖃᐅᔨᒪᔨᑕᖕᒋᑦᑕ ᑎᑎᕋᕐᕕᖕ
ᑭᓪᓕᓯᓂᐊᖅᑏᑦ ᖃᐅᔨᓴᕐᑎᒻᒪᕆᖕᒋᑕ ᐅᓂᒃᑳᖕᒋᑦ 2008/057

ᐅᖃᐅᔾᔨᒋᐊᕈᑦ ᐊᕐᕙᓂᐊᖕᖕᓂᐅᑉ ᒥᒃᓵᓄᑦ ᐅᑭᐅᖅᑕᖅᑑᑉ ᐅᖅᑯᐊᑕ – ᐱᓇᓐᓇᖅᐸᓯᐊᓂ ᑲᓇᑕᒥᐅᑦ ᐊᑯᑭᑦᑐᖕᒥᐅᓪᓗ ᐊᕐᕕᓂᐊᖅᐸᒃᑕᖕᒋᓐᓂᒃ



ᔨ. ᑰᐅᑦ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ᐅᐊᓚᓂᖕᒥᐅᑦ ᐃᒪᖕᒐ
BCB
ᕿᑭᖅᑖᓗᑉ
ᐃᒪᕕᐊ
EA
ᐊᑯᑭᑦᑐᑉ
ᕿᑭᖅᑖᓗᑦᓗ
ᐃᒪᕕᐊ
ᓯᕕᓯᓚᒃᑉ
ᐃᒪᖕᒐ
(ᐊᒥᑦᑐᕐ)
ᕿᑭᖅᑖᓗᑦᓗᑦᑐᑦ ᐃᑭᕋᖕᒐ
(ᓴᓐᓂᑭᑎᐅᑉ ᑕᓄᓂᐅᑦᓗ)
ᕿᑭᖅᑖᓗᑦᓗᑦᑐᑦ ᐃᑭᕋᖕᒐ
ᐊᕐᕕᑦ ᐊᐅᔾᔭᑯᑦ ᑲᑎᕐᕕᒋᕙᖕᒋᑦ
(ᓇᓱᖅᐸᖕᒋᑦ)
ᐊᕐᕕᑦ ᓯᐊᔾᓯᒪᓂᖕᒋᑦ
ᕿᑭᖅᑖᓗᑦᓗᑦᑐᑦ ᐃᑭᕋᖕᒐ

ᑭᓪᓕᓯᓂᐊᕐᑏᑦ ᖃᐅᔨᓴᕐᑎᖏᓐᓄᑦ:

1) ᖃᓄᖅ ᐋᖅᑭᒃᓱᖅᓯᒪᓂᖃᕆᐊᖃᑉᐸ ᐊᕐᕙᓂᐊᕐᖓᓂᐅᕙᒃᑐᖅ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᐊᑕ ᐅᖅᑯᐊᓂ ᐱᕕᐅᓗᐊᑦᑕᐃᓕᓯᓐᓈᑦ ᐊᖑᒻᒪᑎᔪᓐᓇᕐᑯᓪᓗᒋᑦ ᐅᑎᖅᐸᓪᓕᐊᑎᑕᐅᓇᓱᓐᓂᖏᓐᓄᑦ ᐊᕐᕕᑦ ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᓂ–ᐊᑯᑭᑦᑐᑦ ᐱᓇᓐᓇᖓᑕ ᐃᒪᕕᐊᓃᑦᑐᑦ?

2) ᓄᓇᓐᖑᐊᑎᒍᑦ ᓇᓗᓇᐃᕐᔪᕐᑲᕈᓐᓇᕐᑉ ᐅᔾᔨᕆᔭᐅᓯᒪᔪᓂᒃ ᓂᕿᑦᓴᒧᑦ ᐊᕐᕙᓂᐊᕐᕕᐅᔪᓐᓇᕐᑐᓂᒃ ᐃᓐᓇᕈᓈᕐᓯᒪᓐᖏᑦᑐᓂᑦ (ᒥᑭᓐᓂᕐᓴᓂᑦ) ᑎᒡᒐᐃᑦ ᓄᓃᑦᔫᓐᓃᑦ ᐱᔭᐅᓐᖏᖓᕐᓗᑎᒃ?

ᑖᒃᑯᓇᓂ ᑎᑎᕋᕐᓯᒪᔪᑦ ᑭᐅᓇᓱᐊᕐᓯᒪᔪᑦ ᐆᒃᑐᕋᕐᓂᒃᑯᑦ ᐃᒥᓲᓂᕆᒐᔭᓐᖑᐊᑦᑕᖏᓐᓂᑦ ᐅᖃᓕᒫᒐᓪᓗ ᓴᖅᑭᑕᐅᓯᒪᔪᑦ ᒪᓕᒃᑐᒋᑦ.

ᓇᐃᓈᕐᓗᒍ

ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᓂ ᐊᕐᕕᑦ ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᑕ ᐊᕐᕕᖏᑦ ᐅᑎᖅᐸᓪᓕᐊᑎᑕᐅᓇᓱᐊᕐᓂᖏᑦ ᓱᕋᓗᐊᑦᑕᐃᓕᓯᓐᓈᑦ ᐅᑯᓂᖓ ᖃᐅᔨᓴᓚᐅᖅᑐᒍᑦ:

- ᐊᔪᕐᓇᓐᖏᒐᐃᑉᐸᑦ, ᐊᕐᕕᒐᓱᒋᐊᓖᑦ ᐱᕈᓅᕐᓯᒪᓐᖏᑦᑐᓂᒃ (ᑕᑭᓂᖏᑦᐊᑯᓐᓂᖓᓃᑦᓗᑎᒃ 7.5m ᒥᑕᑦ ᐊᒻᒪ 13.5m ᐅᕝᕙᓘᓐᓃᑦ ᐊᑯᓐᓂᖏᖓᓂ 24.6 ᐃᓱᒐᑦᓗᐊᑦ ᐊᒻᒪ 44.3 ᐃᓱᒐᑦᓗᐊᑦ ᑕᑭᓂᖏᑦ, ᐅᕝᕙᓘᓐᓃᑦ ≤ 4.5m ᒥᑕᑦ ᑐᖕᒐᓂ ᐅᕝᕙᓘᓐᓃᑦ 14.8 ᐊᓱᒐᑦᓗᐊᑦ ᓂᐊᕐᑯᖏᑎᒍᑦ ᓯᓕᓐᓂᖏᑦ).
- ᐊᕐᕕᒐᓱᓐᓂᐊᕐᐸᑕ ᐊᕐᓇᑦᓗᓂᒃ (ᓄᓂᕐᓂᒃ) ᖃᖓᓕᒫᒃᑯᑦ ᐱᓗᐊᑦᑕᐃᓕᔭᕆᐊᓖᑦ ᐅᐸᑦᑕᐅᑦᑕᐃᓕᓗᑎᑦᓗ ᓯᑯᓲᓚᐅᑉ ᐃᒪᖓᑕ ᐅᐊᓐᓇᖓᓃᑦᑐᑦ.
- ᓯᑯᓲᓚᐅᑉ ᐃᒪᖓᑕ ᐅᐊᓐᓇᖓᓃᑦᑐᑦ ᐊᕐᕕᒐᓱᒋᐊᓖᑦ ᑭᓯᐊᓂ ᐱᕈᓅᕐᓂᑰᖕᖏᑦᑐᓂᒃ, ᐅᐱᓐᓇᕋᓂ ᐊᕐᓇᑦᓗᑦ (ᓄᓃᑦ) ᕿᑐᕐᖏᐅᕈᓐᓇᑐᕐᓴᐅᒻᒪᑕᓱᓕ.
- ᐱᔭᐅᓗᐊᑦᑕᐃᓕᕐᑯᑦᓗᒋᑦ ᐊᕐᓇᑦᓗᑦ (ᓄᓃᑦ), ᐊᖑᓇᓱᒃᑏᑦ ᐱᑦᑕᐃᓕᒋᐊᓖᑦ ᑕᑭᓂᕐᓴᓂᒃ 16.2m ᒥᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 53.2 ᐃᓱᒐᑦᓗᐊᓂᑦ ᑕᑭᓂᓖᑦ (> 5.4m ᒥᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 17.7 ᐊᓱᒐᑦᓗᐊᑦ ᓂᐊᕐᑯᖏᑎᒍᑦ ᓯᓕᓐᓂᖏᑦ).

ᐊᑐᖅᑕᐅᑏᕐᓯᒪᔪᑦ

ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᑕ ᑲᓇᓐᓇᖓᓂ ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᑕ ᐊᕐᕕᖏᑦ ᐊᕐᕙᓂᐊᕐᑕᑦᓚᓇᐅᕐᑲᑦᑕᓚᐅᖅᖓᑕ ᓂᐅᕐᕈᑎᒃᓴᒧᑦ ᐊᕐᕌᒍᓂᒃ 400ᖏᓐᓂᑦᑐᓂᒃ, ᐊᒻᒪ ᓂᕿᑦᓴᖅᓯᐊᖑᕐᑲᑦᑕᕐᓂᑰᓪᓗᑎᒃ ᐊᑯᓂᐅᓂᕐᓴᒻᒪᓇᒃ. ᐊᕐᕙᓂᐊᕐᑎᓄᑦ ᓄᖑᑕᐅᐸᓗᓚᐅᕐᑎᓪᓗᒋᑦ ᓂᐅᕐᕈᑎᒃᓴᒧᑦ ᐊᒻᒪ ᖃᐅᔨᓴᕐᑕᐅᓚᐅᕐᑎᓪᓗᒋᑦ, ᑲᑎᓐᖓᑎᑕᐅᓕᕐᑐᑎᒃ ᐅᑭᐅᖅᑕᖅᑑᑉ ᐅᐊᓚᓂᖓᑕ ᐱᓇᓐᓇᖓᓃᒃᑐᑦ, ᐆᒪᔪᑦ ᐃᓅᓴᓪᓕᓗᐊᕐᑯᓇᒋᑦ ᐆᒪᔪᕐᓂᑦ ᑭᓪᓕᓯᓂᐊᕐᑏᑦ ᑲᓇᑕᒥ ᑲᑎᒪᔨᕋᓛᖏᑦ (ᑲᓱᕕᒃᑯᑦ) ᓇᓗᓇᐃᕐᑕᐅᓪᓗᑎᒃ ᐱᑕᖃᕈᓐᓃᑑᐃᓐᓇᕆᐊᖃᕆᐊᖏᑦ 1980ᖑᑎᓪᓗᒍ. ᐅᐱᖕᒐᖓᓂ 2005, ᐆᒪᔪᕐᓂᑦ ᑭᓪᓕᓯᓂᐊᕐᑏᑦ ᑲᓇᑕᒥ ᑲᑎᒪᔨᕋᓛᖏᑦ ᐃᓛᒃᑰᖓᓂᕋᐃᓕᓚᐅᕐᓯᒪᔪᑦ ᐅᑭᐅᖅᑕᖅᑑᑉ ᐅᖅᑯᐊᓃᑦᑐᓂᑦ ᑎᑭᑦᑐᒍ ᐊᑯᑭᑦᑐᑦ ᕿᑭᖅᑖᓗᓪᓗ ᐃᒪᕕᐊᓃᑦᑐᓄᑦ ᐊᒻᒪ ᐄᐊᑦᓴᓐ ᐸᐃ ᓯᑯᓲᓚᐅᓪᓗ ᐃᒪᖓᓃᑦᑐᑦ ᐊᕐᕕᕐᑯᑎᖏᑦ, ᑕᒪᒃᑮᓪᓗ ᓇᓗᓇᐃᕐᑕᐅᓪᓗᑎᒃ ᐊᑦᑕᕐᑯᓲᑕᐅᓕᓇᐊᖏᑦ. ᑎᑎᕋᕐᑕᐅᖃᓯᐅᔭᐅᐸᑦᑕ ᐆᒪᔪᑦ ᐃᓅᓴᓪᓕᓗᐊᕐᑯᓇᒋᑦ ᐱᕐᑯᖓᔭᓂ (ᓵᕋ), ᖃᓄᖅ ᐅᑎᖅᐸᓪᓕᐊᑎᑕᐅᔪᓐᓇᕐᒪᖔᑕ ᐸᖕᓇᐅᑎᓂᒃ ᐋᖅᑭᒃᓱᐃᔪᕐᑲᓇᐊᕐᑲᓕᕋᔭᕐᑐᖅ.

ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᑕ ᑲᓇᓐᓇᖓᓂᒥᐅᑦ ᐊᑯᑭᑦᑐᖕᒥᐅᓪᓗ, ᑭᓪᓕᖃᕐᑎᑕᐅᓪᓗᑎᒃ ᐊᕐᕙᓂᐊᕈᓐᓇᖕᖓᑕ ᓂᕿᑦᓴᒧᑦ, ᑭᓯᐊᓂᓕ ᐊᒥᓱᕈᒃᑲᓐᓂᕐᑯᔨᔪᑦ ᐃᓄᐃᑦ ᐱᔭᒃᓴᒥᓐᓂᒃ ᑲᓇᑕᒥᐅᑉ ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᓂᖕᒥᐅᑦ. ᓄᓇᕐᔪᐊᒥ ᕿᓚᓗᒐᓕᓇᔾᑦ ᑲᒥᓴᖓᑦ ᒫᓐᓇᕋᑖᖅ ᐱᔪᓐᓇᐅᑎᑖᕐᑎᑦᓯᕋᑖᓚᐅᖅᒥᔪᑦ ᒪᕐᕉᓐᓂᒃ ᐃᑭᓕᖅᓯᒍᓐᓇᕐᓯᑎᑕᐅᓪᓗᑎᒃ[1] ᐊᕐᕌᒍᒥ ᐊᑯᑭᑦᑐᑦ ᐱᓇᓐᓇᖓᓂ, ᓯᕗᓂᑦᑎᓐᓂ ᐊᕐᕙᓂᐊᕈᓐᓇᕐᑎᑕᐅᓗᑎᒃ ᕿᒥᕐᕈᑲᓐᓂᓚᐅᕐᓗᒋᑦ ᐃᓚᒋᓐᓂᑦᑐᑦ. ᑲᓇᑕᒥ, ᐊᕐᕙᓂᐊᖅᓂᖅ ᑲᑐᔭᐅᓪᓗᓂ ᐊᐅᓚᑕᐅᕙᒻᒪᑦ ᑲᓇᑕᐅᑉ ᐃᒪᖅᒥᐅᑕᓕᓇᔨᖏᓐᓄᑦ, ᓄᓇᕗᒻᒥ ᐆᒪᔪᓕᓇᔨᕐᔪᐊᑦ ᑲᑎᒪᔨᖏᓐᓄᑦ, ᐊᒻᒪ ᓄᓇᕕᐅᑉ ᑕᓇᐅᖓᓄᑦ ᐆᒪᔪᓕᓇᔨᒻᒪᓇᑦ ᑲᑎᒪᔨᖏᑦ. ᑕᐃᒪᓐᖓᑦ

[1] ᐃᑭᓕᖅᑕᖅ ᑐᑭᓕᒃ ᐅᓈᑉ ᓴᒃᑯᖓ ᑕᕐᓯᑲᑐᐊᖅᐸᑦ ᐊᕐᕕᒧᑦ.

ᐊᕐᕋᓂᐊᕈᓐᓇᐅᑎᓂᒃ ᓚᐃᓴᓐᓯᑖᕐᑎᕐᓯᖃᑦᑕᓕᔪᒻᒪᑕ ᑲᓇᑕᐅᑉ ᑲᓇᓐᓇᖓᓂ 1996ᖑᑎᓪᓗᒍ, ᐊᕐᕕᑕᐅᔪᓐᓇᕐᑐᑦ ᑐᓐᖓᕕᖃᕐᑎᑕᐅᓯᒪᒻᒪᑕ ᒪᕐᕉᓕᖓᓱᓇᔭᐅᔪᓂᒃ ᐊᒻᒪ ᑭᓪᓕᓯᓂᐊᕐᑏᑦ ᖃᐅᔨᓴᕐᑎᖏᑦᑕ ᐅᖃᐅᔾᔨᒋᐊᕈᑎᒥᓂᖏᓐᓂᒃ 1995-96ᒥ ᖃᐅᔨᓴᕈᑎᒥᓂᖏᓐᓂᒃ ᐅᖃᕐᓯᒪᓪᓗᑎᒃ ᐊᑕᐅᓯᖅᒥᑦ ᐊᕐᕌᒍᑦ ᐱᖓᓱᑦ ᓈᔭᕋᐃᐸᐸᑕ ᐊᕐᕋᒍᓐᓇᕐᓂᕋᕐᑕᐅᓪᓗᑎᒃ ᕼᐊᑦᓴᓐ ᐸᐃ ᑕᓯᐅᔭᕐᔪᐊᖓᑕ–ᓯᑯᓲᓚᐅᓪᓗ ᐃᒪᖓᑕ ᐊᕐᕕᕐᑯᑎᖏᓐᓂᒃ ᐊᒻᒪ ᐊᕐᕕᒍᓐᓇᕐᓗᑎᒃ ᐊᑕᐅᓯᖅᒥᒃ ᐊᕐᕌᒍᑦ 13 ᓈᔭᕋᐃᐸᐸᑕ ᐊᑯᑭᑦᑐᑦ ᖃᑭᖅᑖᓗᓪᓗ ᐃᒪᕕᐊᓂ (ᑲᓯᓐᓴ ᐅᓂᒃᑳᖏᑦ *et al.* 1998).

2007ᖑᑎᓪᓗᒍ, ᖃᐅᔨᓴᕐᑎᒻᒪᕆᑦ ᑐᑭᑖᕈᑎᒋᓚᐅᕐᑕᖏᑦ ᐱᐅᖅᓯᐊᓯᓐᓈᑦ ᐆᒪᔪᖅᑕᐅᔪᓐᓇᕋᔭᓐᖑᐊᕐᑐᑦ (PBR) ᖃᐅᔨᓴᕈᑎᒥᓃᑦ ᑐᓐᖓᕕᐅᓪᓗᑎᒃ ᐃᓚᒋᓐᓂᖏᑦ ᐊᑕᐅᓯᕐᒥᓐᖓᕐᓂᕋᕐᑕᐅᓪᓗᑎᒃ, ᒥᒃᓴᐅᓴᔭᐅᓯᒪᓪᓗᑎᒃ 14,400ᖏᓐᓃᒋᐊᒃᓴᖅ ᐊᕐᕕᑦ ᐊᒥᓲᓂᖏᑦ (ᑑᐃᒃ ᐅᓂᒃᑳᖏᑦ *et al.* 2007), ᓇᓗᓇᖅᑰᔨᒍᓐᓃᕐᑐᓂ 18ᓂᒃ ᐊᕐᕕᖃᑦᑕᕋᓗᐊᕐᐸᑕ/ᐊᕐᕌᒍᑕᒫᑦ ᓱᕋᐃᓗᐊᕋᔭᓐᖏᒋᐊᖏᑦ ᐊᕐᕕᑦ ᐅᑎᖅᐸᓪᓕᐊᑎᑕᐅᓇᓱᓐᓂᖏᓐᓂ (ᑲᓇᑕᐅᑉ ᐃᒪᖏᒥᐅᑕᓕᕆᔨᖏᑦ 2008). ᑭᓯᐊᓂᓕ, ᖃᐅᔨᓴᕐᓂᒥᓃᑦ ᑐᓴᒐᒃᓴᖃᑦᑕᐅᓐᖏᑦᑐᑦ ᖃᓄᖅ ᓱᕋᐅᑎᒐᔭᕐᒪᖔᑕ ᓂᕈᐊᓇᔭᐅᓂᕐᓴᐅᕙᒃᑐᑦ ᐱᖃᓯᐅᔭᐅᓯᒪᓐᖏᑦᑐᑦ ᐊᕐᕕᓂᐊᕈᓯᐅᑉ ᐋᖅᑭᒃᓱᖅᓯᒪᓂᖓ ᐅᑎᖅᐸᓪᓕᐊᑎᕐᓯᓇᓱᓐᓂᑎᓐᓄᑦ. ᖃᐅᔨᓴᕐᑕᐅᓚᐅᕐᑐᑎᒃ ᐅᔾᔨᓇᖅᑐᔾᔭᖅᑐᖅ ᐃᓚᒋᑦ ᐃᓛᒃᑰᖓᔫᔭᕆᐊᖏᑦ ᓯᐊᒃᓯᒪᔪᑦ ᐅᑭᐅᖃᑎᒌᑎᒍᑦ ᐊᒻᒪ ᖃᑐᖅᑭᐅᕈᓐᓇᕐᑐᑦ ᓱᓕ (ᑲᓯᓐᓴ ᐊᒻᒪ ᐸᓚᐅ 2003), ᐃᒻᒪᖃ ᐊᕐᕋᓂᐊᕐᓂᐊᕐᑐᑦ ᓂᕈᐊᓇᔭᖃᕐᓂᖅᓴᐅᓕᕐᓗᑎᒃ ᐱᔪᒪᔭᒥᓂᒃ ᐊᕐᕌᒍᖏᑎᒍᑦ ᖃᑐᖅᑭᐅᕈᓐᓇᕐᓂᖏᓐᓂᓪᓘᓐᓃᑦ. ᒫᓐᓇᓕ, ᐊᕐᕋᓂᐊᕐᓂᒧᑦ ᓚᐃᓴᓐᓯᑖᕈᑎᐅᕙᒃᑐᑦ ᒪᓕᒐᖏᑦ ᐱᑦᑕᐃᓕᑎᕐᓯᒻᒪᑕ ᐊᕐᕕᑦ ᒫᕋᓛᖏᓐᓂᒃ (ᐸ25’ ᐃᓯᒐᓪᓗᐊᑦ ᑐᖓᓂ) ᐅᕝᕙᓘᓐᓃᑦ ᒫᕋᓛᓕᓐᓂᑦ (ᖃᑐᖅᖓᓇᕐ), ᑭᓯᐊᓂᓕ ᓇᓗᓇᖅᓂᖓᓄᑦ ᐊᖑᓴᓪᓘᒻᖓᑕ ᐊᕐᓇᓪᓘᒻᖓᑕᓘᓐᓃᑦ ᐃᓄᑑᐸᐸᑕ ᐊᕐᓇᓪᓗᒻᒥᑦ (ᓄᓂᕐᒥᒃ) ᐱᔪᖃᑐᐃᓐᓇᕆᐊᖃᕐᐳᑦ.

ᐊᒥᓲᓂᖏᓐᓄᑦ ᓇᓗᓇᕐᑐᑦ ᐃᓚᐃᓐᓇᖏᓐᓂᒃ ᐃᓚᒋᓃᒃᑐᓂᒃ ᒥᒃᓴᐅᓴᓂᑰᒻᒪᑕ (ᓱᕐᓗ, 14,400. 95% CI 4,811-43,105) ᐊᒻᒪ ᐱᑐᐃᓐᓇᕆᐊᖃᕐᓂᖏᓐᓂᒃ ᐱᔭᐅᕐᑯᔭᐅᓐᖏᑦᑐᓂᒃ, ᐃᓱᒪᒃᑯᑦ ᖃᓄᖅᑑᕐᓯᒪᓪᓗᑎᒃ ᐃᓚᒋᓃᒃᑐᑦ ᖃᓄᐃᓕᒐᔭᓐᖑᐊᕐᒪᖔᑕ ᐊᖑᔭᐅᖃᑦᑕᕐᓂᖏᑦ ᒪᓕᓪᓗᒋᑦ ᐊᒥᓲᓂᕆᒐᔭᓐᖑᐊᕐᑕᖏᓪᓗ ᐊᔾᔨᒌᖏᑦᑐᓂᒃ ᐊᑐᖅᑐᑕ ᖃᒥᕐᕈᓚᐅᖅᑕᕗᑦ.

ᖃᐅᔨᓴᕐᑕᐅᓂᑯᓂᒃ ᖃᒥᕐᕈᓂᖅ

ᒪᕐᕉᒻᒪᑎᒃ ᑐᑭᓯᒋᐊᕕᐅᓯᒪᔪᑦ ᖃᐅᔨᓴᕐᑕᐅᕐᑯᓪᓗᒍ ᓇᓪᓕᐊᓐᓂᒃ ᓂᕈᐊᓇᔭᖃᕐᓂᕐᓴᐅᒻᒪᖔᑕ ᐊᕐᕕᓂᖕᒥ ᐊᒻᒪ ᖃᒥᕐᕈᒍᑕᐅᓯᒪᔪᑦ ᖃᓄᖅ ᐅᑎᖅᐸᓪᓕᐊᔪᓐᓇᕐᒪᖔᑕ ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᓂ-ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᑕ ᐃᒪᕕᐊᓂ ᐊᕐᕕᑦ. ᓯᕗᓪᓘᓪᓚ ᐅᓂᒃᑳᑦ ᖃᐅᔨᓴᕐᑕᐅᓂᑯᒥᓃᑦ ᑲᓯᓐᓴ ᐊᒻᒪ ᐳᓚᐅᒧᑦ (2003) ᓇᓗᓇᐃᕐᓯᓯᒻᒪᑕ ᐃᓛᒃᑰᖓᔭᔪᓯᖏᓐᓂᒃ ᐊᕐᕕᑦ ᐅᑭᐅᖏᑎᒍᑦ ᖃᑐᖅᑭᐅᕈᓐᓇᕐᓂᖏᑎᒍᑦᓗ (ᐃᓪᓚᐅᖃᕈᓐᓇᕐᑐᑦ) ᐊᐅᔭᐅᓂᖓᓂ ᓇᒥᑐᐃᓐᓇᕐᓯᐊᖅ ᖃᐅᔨᓴᕐᕕᖏᓐᓂ. ᖃᐅᔨᓚᐅᕐᑐᑦ ᐊᒥᓲᓯᐊᖏᑦ ᒫᕋᓛᑦ ᐊᒻᒪ ᐱᕈᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐊᕐᕕᐊᓛᖑᓂᕐᓴᑦ, ᐃᓛᓐᓂᒃᑯᑦ ᐊᕐᓇᓪᓗᓐᓄᑦ ᐱᖃᑕᐅᕙᒃᑐᑎᒃ, ᓯᑯᓲᓚᐅᑉ (ᐊᒥᑦᑑᑉ) ᐃᒪᖓᑕ ᐅᐊᓐᓇᖓᓂ (ᐊᑯᓐᓂᖓᓃᒃᑐᑦ 79% ᐳᓴᑦ ᐊᒻᒪ 97% ᐳᓴᑦ ᐆᒃᑐᖅᑕᐅᖃᑦᑕᓚᐅᕐᑐᑦ ᑕᑭᓂᖏᑦ ᒪᓕᒃᑐᒋᑦ ᐊᕐᕌᒍᑦ ᖃᐅᓴᕐᖃᓴᓂᕕᖏᑦ). ᐅᔾᔨᕆᔭᐅᓚᐅᕐᑐᓂ ᐃᓱᒪᓇᖅᓯᔪᖅ ᐃᓐᓇᐅᓂᕐᓴᑦ ᐊᕐᕕᑦ ᓯᑯᓲᓚᐅᑉ ᐃᒪᖓᓂ ᐃᒻᒪᖃ ᒫᕋᓛᖃᖓᑕᓱᓕ ᐋᒪᒪᔨᐊᓛᑦ. ᐃᓱᒪᓇᕐᑐᖅ ᐃᓪᓚᐅᖃᖕᒋᑦᑐᑦ ᒫᕋᓛᓪᓘᓐᓃᑦ ᐃᒻᒥᓂᕐᓱᕈᓐᓇᕐᓯᔪᑦ ᐊᒻᒪ ᑎᒡᒐᑦ ᐊᓯᖏᓐᓃᒋᐊᖏᑦ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᐊᑕ ᑲᓇᓐᓇᖓᓂ ᐊᒻᒪ ᐊᑯᑭᑦᑐᑦ ᐱᓇᓐᓇᖅᐸᓯᐊᓂ.

ᐊᓯᖏᓐᓂᒃ ᑐᑭᓯᓇᕐᓯᒋᐊᕈᑎᓂᒃ ᐋᖅᑭᑦᓱᐃᓚᐅᕐᒥᔪᒍᑦ ᐆᒃᑐᕋᐅᑎᓕᐅᕐᑐᑕ ᐊᕐᕕᓂᒃ ᖃᐅᔨᓴᕈᑎᒥᓃᑦ ᑎᑎᖅᑲᕐᑕᖏᑦ ᐊᑐᖅᑐᒋᑦ. ᑐᑭᓯᓇᓱᐊᕈᒪᒧᑦ, ᐆᒃᑐᕋᐅᑎᓕᐅᓚᐅᕐᑐᒍᑦ ᑕᑯᓐᓇᕐᖑᐊᕐᓯᒪᔪᓂᒃ ᐋᖅᑭᑦᓱᐃᓚᐅᕐᑐᑕ ᑎᓴᒪᐃᕋᕐᓗᑎᒃ ᐊᕐᕋᓂᐊᕐᑐᖃᕐᓂᖅᐸᑦ ᖃᓄᐃᓕᖓᓕᕋᔭᕐᖑᐊᕐᒪᖔᑕ ᑲᓇᑕᐅᑉ ᑲᓇᓐᓇᖓᓂ–ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᓂ ᐊᕐᕕᑦ. ᐆᒃᑐᕋᐅᑕᐅᓚᐅᕐᑐᑦ ᐋᖅᑭᒃᓱᖅᓯᒪᓂᖏᑦ ᐅᓂᒃᑳᕆᔭᐅᓯᒪᔪᑦ ᓇᓵᑦ ᐅᓂᒃᑳᖓᓂ *et al.* (2003), ᑭᓯᐊᓂᓕ ᐆᒃᑐᕋᐅᑎᕐᑦ ᑕᕝᕙᓂ ᐱᖓᓱᓕᖓᑐᐃᓐᓇᕐᑐᑦ ᐱᕈᕐᐸᓪᓕᐊᔾᔪᓯᖏᑦ (ᒫᕋᓛᑦ, ᐱᕈᓴᕐᓂᑰᖏᑦᑐᑦ, ᐃᓐᓇᕈᓴᕐᓂᑯᑦ) ᐊᒻᒪ ᑕᐃᒫᓪᓚᒃᑖᖕᖑᐊᕐᑐᑎᒃ ᐊᓯᖅᑯᕕᕐᑲᕋᓂ (ᓱᕐᓗ, ᓇᓗᓇᕋᓂ ᖃᐅᔨᓴᕐᑕᐅᕐᑯᔭᐅᔪᒧᑦ ᖃᐅᔨᓴᕐᑕᐅᕐᑲᓯᐅᔭᐅᒋᐊᓛᑦ ᐅᐸᐱᓇᔭᖏᑦ.) ᐃᓚᒋᓃᒃᑐᑦ ᐱᐅᓯᖏᑦ ᐊᑐᖅᑕᐅᓚᐅᕐᑐᑦ ᒪᓕᒃᑐᒋᑦ ᖃᐅᔨᓴᕐᑕᐅᓂᑯᑦ ᐊᑐᐃᓐᓇᕆᔭᕗᑦ ᐊᒻᒪ ᖃᓄᖅᑑᖑᐊᕈᑎᒋᓯᒪᔭᕗᑦ ᓇᓚᐅᑦᓴᕐᓂᒃᑯᑦ ᐆᒃᑐᕋᐅᑎᖃᕐᑐᑕ ᐊᑐᕋᕐᑎᒍ ᐊᒥᓱᕈᕐᐸᓪᓕᐊᒐᔭᕐᖑᐊᕐᑐᑦ

ᐊᕐᕕᑐᖃᖃᑦᑕᖏᑦᓯᐊᒻᒪᕆᒃᐸᑦ ᐊᒻᒪ ᖃᑦᓱᓐᓇᑯᓗᐃᑦ ᐳᓴᑦᑎᖏᑎᒍᑦ ᐊᓐᓇᐅᒪᒐᔭᕆᐊᖏᑦ ᐊᕐᕌᒍᖃᓕᕈᓐᓇᕐᑐᑎᒃ 100ᓂᒃ*. ᓇᓚᐅᑦᓴᕐᓂᒃᑯᑦ ᐊᒥᓲᓂᕆᒐᔭᓐᖑᐊᕐᑕᖏᑕ ᓈᓴᐅᑎᖏᑦ 5,000 ᐊᒻᒪ 10,000 ᖃᒥᕐᕈᒍᑕᐅᓚᐅᕐᑐᑦ ᐅᐱᓐᓇᕋᓂ ᐊᒥᓲᓂᖏᑦ ᐃᓚᒋᓃᒃᑐᑦ ᓇᓗᓇᕐᓂᖏᓐᓄᑦ ᓱᓕ ᐊᒻᒪ, ᑕᐃᒪᐃᒻᒪᑦ, ᐊᑦᑕᕐᑯᓲᑕᐅᓗᑎᒃ ᐃᓱᒪᒋᔭᐅᒋᐊᖃᖅᑐᑦ ᓱᓕ.

ᐆᒃᑐᕋᐅᑎᒋᓚᐅᕐᑕᕗᑦ ᓇᓚᐅᑦᓴᕐᑐᑕ ᑎᓴᒪᐃᕐᓱᕐᓗᑎᒃ ᐊᕐᕕᓂᐊᕋᔭᓐᖑᐊᕐᑐᑦ ᐊᑐᖅᑐᒋᑦ: “ᐊᖑᓇᓱᒃᑕᐅᕙᓐᖏᓗᑎᒃ”, “ᐱᐅᓇᕐᓯᒪᔪᑦ ᐱᑐᖃᑦ” ᐊᖑᔭᐅᕙᓪᓗᑎᒃ (ᓇᓕᒧᒋᑎᑕᐅᓪᓗᑎᒃ ᑎᖓᖅ ᓄᓂᕐᓗ), “ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐃᓐᓇᐅᓕᕐᑑᒐᓗᐊᑦ” ᐊᖑᔭᐅᕙᓪᓗᑎᒃ (ᐅᑭᐅᖃᑎᒌᑦ ᐊᕐᓇᓪᓗᑦ ᐊᖑᓴᓪᓗᓪᓘᓐᓃᑦ ᐊᔾᔨᒌᑎᑕᐅᓪᓗᑎᒃ ᐊᒥᓲᓂᖏᑦ), ᐊᒻᒪ “ᐃᓐᓇᖅ ᐊᕐᓇᓪᓗᒃ (ᓄᓂᖅ)” ᐊᖑᔭᐅᓐᓂᖅᐸᑦ (ᐊᕐᓇᓪᓗᐃᑦ ᐱᐅᓇᕐᓯᒪᔪᑦ ᑭᓯᐊᓂ). ᐃᒻᒥᒃᑰᕐᑐᑦ ᐆᒃᑐᕋᐅᑎᕗᑦ, ᐱᖃᓯᐅᑎᓐᖏᑕᑐᐊᓇᓗᒍ, “ᐊᖑᓇᓱᒃᑕᐅᕙᓐᖏᓪᓗᑎᒃ”, ᖁᓕᑦ ᐊᕐᕕᑦ ᐃᒻᒥᒃᑰᖓᓗᑎᒃ[2] ᐱᔭᐅᕙᒃᐸᑕ ᐊᕐᕌᒍᑕᒫᑦ ᐃᓚᒋᓂᒃ. “ᐱᐅᓇᕐᓯᒪᔪᑦ ᐱᑐᖃᑦ” ᐊᖑᔭᐅᕙᒃᐸᑕ ᑕᓪᓕᒪᓂᒃ ᐱᐅᓇᕐᓂᑯᓂᒃ ᐱᕙᓪᓗᑎᒃ ᑕᒪᒃᑮᓐᓂᒃ ᐊᖑᓴᓪᓗᓂᒃ ᐊᕐᓇᓪᓗᓂᓪᓗ. “ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐃᓐᓇᐅᓕᕐᑑᒐᓗᐊᑦ” ᐊᕐᕕᑦᑐᖃᓐᖑᐊᕐᓗᓂ 2.5 ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐊᖑᓴᓪᓗᓂᒃ, 2.5 ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐊᕐᓇᓪᓗᑦ, 2.5 ᐱᐅᓇᕐᓯᒪᔪᑦ ᑎᖓᑦ, ᐊᒻᒪ 2.5 ᐱᐅᓇᕐᓯᒪᔪᑦ ᓄᓃᑦ. “ᐱᐅᓇᕐᓯᒪᔪᑦ ᓄᓃᑦ” ᒪᓕᒃᓯᒪᔪᑦ ᐃᓱᒪᖅᓲᑕᐅᓗᑎᒃ ᐊᕐᕕᑐᖃᖃᑦᑕᖅᑲᑦ ᖁᓕᓂᒃ (10) ᐊᕐᓇᓪᓗᓂᒃ ᐱᐅᓇᕐᓂᑯᓂᒃ.

“ᐃᓐᓇᖅ ᐊᕐᓇᓪᓗᒃ (ᓄᓂᖅ)” ᐊᑐᖅᑕᐅᒐᒥ ᓇᓚᐅᑦᓴᕐᓂᒃᑯᑦ ᐊᕐᕕᑕᐅᕙᓕᕐᓂᖅᑲᑕ ᓱᕐᕋᐃᕙᓪᓕᐊᒐᔭᕐᑐᔭᕐᑐᑐᐊᑦ ᐅᑎᖅᐸᓪᓕᐊᔪᓐᓃᕐᓗᑎᒃ, ᑭᖑᓂᕐᓯᐊᖏᑦ “ᐱᐅᓇᕐᓯᒪᔪᑦ ᑭᓯᐊᓂ”, “ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐃᓐᓇᐅᓕᕐᑑᒐᓗᐊᑦ”, ᐊᒻᒪ “ᐊᖑᓇᓱᒃᑕᐅᕙᓐᖏᓪᓗᑎᒃ” ᒥᑭᓪᓕᕙᓪᓕᐊᓪᓗᑎᒃ ᐆᒃᑐᕋᐅᑎᕗᑦ ᓱᕐᕋᐃᒐᔭᕐᓂᖏᑦ. ᐱᐅᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᑭᓯᐊᓂ ᐊᕐᕕᑕᐅᕙᒃᐸᑕ ᓱᕐᕋᐃᖏᓐᓂᕐᐹᖑᒐᔭᕐᑐᑦ ᐅᑎᖅᐸᓪᓕᐊᓂᖏᑦᑕ ᐊᒥᓲᓂᖏᓐᓂᒃ ᐅᐱᓐᓇᕋᓂ ᖃᑐᕐᖏᐅᓇᐅᕐᓂᐅᖏᑦᑐᓂᑦ ᐊᕐᕕᖃᑦᑕᕋᔭᕐᑐᑦ. ᐃᓚᒋᓂ ᐊᒥᓲᓂᖏᑦ ᓱᕐᕋᓗᐊᔭᐃᕐᑯᓪᓗᒋᑦ ᐅᑎᖅᐸᓪᓕᐊᓂᐊᕐᖓᑕ ᐅᐱᓐᓇᕋᓂ ᖃᑐᕐᖏᐅᓇᐅᕐᓂᐅᖏᑦᑐᓂᑦ ᐱᔭᐅᔾᔭᖏᑦᑐᑦ ᐃᓚᒋᓂᒃ. ᐃᓚᒋᑦ ᓱᕐᕋᓗᐊᕐᑯᓇᒋᑦ ᐅᑎᖅᑎᕐᓯᕙᓪᓕᐊᖓᓱᑦᑎᓪᓗᑕ ᐊᖑᔭᑎᒍᑦ, ᐊᕐᕕᓂᒃ ᐱᐅᓇᕐᓂᑰᓐᖏᑦᑐᓂᒃ ᑭᓯᐊᓂ ᐱᓇᓱᐊᖃᑦᑕᖅᑲᑕ ᓱᑯᓲᓚᐅᑉ ᐃᒪᖓᓂ ᐊᑲᐅᓂᖅᓴᐅᖓᔭᕐᑐᖅ (≤ 13.5 m ᒥᑕᑦ ᑐᖓᓃᑦᑐᑦ ᐅᕙᕗᓐᓃᑦ 44.3 ᐃᓱᒪᓪᓗᐊᓂᑦ ᑕᑭᓂᖃᖅᐸᑦ) ᐅᐱᓐᓇᕋᓂ ᖃᑦᓱᒃᑦᓚᐃᑦ ᐃᓐᓇᐅᓇᕐᓂᑯᑦ ᐊᐅᔭᐅᓂᖓᓂ ᓇᔪᖅᐸᑦᑕᖏᓐᓃᑦᑐᑦ ᐊᕐᓇᓪᓗᐃᑦ ᐱᑕᖃᕐᓂᕐᓴᐅᓂᐅᓴᐃᓐᓇᑐᑦᓴᐅᒻᒪᑕ. ᐅᐱᓐᓇᕋᓂ ᐊᕐᓇᓪᓘᒻᒪᖔᑦ ᐊᖑᓴᓪᓘᒻᒪᖔᓪᓘᓐᓃᑦ ᐱᐅᓇᕐᓂᑰᓕᕐᑎᓪᓗᒍ ᐃᒪᕕᒻᒥ ᐊᔪᕐᓇᐸᓗᒻᒪᑦ ᓇᓗᓇᐃᕋᓱᒋᐊᒃᓴᖅ ᓇᓪᓕᐊᖑᒻᒪᖔᑕ, ᐱᔭᐅᑦᑕᐃᓕᕐᑯᓪᓗᒋᑦ ᐊᕐᓇᓪᓗᐃᑦ ᐱᐅᓇᕐᓂᑯᑦ, ᐱᐅᓇᕐᓂᑰᓐᖏᑦᑐᑦ ᐊᑯᓐᓈᕐᑭᔪᑦ ᐊᕐᕕᑕᐅᕙᒃᐸᑕ ᓱᓕ ᐊᑲᐅᓂᖅᐹᖑᔫᑎᒋᔭᖅ ᓇᒥᑐᐃᓐᓇᕐᓯᐊᖅ ᐅᑎᖅᑕᕐᕕᖏᓐᓂ ᓇᔪᖅᐸᑦᑕᖏᓐᓂᓗ.

ᐊᖑᓴᓪᓗᐃᑦ ᑎᖓᑦ ᓄᓈᕐᑕᐅᓂᑯᑦ ᐊᓛᔅᑲᒥ ᐊᑯᓐᓂᖓᓂ 1973 ᐊᒻᒪ 1989 ᑕᑭᓂᖏᑦ ᐊᑯᓐᓂᖓᓃᒐᔪᓚᐅᕐᑐᑦ 16.2m ᒥᑕᑦ ᐅᕙᕗᓐᓃᑦ 53.1 ᐃᓱᒪᓪᓗᐊᑦ ᐊᕐᓇᓪᓗᐃᓪᓗ ᓄᓃᑦ ᓄᓈᕐᑕᐅᓂᑯᑦ ᑕᑭᓂᖃᕋᔪᒃᑐᑎᒃ 18.0m ᒥᑕᑦ ᐅᕙᕗᓐᓃᑦ 59.1 ᐃᓱᒪᓪᓗᐊᑦ (ᑲᔅᑭ *et al.* 1993). ᓇᐸᐸᖏᑕ ᓇᐸᐸᑲᓐᓂᖏᑦ ᐊᕐᓇᓪᓗᐃᑦ ᐆᒃᑐᕋᕐᑕᐅᖃᑦᑕᓚᐅᕐᑐᑦ ᑕᐃᒃᑯᓇᓂ ᐊᕐᕕᑕᐅᔪᓂ ᑕᑭᓂᕐᓴᐅᓪᓗᑎᒃ 16.2m ᒥᑕᑦ ᐅᕙᕗᓐᓃᑦ 53.1 ᐃᓱᒪᓪᓗᐊᑦ. ᐃᓱᒪᓇᖅᓯᓪᓗᓂ ᐊᕐᕕᑕᐃᓕᕐᑯᓪᓗᒋᑦ ᑕᑭᓂᕐᓴᓂᒃ 16.2m ᒥᑕᓂᑦ ᐅᕙᕗᓐᓃᑦ 53.1 ᐃᓱᒪᓪᓗᐊᓂᑦ ᓇᒥᑐᐃᓐᓇᕐᓯᐊᖅ. ᑖᓐᓇ ᐊᑐᓕᕐᑯᔾᔪᑎ ᓄᖅᑲᑎᕐᓯᓯᐊᒻᒪᕆᔭᖏᑦᑑᒐᓗᐊᖅ ᐊᕐᕕᐸᓐᓂᖅᒥᑦ ᐊᕐᓇᓪᓗᓂᒃ ᐱᐅᓇᕐᓂᑯᓂᒃ, ᐊᒃᓱᓪᓕ ᓄᖅᑲᐹᓪᓕᑎᕐᓯᔪᓐᓇᖅᒐᑕ ᐱᔭᐅᒐᔪᓐᓂᖏᓐᓂᒃ ᓇᒥᑐᐃᓐᓇᖅ ᐊᕐᕕᓂᐊᕐᕕᐅᔪᓐᓇᕐᑐᓂ ᖃᑦᓱᓐᓇᐅᑎᓪᓗᒋᑦ ᐅᕙᕗᓐᓃᑦ ᐱᑕᖃᓐᖏᑦᓯᐊᒻᒪᕆᒃᑎᓪᓗᒋᑦ ᐱᐅᓇᕐᓂᑰᓐᖏᑦᑐᑦ ᐊᑯᓐᓈᕐᑭᔪᑦ ᐊᒻᒪ ᑎᖓᑦ ᓄᓃᓪᓗ ᓇᓕᒧᒋᐸᓗᕐᑎᓪᓗᒋᑦ ᑕᑭᓂᖏᑦ.

ᐱᔭᕇᐅᑏᑦ ᐅᖃᐅᔾᔨᒋᐊᐅᑏᓪᓗ

ᐊᕐᕙᓂᐊᕐᓂᖅ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᐊᑕ ᑲᓇᓐᓇᖓᓂ (ᐅᖅᑯᐊᓂ) ᐋᖅᑭᒃᓱᖅᓯᒪᔪᓐᓇᕐᖓᑦ ᓇᐅᒃᑯᑦ ᓱᕐᕋᐃᖏᓐᖏᓛᖑᔪᓐᓇᕐᑐᓂᒃ ᐅᑎᖅᑎᑕᐅᕙᓪᓕᐊᓇᓱᓐᓂᖏᓐᓂ ᐊᕐᕕᑦ ᑲᓇᑕᐅᑉ ᐅᖅᑯᐊᑕ ᑲᓇᓐᓇᖓᓂ – ᐊᑯᑭᑦᑐᓪᓗ ᐱᓇᓐᓇᖓᑕ ᐊᕐᕕᕐᑯᑎᖏᑦ ᐅᑯᐊ ᐆᒃᑑᑎᐅᓯᒪᔪᑦ ᒪᓕᓪᓗᒋᑦ:

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* ᐋᖅᑭᒋᐊᖅᑕᖅ ᒪᔾᔨ 2009 – *120* ᐊᕐᕌᒍᐃᑦ ᑭᖑᕙᕕᖅᑕᐅᓪᓗᓂ ᐆᒧᖓ *100* ᐊᕐᕌᒍᐃᑦ.

[2] ᑖᒃᑯᐊ ᓈᓴᐅᑎᖏᑦ ᓂᕈᐊᕐᑕᐅᓚᐅᖅᑐᑦ ᓇᓚᐅᑦᓴᕈᑕᐅᓪᓗᒃᑎ ᖃᓄᐃᓕᖓᒐᔭᕐᖓᐊᕐᒪᖔᑕ ᐊᕐᕕᓂᐊᓚᐅᕐᑎᓪᓗᒋᑦ ᑐᑭᓯᔾᔪᑎᑕᐅᓇᓱᐊᕐᑐᑎᒃ.

- ᑐᕌᕆᔭᐅᓂᕐᓴᐅᓗᑎᒃ ᐱᕈᓐᓇᕐᓯᒪᓐᖏᑦᑐᑦ ᐊᑯᓐᓈᕐᑭᔪᑦ ᐊᕐᕕᑦ (≤ 13.5m ᒦᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 44.3 ᐃᓱᒐᓪᓗᐊᓂᒃ ᑕᑭᓂᓖᑦ, ᐅᕝᕙᓘᓐᓃᑦ 4.5m ᒦᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 14.8 ᐃᓱᒐᓪᓗᐊᑦ ᓂᐊᕐᑯᖓᑕ ᓯᓕᓐᓂᖓᒍᑦ), ᐱᓗᐊᕐᑐᒥᒃ ᓯᑯᓲᓚᐅᑉ ᐃᒪᖓᓂ ᐅᐱᓐᓇᕋᓂ ᕿᑐᕐᖏᐅᕈᓐᓇᕐᑐᑦ ᐊᕐᓇᓪᓗᑦ ᑖᕙᓃᒐᔪᓐᓂᕐᓴᐅᕙᓪᓕᐃᒻᒪᑕ.

- ᐱᑦᑕᐃᓕᓗᑎᒃ ᐊᕐᕕᓂᒃ ᑕᑭᓂᕐᓴᓂᒃ 16.2m ᒦᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 53.2 ᐃᓱᒐᓪᓗᐊᑦ ᑲᑎᑦᑐᒋᑦ ᑕᑭᓂᖏᑦ (> 5.4m ᒦᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 17.7 ᐃᓱᒐᓪᓗᐊᑦ ᓂᐊᕐᑯᖓᑕ ᓯᓕᓐᓂᖓᒍᑦ)

- ᖃᓂᓪᓕᔭᐅᓗᐊᑦᑕᐃᓕᓗᑎᒃ ᒫᕋᓛᓇᑦ (ᖃᑐᕐᖓᓇᑦ) (< 7.5m ᒦᑕᑦ ᐅᕝᕙᓘᓐᓃᑦ 24.6 ᐃᓱᒐᓪᓗᐊᑦ, ᑲᔅᑭ ᐅᓂᒃᑳᖏᓐᓂᒃ *et al.* 1993)

ᐊᓯᖏᑦ ᐃᓱᒪᒃᓴᖅᓯᐅᕈᑎᒃᓴᑦ

ᑕᑭᓂᓪᓚᒃᑖᑯᓗᖏᑦ ᐊᕐᕕᑦ ᐱᔭᕆᐊᑐᓪᓚᕆᒻᒪᑕ ᖃᐅᔨᓇᓱᒋᐊᖏᑦ ᐃᒪᕐᒦᓐᓂᖏᓐᓂ ᑭᓯᐊᓂᓕ ᑐᕐᑯᖓᔪᑦ ᑕᑭᓂᖏᑦ ᐅᖓᑖᓃᕋᔪᐸᑦᑐᑦ 1/3ᓗᐊᒥᒃ ᑲᑎᓪᓗᒍ ᑕᑭᓂᖏᑦ ᐊᕐᕕᑦ (ᐊᐊᑎᒪᓐ ᐊᒻᒪ ᑕᕐᐸᓚᐃ 1993). ᒪᓕᒃᑕᐅᒐᔪᒃᑐᖅ ᒥᒃᓴᐅᓴᑎᓪᓗᒋᑦ ᑕᑭᓂᖏᓐᓂᒃ ᐊᕐᕕᒃ ᐃᒫᓃᑑᑉ ᑕᑭᓂᒋᒐᔭᓐᖑᐊᕐᑕ ᖃᐅᔨᔭᐅᔪᓐᓇᕐᑐᖅ ᑕᐃᒫᒃ ᓂᐊᕐᑯᖓᑕ ᓯᓕᓐᓂᖓ ᐱᖓᓱᐃᕐᓱᓪᓗᐊᕈᕕᐅᒃ ᑕᐃᒪᓐᓇᑎᒋ ᑕᑭᑎᒋᒐᔭᓐᖑᐊᕐᑐᖅ, ᐆᒃᑐᖅᑕᐅᔪᓐᓇᕐᑐᑦ ᑐᑭᓗᐊᓪᓗᐊᕐᓗᒍ ᐆᒃᑑᑦ ᐱᒋᐊᕐᓗᒍ ᖁᓪᓕᐅᑉ ᐊᓪᓕᕈᖓᑕ ᐃᓱᓪᓗᐊᖓᓂᒃ ᑎᑭᓪᓗᒍ "ᖁᖓᓯᖓᓄᑦ" ᐅᕝᕙᓘᓐᓃᑦ ᓱᕐᓗᐊᑕ ᑐᓄᓱᓪᓗᐊᖓᑕᓗ ᐊᑯᓐᓂᖓᓃᑦᑐᖅ ᖁᖓᓯᖓᑕ ᑭᓪᓕᖓᑕ ᖃᑦᓯᓂᖓ.

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