Summary of Activities Related to the Action Plan on Whale Killing Methods

Based on Resolution 1999-1

Reporting forms received by the IWC for the period 2018-2021 are attached to this document.

Table 1 shows the forms that have been received from the member nations per year.

Croatia reported that since all whale species in Croatia are protected it is forbidden to intentionally kill any kind of whale specimens, so there are no whale killing methods to report.

Table 1 Forms that have been received from the member nations per year for the 2018-2021 period.

NATION	2018	2019	2020	2021
Kingdom of Denmark (Greenland)	✓	✓	✓	✓
Netherlands	✓			
New Zealand	✓	✓	✓	✓
Russian Federation	✓		✓	✓
St Vincent and the Grenadines	no catch	✓	no catch	*
United Kingdom	✓**			
United States	✓	✓	✓	✓

*A report on catches also describing the hunt was provided noting the following that relates to WKMs: "HUMPBACK WHALE CAUGHT IN BEQUIA 3rd MAY 2021: On May 3 2021, a humpback whale (*Megaptera novaeangliae*) was caught in the waters surrounding Bequia. The fishing boat Persecution, registered as J8–841–PF and captained by Alston Stowe, pursued the animal and harpooned the whale in the area north of Pigeon Island at 10:00 a.m. … The whale was subsequently killed at 10:15 a.m."

**The UK data is for the 1st part of 2018 only.

Annex 1: Summary Reporting Form

Greenland 2018

INTERNATIONAL WHALING COMMISSION

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by Monday 20 May 2019

Contracting Government	**Greenland (Denmark)**
Season	**2018**
Area	**Greenland**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (State whether primary killing method, secondary, or both)
1	Penthrite grenade 30 gram (Whale Grenade-99)	Primary (minke whales in West Greenland).
2	Penthrite grenade 45 gram (Whale Grenade-99)	Primary (minke whales in West Greenland).
3	Rifle, calibre larger than 7.62 mm (30.06).	Secondary (minke whales in West Greenland).

Greenland 2018

Summary of criteria used to indicate unconsciousness and death:

Criteria: When the whale does not move and the flippers are immovable. This includes when the whale has sunk and there is no movement in the harpoon line or floats.

Number of whales killed instantly are whales reported killed within 1 minute.

The presented Greenlandic data on TTD is biased high for those hunts where the TTD are estimated by the hunters and are not corrected by post-mortem examinations. (NAMMCO Expert Group Meeting on Assessing TTD data from Large Whale Hunts November 2015.)

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	**99**
▪ **other (please specify)**	**1**

Table 3: Summary of hunt:

Item	**Species 1** *[Minke whale, W-GRL]*		**Species 2** *[Minke whale, E-GRL]*		**Species 3** *[Fin whale, W-GRL]*	
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**116**		**2**		**7**	
• Total killed using Method 1 only	**46**	**40 %**				
• Total killed using Method 2 only					**7**	**100 %**
• Total killed using Method 3 only	**70**	**60 %**	**2**	**100 %**		
• Total needing secondary harpoon or other secondary killing method						
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**112**	**97 %**	**2**	**100 %**	**7**	**100 %**
• Total estimated TTD to be instant	**30**	**27 %**	**0**	**0 %**	**3**	**43 %**
• Maximum estimated TTD	**150**		**10**		**30**	
• Mean time to TTD	**15**		**9**		**13**	
• Median Time to TTD	**15**		**9**		**3**	
Other information						
• Total targeted and missed						
• Total struck and lost	**4**	**3 %**	**0**	**0 %**	**1**	**14 %**

Greenland 2018

	Species 4 *[Humpback whale, W-GRL]*					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**6**					
• Total killed using Method 1 only (30 g)						
• Total killed using Method 2 only (45 g)	**6**	**100 %**				
• Total killed using Method 3 only (rifle)						
• Total needing secondary harpoon or other secondary killing method						
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**5**	**83 %**				
• Total estimated TTD to be instant	**2**	**40 %**				
• Maximum estimated TTD (minutes)	**30**					
• Mean time to TTD (minutes)	**9**					
• Median Time to TTD (minutes)	**5**					
Other information						
• Total targeted and missed						
• Total struck and lost	**0**	**0 %**				

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Statistics for TTD of minke whales by method, rather than by stock:

- Time to death for minke whales killed with method 1 (N TTD = 46 reports, or 40 % of the catch):
  30 whales (65%) were killed within 1 minute. 39 whales (85%) died within 5 minutes. The mean time to death was 3 minutes. The median time to death was 1 minute. The largest time to death reported was 20 minutes.

- Time to death for minke whales killed with method 2 (N TTD = 68 reports, or 60 % of the catch):
  1 minke whale (1%) was killed within 1 minute, while 5 (7%) died within 5 minutes. The mean time to death was 24 minutes. The median time to death was 20 minutes. The largest time to death was 150 minutes.

Statistics for Struck and Lost minke whales by method, rather than by stock:

- Struck but lost minke whales using method 1: 0 (0 % of struck animals)
- Struck but lost minke whales using method 2: 4 (6 % of struck animals)

Additional information on fin whales and humpback whales:

- The minimum time to death reported for fin whales was 0 minutes. 4 fin whales (57%) died within 5 minutes. The minimum time to death reported for humpback whales was 0 minutes. 3 humpback whales (60%) died within 5 minutes.

Additional information on bowhead whales:

- The hunting of bowhead whales in West Greenland will for the forthcoming quota-block be followed by the Ministry of Fisheries, Hunting and Agriculture to improve killing methods and activities related to the hunt.

Annex 1: Summary Reporting Form

Greenland 2019

INTERNATIONAL WHALING COMMISSION

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by 6 April 2020

Contracting Government	**Greenland (Denmark)**
Season	**2019**
Area	**Greenland**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used
(Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (State whether primary killing method, secondary, or both)
1	Penthrite grenade 30 gram (Whale Grenade-99)	Primary (minke whales in West Greenland).
2	Penthrite grenade 45 gram (Whale Grenade-99)	Primary and secondary (bowhead whales, fin whales and humpback whales in West Greenland)
3	Rifle, with minimum 30.06 (7,62 mm)	Primary and secondary (minke whales in West and East Greenland).

Greenland 2019

Summary of criteria used to indicate unconsciousness and death:

Criteria: When the whale does not move and the flippers are immovable. This includes when the whale has sunk and there is no movement in the harpoon line or floats.

Number of whales killed instantly are whales reported killed within 1 minute.

The presented Greenlandic data on TTD is biased high for those hunts where the TTD are estimated by the hunters and are not corrected by post-mortem examinations. (NAMMCO Expert Group Meeting on Assessing TTD data from Large Whale Hunts November 2015.)

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	**99**
▪ **other (please specify) National wildlife officers**	**1**

Table 3: Summary of hunt:

Item	**Species 1** *[Minke whale, W-GRL]*		**Species 2** *[Minke whale, E-GRL]*		**Species 3** *[Fin whale, W-GRL]*	
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**160**		**11**		**8**	
• Total killed using Method 1 only	**54**	**34 %**				
• Total killed using Method 2 only					**8**	**100 %**
• Total killed using Method 3 only	**106**	**66 %**	**11**	**100 %**		
• Total needing secondary harpoon or other secondary killing method						
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**153**	**96 %**	**6**	**55 %**	**4**	**50 %**
• Total estimated TTD to be instant	**36**	**24 %**	**0**	**0 %**	**2**	**50 %**
• Maximum estimated TTD	**300**		**55**		**30**	
• Mean time to TTD	**16**		**30**		**13**	
• Median Time to TTD	**15**		**30**		**10**	
Other information						
• Total targeted and missed						
• Total struck and lost	**7**	**4 %**	**0**	**0 %**	**1**	**13 %**

Greenland 2019

Item	Species 4 *[Humpback whale, W-GRL]*					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**4**					
• Total killed using Method 1 only (30 g)						
• Total killed using Method 2 only (45 g)	**4**	**100 %**				
• Total killed using Method 3 only (rifle)						
• Total needing secondary harpoon or other secondary killing method						
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**4**	**100 %**				
• Total estimated TTD to be instant	**2**	**50 %**				
• Maximum estimated TTD (minutes)	**10**					
• Mean time to TTD (minutes)	**4**					
• Median Time to TTD (minutes)	**3**					
Other information						
• Total targeted and missed						
• Total struck and lost	**0**	**0 %**				

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD

Statistics for TTD of minke whales by method, rather than by stock:

- Time to death for minke whales killed with method 1 (N_TTD = 54 reports, or 34 % of the catch):
  36 whales (67%) were killed within 1 minute. 46 whales (85%) died within 5 minutes. The mean time to death was 3 minutes. The median time to death was 0 minute. The largest time to death reported was 20 minutes.

- Time to death for minke whales killed with method 2 (N_TTD = 105 reports, or 66 % of the catch):
  0 minke whale (1%) was killed within 1 minute, while 12 (11%) died within 5 minutes. The mean time to death was 24 minutes. The median time to death was 20 minutes. The largest time to death was 300 minutes.

Statistics for Struck and Lost minke whales by method, rather than by stock:

- Struck but lost minke whales using method 1: 1 (2 % of struck animals)
- Struck but lost minke whales using method 2: 6 (5 % of struck animals)

Additional information on fin whales and humpback whales:

- The minimum time to death reported for fin whales was 0 minutes. 2 fin whales (50%) died within 5 minutes. The minimum time to death reported for humpback whales was 0 minutes. 3 humpback whales (75%) died within 5 minutes.

Additional information on bowhead whales:

- The hunting of bowhead whales in West Greenland will for the forthcoming quota-block be followed by the Ministry of Fisheries, Hunting and Agriculture to improve killing methods and activities related to the hunt.

Annex 1: Summary Reporting Form

Greenland 2020

INTERNATIONAL WHALING COMMISSION
75 years of science and stewardship 1946 – 2021

TheRedHouse
135 Station Road
ImpingtonCambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by 12 April 2021

Contracting Government	**Greenland (Denmark)**
Season	**2020**
Area	**Greenland**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used
(Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (State whether primary killing method, secondary, or both)
1	Penthrite grenade 30 gram (Whale Grenade-99)	Primary (minke whales in West Greenland).
2	Penthrite grenade 45 gram (Whale Grenade-99)	Primary and secondary (bowhead whales, fin whales and humpback whales in West Greenland)
3	Rifle, calibre larger than or on 7.62 mm (30.06).	Primary and secondary (minke whales in West and East Greenland).

Greenland 2020

Summary of criteria used to indicate unconsciousness and death:

Criteria: When the whale does not move and the flippers are immovable. This includes when the whale has sunk and there is no movement in the harpoon line or floats.

Number of whales killed instantly are whales reported killed within 1 minute.

The presented Greenlandic data on TTD is biased high for those hunts where the TTD are estimated by the hunters and are not corrected by post-mortem examinations. (NAMMCO Expert Group Meeting on Assessing TTD data from Large Whale Hunts November 2015.)

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	**100%**
▪ **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[Minke whale, W-GRL]*		**Species 2** *[Minke whale, E-GRL]*		**Species 3** *[Fin whale, W-GRL]*	
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**162**		**20 (1)**		**3**	
• Total killed using Method 1 only	**44**	**27%**				
• Total killed using Method 2 only					**3**	**100%**
• Total killed using Method 3 only	**118**	**73%**	**20**	**100%**		
• Total needing secondary harpoon or other secondary killing method	**1**	**0,6%**	**5**	**25%**		
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**158**	**98%**	**20**	**100%**	**3**	**100%**
• Total estimated TTD to be instant	**24**	**15%**	**0**	**0%**	**0**	**0%**
• Maximum estimated TTD (minutes)	**120 min.**		**60 min.**		**30 min.**	
• Mean time to TTD (minutes)	**15,5 min.**		**20,7min.**		**20 min.**	
• Median Time to TTD (minutes)	**15 min.**		**20 min.**		**20 min.**	
Other information						
• Total targeted and missed					**0**	**0%**
• Total struck and lost					**0**	**0%**

(1): Minke Whale quota for Ittoqqortoormiit in East Greenland was allocated to Tasiilaq due to ice conditions.

Greenland 2020

Item	Species 4 *[Humpback whale, W-GRL]*					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**4**					
• Total killed using Method 1 only						
• Total killed using Method 2 only	**1**	**25%**				
• Total killed using Method 3 only	**2**	**50%**				
• Total needing secondary harpoon or other secondary killing method						
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**3**	**75%**				
• Total estimated TTD to be instant	**0**	**0%**				
• Maximum estimated TTD (minutes)	**35 min.**					
• Mean time to TTD (minutes)	**23 min.**					
• Median Time to TTD (minutes)	**25 min.**					
Other information						
• Total targeted and missed	**0**	**0%**				
• Total struck and lost	**0**	**0%**				

Greenland 2020

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Statistics for TTD of minke whales by method, rather than by stock:

- Time to death for minke whales killed with method 1 (N TTD = 44 reports, or 25 % of the catch):
  32 whales (73%) were killed within 1 minute. 37 whales (84%) died within 5 minutes. The mean time to death was 2.2 minutes. The median time to death was 0 minute. The largest time to death reported was 15 minutes.

- Time to death for minke whales killed with method 3 (N TTD = 134 reports, or 74 % of the catch):
  0 minke whale (1%) was killed within 1 minute, while 15 (11,2%) died within 5 minutes. The mean time to death was 20,6 minutes. The median time to death was 20 minutes. The largest time to death was 120 minutes.

Statistics for Struck and Lost minke whales by method, rather than by stock:

- Struck but lost minke whales using method 1: 0 (0 % of struck animals)
- Struck but lost minke whales using method 3: 7 (3,8 % of struck animals)

Additional information on fin whales and humpback whales:

- The minimum time to death reported for fin whales was 10 minutes. 0 fin whales (00%) died within 5 minutes. The minimum time to death reported for humpback whales was 8 minutes. 0 humpback whales (0%) died within 5 minutes.

Additional information on bowhead whales:

- No catches of bowhead whales occurred in 2020.
- The hunting of bowhead whales in West Greenland will for the forthcoming quota-block be followed by the Ministry of Fisheries, Hunting and Agriculture to improve killing methods and activities related to the hunt.

Annex 1: Summary Reporting Form

Greenland 2021

INTERNATIONAL WHALING COMMISSION

The Red House 135
Station Road Impington,
Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory, but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by 12 April 2022

Contracting Government	Government of Greenland
Season	2021
Area	West Greenland (WG) and East Greenland (EG)
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	Aboriginal subsistence

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	Penthrite grenade	Primary
2	Rifle, minimum calibre .30.06	Secondary, primary in EG, limited as primary in WG
3	Hand harpoon with line and floats only in relation to rifle hunt	Secondary to Rifle hunt in order to minimise struck and lost

Summary of criteria used to indicate unconsciousness and death:

Criteria: When the whale does not move and the flippers are immovable. This includes when the whale has sunk and there is no movement in the harpoon line or floats.

Number of whales killed instantly are whales reported killed within 1 minute.

The presented Greenlandic data on TTD is biased high for those hunts where the TTD are estimated by the hunters and are not corrected by post-mortem examinations. (NAMMCO Expert Group Meeting on Assessing TTD data from Large Whale Hunts November 2015.)

Greenland 2021

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	**100%**
▪ **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1.1** *Minke whale WG*		**Species 1.2** *Minke whale EG*		**Species 2** *Humpback whale (WG)*		**Species 3** *Fin whale (WG)*	
	No.	**%**	**No.**	**%**	**No.**	**%**		
Whale killing methods								
• Total no. killed (all methods summed)	177		21		7		2	
• Total killed using Method 1 only	66	37,3%			3		2	
• Total killed using Method 2 only	111	62,7%	21	100%	2			
• Total killed using Method 3 only								
• Total needing secondary harpoon or other secondary killing method								
• If bullets used								
o minimum number								
o maximum number								
o median number								
Time to unconsciousness/death (TTD)*								
• Total for which information recorded	177	100 %	20	95%	7		2	
• Total estimated TTD to be instant	43	16,2 %	1	4,8%	0		0	
• Maximum estimated TTD	420 min		120 min		30 min		25 min	
• Mean time to TTD	19 min		20,2 min		12,3 min		17,5 min	
• Median Time to TTD	10 min		15 min		5,5 min			
Other information								
• Total targeted and missed								
• Total struck and lost	10		0		0		0	

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Greenland 2021

Table 4: Reporting of data on individual whales killed

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
1	Minke whale	2, 3	20	
2	Minke whale	2, 3	15	
3	Minke whale	2, 3	120	
3	Minke whale	2, 3	45	
4	Minke whale	2, 3	30	
5	Minke whale	2, 3	20	
6	Minke whale	2, 3	30	
7	Minke whale	2, 3	25	
8	Minke whale	2, 3	10	
9	Minke whale	2, 3	10	
10	Minke whale	2, 3	20	
11	Minke whale	2, 3	15	
12	Minke whale	2, 3	15	
13	Minke whale	2, 3	2	
14	Minke whale	2, 3	10	
15	Minke whale	2, 3	10	
16	Minke whale	2, 3	10	
17	Minke whale	2, 3	25	
18	Minke whale	2, 3	10	
19	Minke whale	2, 3	10	Yes
20	Minke whale	2, 3	40	Yes
21	Minke whale	2, 3	20	Yes
22	Minke whale	2, 3	1	
23	Minke whale	2, 3	15	
24	Minke whale	2, 3	45	
25	Minke whale	2, 3	20	
26	Minke whale	2, 3	30	
27	Minke whale	2, 3	30	
28	Minke whale	2, 3	15	
29	Minke whale	2, 3	30	
30	Minke whale	2, 3	20	
31	Minke whale	2, 3	25	
32	Minke whale	2, 3	20	
33	Minke whale	2, 3	15	
34	Minke whale	2, 3		
35	Minke whale	2, 3	25	
36	Minke whale	2, 3	120	
37	Minke whale	2, 3	13	

Greenland 2021				
38	Minke whale	2, 3	25	
39	Minke whale	2, 3	20	
40	Minke whale	2, 3	10	
41	Minke whale	2, 3	20	
42	Minke whale	2, 3	20	
43	Minke whale	2, 3	23	
44	Minke whale	2, 3	15	
45	Minke whale	2, 3	20	
46	Minke whale	2, 3	10	
47	Minke whale	2, 3	5	Yes
48	Minke whale	2, 3	5	Yes
49	Minke whale	2, 3	5	Yes
50	Minke whale	2, 3	5	Yes
51	Minke whale	2, 3	20	Yes
52	Minke whale	2, 3	20	Yes
53	Minke whale	2, 3	25	Yes
54	Minke whale	2, 3	30	Yes
55	Minke whale	2, 3	15	Yes
56	Minke whale	2, 3	10	Yes
57	Minke whale	2, 3	5	Yes
58	Minke whale	2, 3	1	Yes
59	Minke whale	2, 3	1	Yes
60	Minke whale	2, 3	60	Yes
61	Minke whale	2, 3	15	Yes
62	Minke whale	2, 3	20	Yes
63	Minke whale	2, 3	5	Yes
64	Minke whale	2, 3	27	Yes
65	Minke whale	2, 3	10	Yes
66	Minke whale	2, 3	25	Yes
67	Minke whale	2, 3	120	Yes
68	Minke whale	2, 3		Yes
69	Minke whale	2, 3	30	Yes
70	Minke whale	2, 3	30	Yes
71	Minke whale	2, 3		
72	Minke whale	2, 3	90	Yes
73	Minke whale	2, 3	30	Yes
74	Minke whale	2, 3	75	Yes
75	Minke whale	2, 3	10	Yes
76	Minke whale	2, 3		

Greenland 2021				
77	Minke whale	2, 3	30	
78	Minke whale	2, 3	420	
79	Minke whale	2, 3	10	
80	Minke whale	2, 3	20	
81	Minke whale	2, 3	10	Yes
82	Minke whale	2, 3	45	Yes
83	Minke whale	2, 3		
84	Minke whale	2, 3	30	yes
85	Minke whale	2, 3	15	
86	Minke whale	2, 3	150	
87	Minke whale	2, 3	60	
88	Minke whale	2, 3	15	
89	Minke whale	2, 3	25	
90	Minke whale	2, 3	75	
91	Minke whale	2, 3	5	
92	Minke whale	2, 3	1	
93	Minke whale	2, 3	3	
94	Minke whale	2, 3	13	
95	Minke whale	2, 3	30	
96	Minke whale	2, 3	30	
97	Minke whale	2, 3	11	Yes
98	Minke whale	2, 3	15	Yes
99	Minke whale	2, 3	20	
100	Minke whale	2, 3	25	Yes
101	Minke whale	2, 3	30	Yes
102	Minke whale	2, 3	15	Yes
103	Minke whale	2, 3	10	Yes
104	Minke whale	2, 3	27	
105	Minke whale	2, 3	25	
106	Minke whale	2, 3	20	Yes
107	Minke whale	2, 3	30	
108	Minke whale	2, 3	45	
109	Minke whale	2, 3	20	
110	Minke whale	2, 3	10	Yes
111	Minke whale	2, 3	10	
112	Minke whale	2, 3	20	
113	Minke whale	2, 3	15	
114	Minke whale	2, 3	20	
115	Minke whale	2, 3	10	

Greenland 2021				
116	Minke whale	2, 3	10	
117	Minke whale	2, 3	25	
118	Minke whale	2, 3	15	
119	Minke whale	2, 3	5	
120	Minke whale	2, 3	20	
121	Minke whale	2, 3	10	
122	Minke whale	2, 3	2	
123	Minke whale	2, 3	10	Yes
124	Minke whale	2, 3	120	
125	Minke whale	2, 3	35	
126	Minke whale	2, 3	1	Yes
127	Minke whale	2, 3	22	
128	Minke whale	2, 3	30	
129	Minke whale	2, 3	10	Yes
130	Minke whale	2, 3	15	Yes
131	Minke whale	2, 3		
132	Minke whale			Yes
133	Minke whale	1	0	
134	Minke whale	1	0	
135	Minke whale	1	3	
136	Minke whale	1	15	Yes
137	Minke whale	1	15	Yes
138	Minke whale	1	0,02	Yes
139	Minke whale	1	0,01	Yes
140	Minke whale	1	5	Yes
141	Minke whale	1	1	Yes
142	Minke whale	1	0,1	Yes
143	Minke whale	1	2	Yes
144	Minke whale	1	5	Yes
145	Minke whale	1	0	Yes
146	Minke whale	1	0	Yes
147	Minke whale	1	0	Yes
148	Minke whale	1	13	Yes
149	Minke whale	1	5	Yes
150	Minke whale	1	0	Yes
151	Minke whale	1	0	Yes
152	Minke whale	1	0	Yes
153	Minke whale	1	0	Yes
154	Minke whale	1	0	Yes

Greenland 2021				
155	Minke whale	1	0	Yes
156	Minke whale	1	10	Yes
157	Minke whale	1	0	Yes
158	Minke whale	1	5	Yes
159	Minke whale	1	0	Yes
160	Minke whale	1	5	Yes
161	Minke whale	1	0	Yes
162	Minke whale	1	15	Yes
163	Minke whale	1	0	Yes
164	Minke whale	1	4	Yes
165	Minke whale	1	0	Yes
166	Minke whale	1	1	Yes
167	Minke whale	1	10	Yes
168	Minke whale	1	3	Yes
169	Minke whale	1	4	Yes
170	Minke whale	1	3	Yes
171	Minke whale	1	3	Yes
172	Minke whale	1	5	Yes
173	Minke whale	1	10	Yes
174	Minke whale	1	10	Yes
175	Minke whale	1	0,3	Yes
176	Minke whale	1	0,3	
177	Minke whale	1	1	Yes
178	Minke whale	1	0	Yes
179	Minke whale	1	0,3	Yes
180	Minke whale	1	1	Yes
181	Minke whale	1	0	Yes
182	Minke whale	1	0,3	Yes
183	Minke whale	1	1	Yes
184	Minke whale	1	0,01	Yes
185	Minke whale	1	5	Yes
186	Minke whale	1	2	Yes
187	Minke whale	1	5	Yes
188	Minke whale	1	5	Yes
189	Minke whale	1	1	Yes
190	Minke whale	1	0,05	Yes
191	Minke whale	1	0	Yes
192	Minke whale	1	2	Yes
193	Minke whale	1	10	Yes

Greenland 2021				
194	Minke whale	1	0	Yes
195	Minke whale	1	0	Yes
196	Minke whale	1	0	Yes
197	Minke whale	1	0	Yes
198	Minke whale	1	1	Yes
199	Humpback whale	1	15	Yes
200	Humpback whale	1	3	Yes
201	Humpback whale	1	3	
202	Humpback whale	1	30	
203	Humpback whale	Bycatch in fishing gear	10	Yes
204	Humpback whale	Bycatch in fishing gear	25	
205	Humpback whale	2,3, euthanized because of injuries		
206	Humpback whale	Bycatch in fishing gear		
207	Fin whale	1	25	
208	Fin whale	1	10	

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

Euthanasia of large stranded cetaceans in the Netherlands

Method for humane termination of suffering in large stranded cetaceans

Author: van Elk C.E.
Date: 7th March 2019

Euthanasia of large stranded cetaceans in the Netherlands

Introduction

In the Netherlands the course of action in case of the stranding of a large cetacean is under the authority of the Ministry of Agriculture, Nature and Food Quality and is documented in the "guideline beached large whales"[1]. In this guideline euthanasia is an option when the best interest of the animal is served by termination of suffering. Euthanasia has to be performed in a manner which puts animal welfare and public safety as top priorities but also reconciles the emotions of the general public.
A method for whales between 6 and 15 meters length has been devised based on scientific publications, guidelines developed in other countries and trials performed in the Netherlands on dead cows and a dead sperm whale. The largest whales which strand alive on the Dutch coast are historically less than 16 meters long (mostly humpback whales and sperm whales). This document gives a detailed description of the method, gives go and no go criteria for applying this method and finally outlines briefly what arguments were considered to be in favor of applying this specific method.

Description of method

In summary: after general sedation and analgesia and local anaesthesia a hollow pointed needle with 30 grams of explosives in the tip is inserted into the thoracic cavity. The explosive tip of the needle is aimed at the heart and large blood vessels. The explosion in the thoracic cavity must ensure immediate death by two mechanisms:

1. The shock wave generated by the explosion destroys the brain [2]

2. The metal projectiles from the explosion destroy the heart and/or the large blood vessels (see pictures 4,5,6 and 7)

General sedation and analgesia

Adequate analgesia and sedation is imperative in order to be able to put the hollow needle into the thoracic cavity. To this effect the animal is anaesthetized with medetomidine (10 mg/ 1000 kg Intra Muscular (I.M.)) and Zoletil (tiletamine and zolazepam) (1500 mg/ 1000 kg I.M.) [3, 4]. The weight of the animal is estimated using the whale scale app [5]. The intra muscular injection is given with a long 17 g needle (minimum length 30 cm) in the neck muscle of the animal. This muscle is approached laterally. The ideal point of injection is halfway between the dorso-ventral lines that run through the angle of the mandible and the shoulder joint in a line drawn straight cranio-caudally from the eye. If the ideal point cannot be accessed then a point as close as possible to the ideal point is chosen in the same dorso-ventral line of the ideal point (see figure 1).

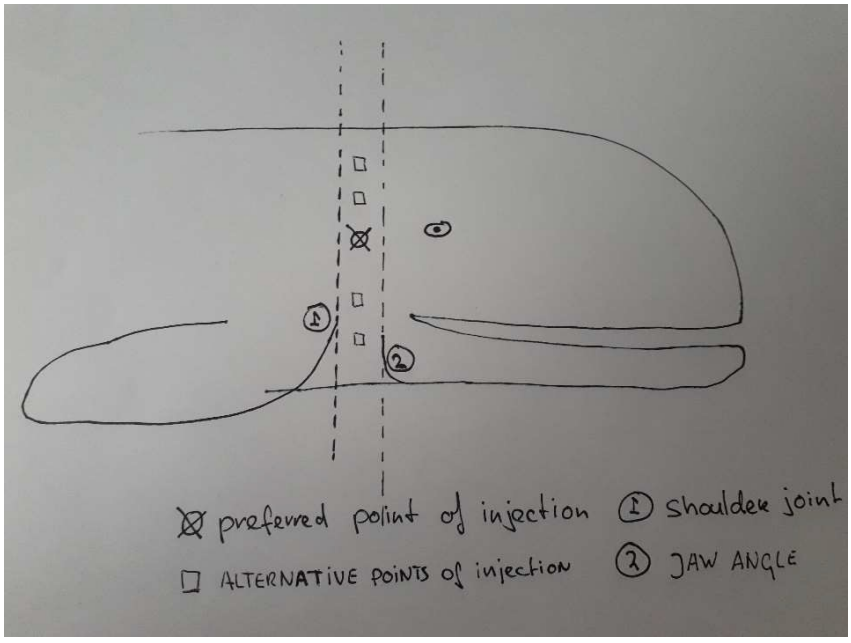


Figure 1 Location of intra muscular injection with general sedatives and analgesics.

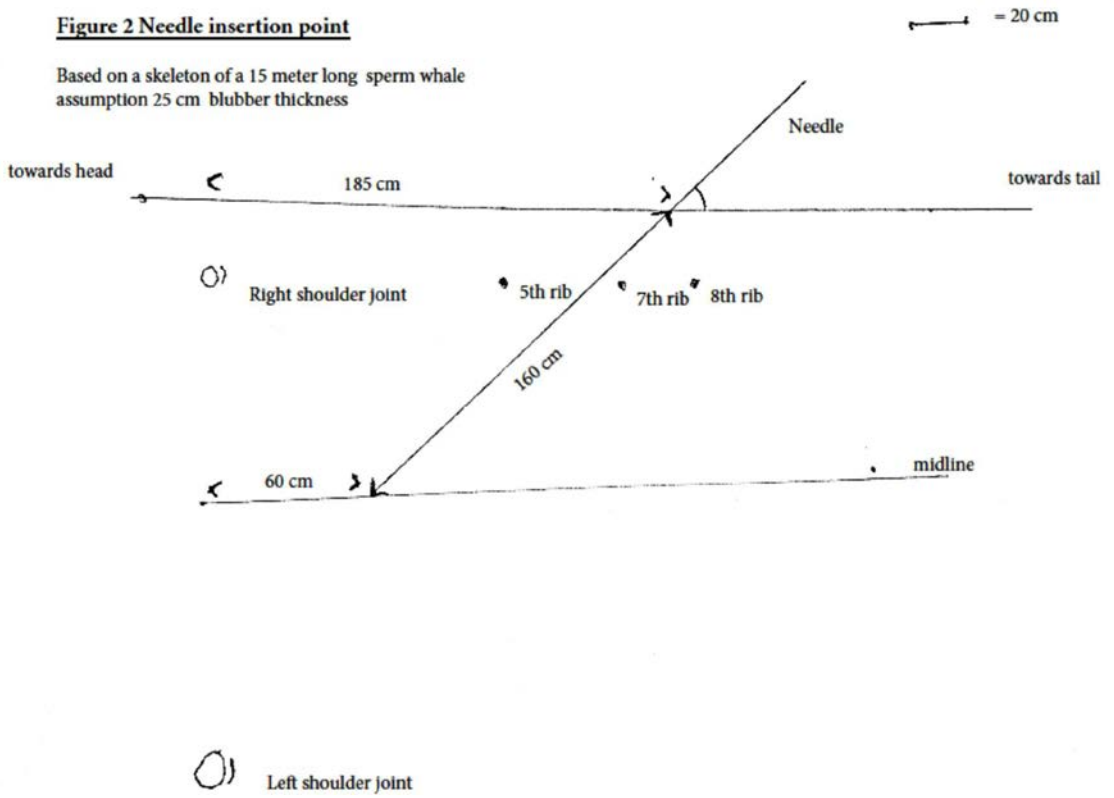
The full dose of medetomidine (10 mg/1000kg) is given in the first injection. Further injections with 50 ml Zoletil are given until the predetermined dose has been reached. Zoletil will be brought into solution at a maximum concentration minimizing the volume needed for injection. After the introduction of these medications a 10-20 minute pause is taken to let these medications take their effect.

Local anesthesia

A local anesthetic (20 ml lidocaine 20 mg/ml) is applied subcutaneously on locations which are used to find a suitable inter-rib space providing access to the thoracic cavity. If a proper location has been found then a second depot (100 ml lidocaine 20 mg/ml) is administered underneath the blubber layer close to the pleura by placing a long custom made needle (17g 50 cm long) into the channel made by the probe. The Inter-rib access is found using a 3 or 4 mm diameter metal probe of 60 cm length. After the introduction of the lidocaine there is a 5 minute break to let the lidocaine take its effect. After the lidocaine has taken its effect a hole is drilled through the thoracic wall following the premade channel.

Introduction of the hollow needle into the thoracic cavity

A point for introduction of the hollow needle is chosen with the aim to locate the explosive close to the heart, large blood vessels and in the vicinity of the foramen magnum. The insertion is in the caudal thorax because the caudal ribs have the largest intercostal spaces. The penetration of the abdomen and its viscera is avoided. Depending on the length of the animal the needle is inserted at a point in a straight line caudal to the shoulder joint: for an animal with a length of 8 meter the point is 110 cm caudal of the shoulder joint, for an animal with a length of 16 meter the point is 175 cm caudal of the shoulder joint. At an angle of 45 degrees to the skin in a caudal cranial direction the probe is inserted. If the channel is suitable for introduction of the needle between the ribs then using an 62 cm long auger bit of 20 mm diameter is used for gaining access to the thoracic cavity by drilling a hole. The hollow needle is then introduced to a depth of 110 cm (8 meter long animal) to 160 cm (15 meter long animal).



Preparation and detonation of the hollow needle

The explosives used, together with the expertise to prepare the explosive needle, are provided by the Ministry of Defense. This capacity comes from the Dutch explosives clearance service (explosieven opruimingsdienst, EOD).
A team of two EOD operators support in the process of euthanasia by assembling the explosive needle and controlling the detonation of the explosives at the requested moment. The needle is inserted by the veterinarian.
The use of the limited amount of explosives requires minimal safety perimeter and the initiation of the explosion is controlled with a remote wired firing device. Therefore the procedure can be executed without large environmental impacts.

Verification of death

Before and after detonation of the hollow needle an electrocardiogram is made of the animal. Using this method the stop of heartbeat can be established. If this method fails then criteria as set out in the report by the Virginia aquarium foundation scientific report 2012 No 6 are used [3]:

- Lack of jaw tone
- Absence of menace, palpebral and corneal reflexes
- Fixed and dilated pupils
- Absence of respiration over an extended period (this can be hard to assess in animals that can hold their breath for a prolonged period of time)
- Lack of response to painful stimulus
- No capillary refill time

Euthanasia of large stranded cetaceans in the Netherlands

Go No Go criteria

Assuming the decision has been made to euthanize a whale then the procedure can go ahead only if the following criteria have been met:

1. Position and behavior of the animal allow safe operation
2. The area of operation is safely accessible
3. The animal is less than 15 meters long (maximum size of observed stranded whales in the Netherlands in the past)
4. The premedication has sufficient effect

Especially the latter point is critical. Sedation and pain killing must be sufficient to allow a hole to be drilled through the thoracic wall without unacceptable distress to the animal. The medications which are used are assumed to work based on observations on other species, including cetaceans. However for some species (e.g. sperm whales) no data are available. There is a small chance therefore the effects are not as predicted. Another point of concern is resorption from the injection site. Stranded whales may have a severely compromised circulation and this may interfere with resorption of administered intramuscular medications. Again the effect may differ from what is expected. Therefore if the whale shows an obvious reaction towards the drilling of the hole by behavior, breathing (increase in frequency) or an increase in heart frequency (doubling of heart rate) then the operation must be stopped. Behavioural reaction and breathing frequency can be monitored visually, heart rate monitoring is done using a portable ECG.

Accountability of choices made

A large whale can be euthanized using chemicals, artillery or explosives[3, 4]. The use of artillery devices is an inappropriate method in the Netherlands as it does not reconcile strong public emotions associated that will be caused by inflicting gross trauma on a dying whale. The use of chemicals has two options, either an overdose of opioids I.M. (i.e. etorphine) or intra-cardial administration of KCl. The option of working with etorphine has the severe disadvantage that the substance is highly toxic for humans. Inadvertent contact with a drop of etorphine on the eye or mouth mucosa necessitates immediate administration of antidote to prevent death. The circumstances in which a whale has to be euthanized are not ideal for the careful handling of this substance. Whales moving or one may operate standing in shallow water in stormy weather are examples of less than ideal conditions. Furthermore it is uncertain how dangerous remains of etorphine at the injection site are for persons that have to handle the cadaver after the whale has been killed for example during autopsy. The use of KCl has the disadvantage that it has to be administrated strictly intravenously. This has not been done in a large whale before and gaining access to the heart or large blood vessels can be problematic. Besides, the search for large blood vessels and the heart may take time and is also at least as compromising for the welfare as the introduction of the hollow pointed needle with explosives. Both methods need adequate sedation and analgesia to be permissible.

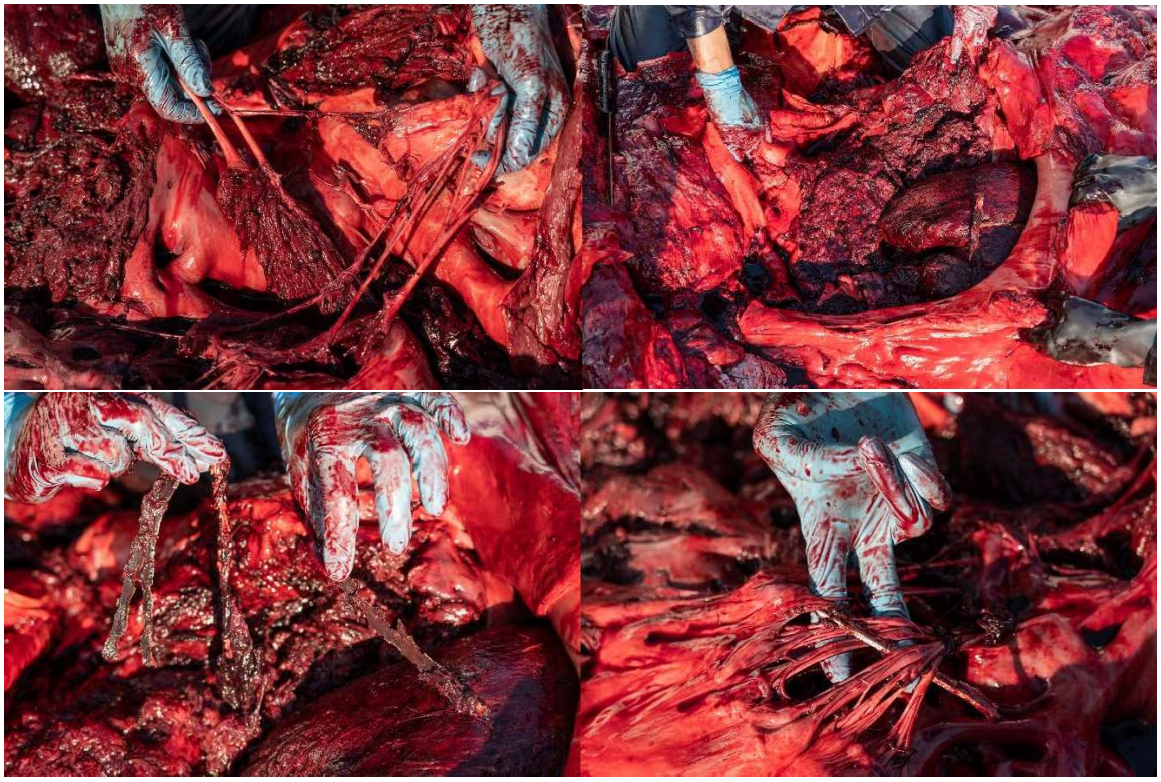
Euthanasia of large stranded cetaceans in the Netherlands

The choice for a small explosive is in the Dutch situation a suitable combination of effectiveness and appropriate reconciliation of public emotions, as whale strandings in the Netherlands always attract a large crowd. The method makes little noise and no external damage is visible after the detonation. Effectiveness is assumed based on a study with similar sized explosives in similar sized animals (expected sizes of stranded large whales on the Dutch coast are animals below 50 ton) and on the trial of the method on a dead 50 ton sperm whale (see pictures 4, 5, 6 and7).
The choice for medetomidine and Zoletil for premedication is based first on the demand to have a limited volume for injection (medetomidine and Zoletil can both be prepared in high concentrations) and second on the demand to be safe for handlers that assist with autopsy of the dead whale after euthanasia.
Medetomidine is an α2 agonist and has strong sedating and analgesic properties. Duration of action is 60 to 120 minutes. Zoletil has two working components. Zolazepam is a sedative and tiletamine is a strong dissociative anaesthetic with good analgesic properties. Duration of action is 20 to 60 minutes. Dosages are based on experience with other species and have been set after consultation of the Pharmacy and department of Anesthesia of the Faculty of Veterinary Medicine of Utrecht University.

Selected pictures :

Picture 1 and 2
Probes (3 and 4 mm diameter 60 cm length) and auger bits (20, 24 and 28 mm length)

Picture 3
Hollow pointed needle (first prototype)



Picture 4, 5, 6, and 7
Damage to the heart after testing the method on a 47.000 kg dead sperm whale

1. *Leidraad Stranding Levende Grote Walvisachtigen*. 2017 22-12-2017; Available from: https://www.rijksoverheid.nl/documenten/rapporten/2017/12/22/leidraad-stranding-levende-grote-walvisachtigen.
2. Knudsen, S.K. and E.O. Oen, *Blast-induced neurotrauma in whales.* Neurosci Res, 2003. **46**(3): p. 377-86.
3. Barco, S.G., et al., *Collaborative Development of Recommendations for Euthanasia of Stranded Cetaceans.* , in *VAQF Scientific report*. 2012, Vancouver Aquarium Foundation: Virginia Beach, VA. p. 183.
4. IWC, *Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans*. 2015, 22nd ASCOBANS Advisory Committee Meeting. p. 33.
5. Harms, C., *Whale Scale App*. 2019. https://play.google.com/store/apps/details?id=edu.ncsu.whalescale

Annex 1: Summary Reporting Form

New Zealand 2018/19

INTERNATIONAL WHALING COMMISSION

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by Monday 20 May 2019

Contracting Government	**New Zealand**
Season	**April 2018-March 2019**
Area	**New Zealand Territorial Waters**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Euthanasia of stranded animals**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	.303	Primary
2	30.06	Primary
3	.308	Primary
4	.300	Primary
5	.416	Primary
6	.243	Primary
7	Bolt gun	Primary

Summary of criteria used to indicate unconsciousness and death:

a) complete dilation of the pupils;
b) onset of unprovoked agonal convulsions (violent uncoordinated thrashing);
c) absence of palpebral (closure of eyelid when corner of eyelid touched) and corneal (closure of eyelid if eye touched) reflexes;
d) slack lower jaw

New Zealand 2018/19

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	
▪ **other (please specify)**	100% Conservation officers

Table 3: Summary of hunt:

Item	**Species 1** *Long finned pilot whale*	**Species 2** *Pygmy sperm whale*	**Species 3** *Pygmy killer whale*	**Species 4** *Humpback whale*	**Species 5** *Common dolphin*	**Species 6** *Bottlenose dolphin*	**Species 7** *Hector's dolphin*
Whale killing methods	**No / %**	**No / %**	**No / %**	**No / %**	**No / %**	**No / %**	**No / %**
Total no. killed (all methods summed)	81	6	7	1	1	1	1
Method 1 only	71/88	3/50			1/100		
Method 2 only	10/12	2/33					
Method 3 only			7/100				
Method 4 only		1/17					
Method 5 only				1/100			
Method 6 only						1/100	
Method 7 only							1/100
Total needing secondary method	0	0	0	0	0	0	0
If bullets used:							
Minimum number	3	1	2	4	1	1	
Maximum number	3	2	2	4	1	1	
Median number	3	1	2	4	1	1	
Time to unconsciousness /death (TTD)*							
Total for which information recorded	70	3			1	1	1
Total estimated TTD to be instant	70	3			1	1	1

Maximum estimated TTD							
Mean time to TTD							
Median Time to TTD							
Other information							
Total targeted and missed							
Total struck and lost							

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Bolt gun deployed by veterinarian.

New Zealand 2018/19

Table 4: Reporting of data on individual whales killed:

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
1.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
2.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
3.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
4.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
5.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
6.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
7.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
8.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
9.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
10.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
11.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
12.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
13.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
14.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
15.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
16.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
17.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
18.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
19.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
20.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
21.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
22.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
23.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
24.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
25.	Long-finned pilot whale	1, 1 bullet	Instant	Skin

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

New Zealand 2018/19

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
26.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
27.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
28.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
29.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
30.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
31.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
32.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
33.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
34.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
35.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
36.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
37.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
38.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
39.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
40.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
41.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
42.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
43.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
44.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
45.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
46.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
47.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
48.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
49.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
50.	Long-finned pilot whale	1, 1 bullet	Instant	Skin

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Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
51.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
52.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
53.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
54.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
55.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
56.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
57.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
58.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
59.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
60.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
61.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
62.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
63.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
64.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
65.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
66.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
67.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
68.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
69.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
70.	Long-finned pilot whale	1, 1 bullet	Instant	Skin
71.	Long-finned pilot whale	1, 3 bullets	"The first shot greatly aggravated the animal and took some time to settle to the point where I could place two more shots."	Skin
72.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
73.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
74.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
75.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber

New Zealand 2018/19

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
76.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
77.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
78.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber
79.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber, teeth
80.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, blubber, teeth
81.	Long-finned pilot whale	2, 3 bullets	Presumed to be instant.	Skin, tooth
82.	Pygmy sperm whale	2, 1 bullet	Presumed to be instant.	Skin
83.	Pygmy sperm whale	1, 1 bullet	Presumed to be instant.	Skin
84.	Pygmy sperm whale	2, 2 bullets	"Death was within seconds of the first round"	Skin
85.	Pygmy sperm whale	1, 1 bullet	Instant.	NA
86.	Pygmy sperm whale	4, 1 bullet	Presumed to be instant.	Skin
87.	Pygmy sperm whale	1, 1 bullet	Instant.	NA
88.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
89.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
90.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
91.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
92.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
93.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
94.	Pygmy killer whale	3, 2 bullets	Presumed to be instant	Skin
95.	Humpback whale	5, 4 bullets	"Limp after first shot, dead after second."	Skin
96.	Common dolphin	1, 1 bullet	Instant.	Unknown
97.	Bottlenose dolphin	6, 1 bullet	Instant	Post mortem
98.	Hector's dolphin	7, 1 shot	Instant	Skin, teaching dissection

Annex 1: Summary Reporting Form

New Zealand 2019/20

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

INTERNATIONAL WHALING COMMISSION

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by Monday 20 May 2019

Contracting Government	**New Zealand**
Season	**April 2019-March 2020**
Area	**New Zealand Territorial Waters**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Euthanasia of stranded animals**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	.303	Primary
2	30.06	Primary
3	Unknown	Primary

Summary of criteria used to indicate unconsciousness and death:

e) complete dilation of the pupils;

f) onset of unprovoked agonal convulsions (violent uncoordinated thrashing);

g) absence of palpebral (closure of eyelid when corner of eyelid touched) and corneal (closure of eyelid if eye touched) reflexes;

h) slack lower jaw

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	
▪ **other (please specify)**	100% Conservation officers

New Zealand 2019/20

Table 3: Summary of hunt:

Item	**Species 1** *Pygmy sperm whale*	**Species 2** *Pygmy killer whale*	**Species 3** *Southern right whale dolphin*	**Species 4** *Dusky dolphin*			
Whale killing methods	**No / %**	**No / %**	**No / %**	**No / %**			
Total no. killed (all methods summed)	2	3	1	1			
Method 1 only	2/100						
Method 2 only			1/100				
Method 3 only		3/100		1/100			
Method 4 only							
Method 5 only							
Method 6 only							
Method 7 only							
Total needing secondary method	0	0	0	0			
If bullets used:							
Minimum number	1	3	?	?			
Maximum number	1	3	?	?			
Median number	1	3	?	?			
Time to unconsciousness /death (TTD)*							
Total for which information recorded	0	?	?	?			
Total estimated TTD to be instant							
Maximum estimated TTD							
Mean time to TTD							
Median Time to TTD							
Other information							
Total targeted and missed							
Total struck and lost							

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Details of euthanasia for most animals this year has not been provided to the national database but is likely to be within normal parameters.

Table 4: Reporting of data on individual whales killed:

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
1.	Pygmy sperm whale	1	?	Skin
2.	Pygmy sperm whale	1	?	Skin
3.	Southern right whale dolphin	2	?	Skin and blubber
4.	Pygmy killer whale	3	?	Skin
5.	Pygmy killer whale	3	?	Skin
6.	Pygmy killer whale	3	?	Skin
7.	Dusky dolphin	3	?	?

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

Annex 1: Summary Reporting Form

New Zealand 2020/21

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INTERNATIONAL WHALING COMMISSION

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

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Contracting Government	**New Zealand**
Season	**April 2020-March 2021**
Area	**New Zealand Territorial Waters**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Euthanasia of stranded animals**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	.308	Primary
2	.303	Primary
3	.223	Primary
4	Unknown	

a) complete dilation of the pupils;
b) onset of unprovoked agonal convulsions (violent uncoordinated thrashing);
c) absence of palpebral (closure of eyelid when corner of eyelid touched) and corneal (closure of eyelid if eye touched) reflexes;
d) slack lower jaw.

Summary of criteria used to indicate unconsciousness and death:

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	
▪ **other (please specify)**	100% Conservation officers

New Zealand 2020/21

Table 3: Summary of hunt:

Item	**Species 1** *Pilot whale*	**Species 2** *Pygmy sperm whale*	**Species 3** *Bottlenose dolphin*	**Species 4** *Cuvier's beaked whale*	**Species 5** *Dusky dolphin*
Whale killing methods	**No / %**	**No / %**	**No / %**	**No / %**	**No / %**
Total no. killed (all methods summed)	28	4	3	1	1
Method 1 only	28/100	2/50	3/100		
Method 2 only		1/25		1/100	
Method 3 only					1/100
Method 4 only		1/25			
Total needing secondary method	0	0	0	0	0
If bullets used:					
Minimum number	1	1	1	1	1
Maximum number	2	3	2	1	1
Median number	1	1	1	1	1
Time to unconsciousness /death (TTD)*					
Total for which information recorded	0	2	0	1	1
Total estimated TTD to be instant		1		1	1
Maximum estimated TTD	2m	10s	2m		
Mean time to TTD	"ttd ranged from instant to less than 2 mins"	5s	"ttd ranged from instant to less than 2 mins"	Instant	Instant
Median Time to TTD		5s		instant	Instant
Other information					
Total targeted and missed	0	0	0	0	0
Total struck and lost	0	0	0	0	0

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

The euthanasia of a pygmy sperm whale occurred during the New Zealand Level 4 lockdown and therefore the normal data wasn't collected, but this was conducted by an experienced staff member.
The pilot whales and bottlenose dolphins stranded together on the Chatham Islands.

Table 4: Reporting of data on individual whales killed:

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
1.	Pilot whale x28	.308	"Time until death ranged from instant to less than 2 mins"	14x skin sample
2.	Bottlenose dolphin x3	.308	"Time until death ranged from instant to less than 2 mins"	3x skin sample
3.	Pygmy sperm whale	.303	Not recorded	Skin
4.	Pygmy sperm whale	.308	10 seconds, used eye test.	Blubber
5.	Pygmy sperm whale	.308	Immediately.	None
6.	Pygmy sperm whale	Not recorded	Not recorded	Not recorded
7.	Cuvier's beaked whale	.303	Immediate death.	Skin, blubber, muscle, heart, liver, kidney, adrenals, ovaries (plus for histology: intestine, oesophagus, liver, pancreas, lungs, heart, kidney)
	Dusky dolphin	.223	"Presume instant death."	

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

Russian Federation 2018

Time to Death Summary

Russian Federation

2018

Table 1 Summary table of time to death reported based on the list of passports of gray whales landed by Chukotka Native whalers in 2018.

#	Date	Time of first shot	Time of whale's death	Time to death (TTD)	Number of shots			Body length (meters)	Weight (hundreds of kilos)
					harpoon	darting gun	carbine		
1	28/04/2018	14:25	15:20	00:55	8	2	100	8.00	60.00
2	04/05/2018	15:20	15:30	00:10	11	2	40	13.83	250.00
3	24/05/2018	14:25	14:40	00:15	8	2	100	8.00	60.00
4	25/05/2018	09:30	11:40	02:10	6	3	60	8.00	60.00
5	26/05/2018	12:40	12:45	00:05	11	2	30	8.72	70.00
6	25/05/2018	06:50	07:05	00:15	9		50	9.60	90.00
7	19/05/2018	07:37	07:40	00:03	0	2	15	8.60	67.00
8	11/05/2018	11:24	11:42	00:18	12	2	53	9.50	88.00
9	17/05/2018	10:00	10:30	00:30	11	1	100	13.00	232.00
10	31/05/2018	14:30	14:40	00:10	10	1	100	9.30	82.00
11	22/06/2018	10:25	10:35	00:10	6	3	60	7.50	56.20
12	27/06/2018	11:10	12:05	00:55	6	0	8	11.00	61.00
13	31/05/2018	13:45	14:20	00:35	8	3	120	9.00	74.00
14	27/06/2018	12:35	15:35	03:00	17	6	120	12.80	221.00
15	24/06/2018	10:42	11:10	00:28	10		100	9.80	96.00
16	26/06/2018	03:42	04:00	00:18	12	0	90	10.00	103.00
17	14/06/2018	10:10	10:15	00:05	6	2	16	9.20	79.00
18	15/06/2018	05:00	05:15	00:15	9	0	60	10.10	106.00
19	22/06/2018	06:10	06:35	00:25	8	0	54	9.90	100.00
20	22/06/2018	06:20	06:35	00:15	11	0	36	10.65	127.00
21	15/07/2018	11:10	12:00	00:50	7	0	40	8.10	61.00
22	27/06/2018	09:45	10:00	00:15	8	0	5	8.00	60.00
23	05/07/2018	16:40	18:00	01:20	6	3	80	9.80	96.00
24	26/07/2018	12:04	12:30	00:26	10	2	100	14.10	297.00
25	27/07/2018	13:15	13:30	00:15	10	3	100	9.80	96.00
26	26/07/2018	14:00	14:12	00:12	10	0	50	11.00	138.00
27	24/07/2018	18:20	19:10	00:50	17	5	200	11.60	163.00
28	20/07/2018	12:45	13:10	00:25	15	4	180	12.30	196.00
29	24/07/2018	05:20	06:00	00:40	8	0	33	12.50	206.00
30	12/07/2018	07:43	08:00	00:17	11	0	60	9.50	88.00
31	19/07/2018	17:10	17:45	00:35	12	4	100	11.70	167.00
32	17/07/2018	08:15	08:40	00:25	10	1	100	10.70	127.00
33	14.07.2018	05:17	05:30	00:13	10	0	50	9.00	74.00
34	06/07/2018	06:26	06:36	00:10	8	0	60	8.50	66.00

35	28/06/2018	13:25	13:40	00:15	8	0	46	9.00	74.00
36	17/07/2018	06:20	06:45	00:25	9	0	10	9.80	96.00
37	06/07/2018	05:30	05:40	00:10	8	0	30	8.80	70.00
38	25/07/2018	06:55	07:00	00:05	10	0	7	9.36	85.00
39	16/07/2018	06:15	06:40	00:25	8	0	42	8.80	70.00
40	05/07/2018	05:34	05:40	00:06	7	0	40	9.60	90.00
41	05/07/2018	09:15	09:38	00:23	8	0	24	8.80	70.00
42	29/08/2018	08:55	09:10	00:15	6	4	60	8.00	60.00
43	25/08/2018	15:20	15:45	00:25	12		480	11.00	138.00
44	16/08/2018	14:20	14:50	00:30	8	2	100	8.00	60.00
45	06/08/2018	05:45	06:00	00:15	8		15	9.40	85.00
46	06/08/2018	07:05	07:18	00:13	12		60	10.20	109.00
47	09/08/2018	05:03	05:15	00:12	10		9	9.00	74.00
48	10/08/2018	08:45	09:00	00:15	7	3	60	8.00	60.00
49	16/08/2018	11:30	12:10	00:40	10	1	100	9.70	93.00
50	11/08/2018	07:53	08:10	00:17	10		43	9.00	74.00
51	31/08/2018	10:20	10:40	00:20	10		7	9.30	82.00
52	17/08/2018	09:55	10:15	00:20	8		30	9.40	85.00
53	29/08/2018	08:28	08:40	00:12	10		9	9.40	85.00
54	17/08/2018	09:20	09:25	00:05	8		9	9.60	90.00
55	07/09/2018	16:10	16:30	00:20	8		100	11.20	146.00
56	16/08/2018	07:20	07:40	00:20	6		97	8.00	60.00
57	10/09/2018	12:00	12:30	00:30	8		40	8.80	70.00
58	10/09/2018	19:20	19:20	00:00	11		80	12.20	191.00
59	30/08/2018	06:55	07:40	00:45	13	3	20	12.30	196.00
60	02/09/2018	17:00	17:00	00:00	8	2	100	12.30	181.00
61	29/08/2018	15:15	15:40	00:25	12	4	100	10.20	109.00
62	29/08/2018	07:25	08:25	01:00	8	3	100	9.23	79.00
63	26/08/2018	09:00	09:12	00:12	10	_	90	9.70	93.00
64	06/08/2018	16:10	16:45	00:35	12	4	100	9.00	74.00
65	06/08/2018	13:10	13:40	00:30	12	4	100	9.50	88.00
66	27/09/2018	08:43	09:00	00:17	10	_	20	11.00	138.00
67	19/09/2018	07:10	08:30	01:20	11	3	100	9.00	74.00
68	08/09/2018	08:55	09:30	00:35	9	1	100	9.60	90.00
69	10/09/2018	06:30	06:32	00:02	9		4	9.10	77.00
70	11/09/2018	06:20	06:30	00:10	6		20	9.20	79.00
71	13/08/2018	07:30	07:30	00:00	11	2	60	11.40	154.00
72	17/09/2018	07:10	07:35	00:25	11		54	12.70	216.00
73	18/09/2018	07:25	07:30	00:05	8		10	8.10	61.00
74	18/09/2018	08:30	08:32	00:02	6		6	8.25	62.00
75	20/09/2018	06:35	06:45	00:10	8		20	9.70	93.00
76	21/09/2018	07:00	07:07	00:07	7		10	9.30	82.00
77	24/09/2018	07:40	07:55	00:15	10		55	10.30	113.00
78	25/09/2018	07:34	07:56	00:22	12		57	13.10	238.00

79	04/09/2018	07:15	07:35	00:20	12		45	11.60	163.00
80	07/09/2018	08:34	08:38	00:04	7		3	8.70	68.00
81	19/10/2018	08:40	08:45	00:05	7		7	8.90	72.00
82	18/10/2018	07:05	07:35	00:30	8		29	9.90	100.00
83	21/10/2018	09:40	10:10	00:30	8	2	100	8.00	60.00
84	12/10/2018	08:15	08:20	00:05	8		0	9.70	93.00
85	09/10/2018	07:30	08:05	00:35	10		80	12.90	227.00
86	03/10/2018	10:45	11:00	00:15	10	4	100	10.70	127.00
87	08/10/2018	10:20	10:40	00:20	6	3	60	8.00	60.00
88	20/10/2018	07:50	08:00	00:10	7		0	9.70	93.00
89	22/10/2018	07:10	07:15	00:05	7		10	9.90	100.00
90	22/10/2018	07:15	07:20	00:05	7		62	8.70	68.00
91	28/10/2018	10:05	10:20	00:15	7	3	60	8.00	60.00
92	29/10/2018	11:15	12:00	00:45	10	1	100	8.90	72.00
93	20/10/2018	07:55	08:00	00:05	9		53	8.70	68.00
94	31/10/2018	11:00	11:30	00:30	10	1	100	11.70	167.00
95	05/11/2018	09:25	10:15	00:50	10	1	100	9.00	74.00
96	15/11/2018	12:18	13:00	00:42	10		100	9.00	74.00
97	26/11/2018	10:50	11:10	00:20	6		25	9.00	74.00
98	08/11/2018	10:27	10:36	00:09	9		16	9.20	79.00
99	05/11/2018	09:00	09:45	00:45	7		103	8.00	60.00
100	02/11/2018	09:20	09:30	00:10	6	3	60	8.00	60.00
101	08/11/2018	09:00	09:30	00:30	12		40	12.30	196.00
102	08/11/2018	10:10	10:55	00:45	12	4	100	8.00	60.00
103	07/09/2018	11:40	12:50	01:10	8	3	80	9.40	82.00
104	30/08/2018	10:55	11:50	00:55	8	3	80	9.40	82.00
105	23/11/2018	09:40	10:15	00:35	6		70	8.00	80.00
106	07/11/2018	10:25	11:00	00:35	6		96	8.50	80.00
	Mean			00:25	9	2	64	9.7	103.1
	Sum				957	117	6773		10930

Russian Federation 2020

Time to Death Summary

Russian Federation

2020

Table 1 Summary table of time to death reported based on the list of passports of gray whales landed by Chukotka Native whalers in 2020. For more details on the hunt and the methods used also see document ***SC/68C/ASW/04***[1]

#	Date	Time of first shot	Time of whale's death	Time to death (TTD)	Number of shots			Body length (meters)	Weight (centners)
					harpoon	darting gun	carbine		
1	30/07/2020	08:05	08:16	00:11	14	0	100	11.50	159.00
2	30/05/2020	08:40	09:05	00:25	7	0	100	10.20	109.00
3	26/06/2020	13:20	13:30	00:10	10	2	100	9.70	93.00
4	15/06/2020	17:10	17:30	00:20	10	3	100	9.50	88.00
5	09/07/2020	13:00	13:10	00:10	8	3	100	10.40	116.00
6	24/07/2020	09:40	21:00	11:20	7	0	100	12.00	181.00
7	21/08/2020	05:42	05:57	00:15	10	3	100	13.50	261.00
8	11/08/2020	16:30	17:20	00:50	4	0	100	9.00	74.00
9	30/09/2020	07:32	07:37	00:05	10	3	100	10.00	103.00
10	06/09/2020	04:35	05:00	00:25	10	3	100	12.80	221.00
11	01/10/2020	15:25	15:50	00:25	10	3	100	13.07	232.00
12	19/10/2020	12:12	12:16	00:04	10	2	100	12.05	181.00
13	23/10/2020	16:20	17:00	00:40	8	2	100	10.00	103.00
14	22/06/2020	10:50	11:20	00:30	9	1	100	10.80	131.00
15	17/06/2020	11:45	12:40	00:55	8	1	100	9.70	93.00
16	14/06/2020	04:00	05:10	01:10	12	1	100	11.90	177.00
17	10/07/2020	06:03	06:15	00:12	11	1	100	12.20	191.00
18	16/07/2020	07:30	07:50	00:20	8	1	100	9.00	74.00
19	23/07/2020	18:00	19:00	01:00	7	1	100	8.50	66.00
20	10/07/2020	02:40	03:10	00:30	7	0	35	8.70	68.00
21	05/08/2020	08:25	08:40	00:15	8	1	100	8.80	70.00
22	08/08/2020	04:15	04:30	00:15	8	1	100	9.30	82.00
23	18/08/2020	08:53	09:07	00:14	10	1	100	12.50	206.00
24	26/08/2020	09:20	09:40	00:20	9	7	100	8.50	66.00
25	30/09/2020	06:55	07:10	00:15	12	1	100	12.00	181.00
26	06/09/2020	19:30	20:15	00:45	9	1	100	10.00	103.00
27	27/10/2020	06:00	07:30	01:30	8	1	100	8.00	60.00
28	30/09/2020	11:10	11:30	00:20	9	0	30	9.20	79.00
29	19/10/2020	11:35	11:50	00:15	9	0	40	10.20	109.00
30	25/10/2020	12:55	13:10	00:15	11	0	40	12.50	206.00
31	24/11/2020	08:17	08:40	00:23	9	0	40	10.00	103.00

[1] Lev K. Sidorov, Dennis I. Litovka, Egor V. Vereshagin (2021) Aboriginal subsistence whaling in the Russian Federation during 2020. SC/68C/ASW/04

32	03/11/2020	03:00	08:40	05:40	9	1	100	11.70	167.00
33	27/05/2020	08:40	10:00	01:20	10	1	62	12.60	211.00
34	21/05/2020	10:15	10:40	00:25	12	1	45	12.30	196.00
35	18/05/2020	10:40	11:10	00:30	12	0	70	10.50	120.00
36	02/06/2020	07:27	07:28	00:01	10	0	23	9.50	88.00
37	02/06/2020	10:43	11:00	00:17	12	1	39	12.20	191.00
38	03/06/2020	18:45	19:10	00:25	11	1	36	12.00	181.00
39	16/06/2020	08:43	09:12	00:29	6	0	37	9.10	77.00
40	25/06/2020	16:10	17:00	00:50	6	0	2	9.60	90.00
41	25/06/2020	09:55	10:05	00:10	10	0	8	10.10	106.00
42	26/06/2020	07:40	08:10	00:30	6	0	2	9.72	93.00
43	31/07/2020	15:50	16:30	00:40	8	0	11	10.10	106.00
44	30/07/2020	14:45	15:30	00:45	7	0	6	8.30	63.00
45	27/07/2020	06:58	07:00	00:02	7	0	10	9.00	74.00
46	23/07/2020	15:47	15:48	00:01	8	0	6	9.10	77.00
47	23/07/2020	12:40	12:50	00:10	8	0	7	8.70	68.00
48	17/07/2020	09:05	09:07	00:02	9	0	9	10.30	113.00
49	14/07/2020	23:30	00:30	01:00	9	0	8	10.30	113.00
50	07/07/2020	07:48	08:00	00:12	11	0	27	10.50	120.00
51	06/08/2020	11:25	11:40	00:15	12	2	38	11.10	142.00
52	07/08/2020	10:46	11:00	00:14	6	0	11	8.60	67.00
53	10/08/2020	10:20	10:30	00:10	11	0	13	10.30	113.00
54	13/08/2020	08:42	08:45	00:03	8	0	3	8.00	60.00
55	17/08/2020	08:10	08:15	00:05	9	0	4	9.20	79.00
56	20/08/2020	10:55	10:56	00:01	8	0	5	9.10	77.00
57	21/08/2020	06:53	06:55	00:02	11	0	48	13.20	244.00
58	26/08/2020	09:00	09:15	00:15	9	0	10	8.80	70.00
59	27/08/2020	07:07	07:10	00:03	11	0	50	13.70	274.00
60	29/09/2020	07:45	07:50	00:05	12	3	44	11.00	138.00
61	25/09/2020	09:30	09:40	00:10	11	1	15	12.20	191.00
62	24/09/2020	08:55	09:20	00:25	11	2	12	11.40	154.00
63	18/09/2020	14:10	14:30	00:20	11	1	12	10.80	131.00
64	17/09/2020	14:10	14:50	00:40	10	3	40	12.60	211.00
65	10/09/2020	16:00	17:50	01:50	6	0	6	10.30	113.00
66	03/09/2020	10:00	10:55	00:55	8	0	33	9.50	88.00
67	09/09/2020	08:45	09:20	00:35	7	0	40	9.40	85.00
68	02/09/2020	14:00	15:40	01:40	9	1	10	10.00	103.00
69	04/09/2020	08:15	08:40	00:25	8	3	0	9.80	96.00
70	01/10/2020	11:40	11:55	00:15	10	1	40	12.40	201.00
71	06/10/2020	09:10	10:00	00:50	15	1	57	11.50	159.00
72	14/10/2020	08:40	09:30	00:50	12	0	60	11.40	154.00
73	15/10/2020	07:30	07:40	00:10	16	0	35	14.00	293.00
74	27/11/2020	06:17	06:30	00:13	5	0	75	10.00	103.00
75	28/11/2020	10:55	11:30	00:35	7	0	27	10.30	113.00

76	24/11/2020	09:40	10:00	00:20	10	0	69	9.00	74.00
77	09/11/2020	08:35	08:50	00:15	10	0	74	11.90	177.00
78	02/11/2020	16:10	16:30	00:20	10	0	70	11.90	177.00
79	02/12/2020	05:50	06:00	00:10	9	1	39	9.60	90.00
80	04/12/2020	09:45	10:55	01:10	8	0	40	9.60	90.00
81	15/06/2020	09:50	10:05	00:15	15	2	100	10.00	103.00
82	09/07/2020	08:50	09:05	00:15	15	2	100	11.00	138.00
83	26/08/2020	08:10	08:55	00:45	15	2	100	13.60	268.00
84	20/08/2020	07:10	09:15	02:05	15	2	100	12.60	211.00
85	23/08/2020	13:40	15:20	01:40	15	2	100	12.00	181.00
86	29/09/2020	15:45	16:05	00:20	15	2	100	11.20	146.00
87	23/10/2020	08:15	08:21	00:06	15	2	100	11.80	172.00
88	27/10/2020	08:00	08:03	00:03	6	0	120	8.60	67.00
89	30/10/2020	07:10	07:14	00:04	6	0	200	14.00	293.00
90	23/07/2020	07:25	07:32	00:07	6	1	150	14.50	324.00
91	17/05/2020	08:48	09:10	00:22	8	2	100	8.00	60.00
92	18/07/2020	10:15	10:17	00:02	8	2	100	8.00	60.00
93	06/08/2020	10:27	10:40	00:13	8	2	100	8.00	60.00
94	03/09/2020	09:05	09:30	00:25	8	2	100	8.00	60.00
95	13/10/2020	16:15	16:25	00:10	8	2	100	8.00	60.00
96	30/05/2020	11:00	11:15	00:15	10	0	100	9.00	74.00
97	30/06/2020	11:15	11:30	00:15	10	0	100	9.00	74.00
98	16/06/2020	08:15	08:40	00:25	10	0	100	8.00	60.00
99	09/07/2020	08:22	08:40	00:18	14	0	100	13.03	232.00
100	15/07/2020	08:00	09:00	01:00	10	0	100	8.00	60.00
101	05/08/2020	08:40	09:00	00:20	10	0	100	8.00	60.00
102	10/08/2020	11:30	12:10	00:40	10	0	100	11.00	138.00
103	11/08/2020	10:10	10:30	00:20	10	0	100	8.00	60.00
104	26/08/2020	08:15	09:00	00:45	12	0	100	12.00	181.00
105	11/09/2020	08:40	09:00	00:20	12	0	100	10.00	103.00
106	01/10/2020	11:10	11:45	00:35	10	0	100	9.00	74.00
107	07/10/2020	10:10	10:40	00:30	10	0	100	8.00	60.00
108	10/07/2020	07:12	07:55	00:43	11	1	400	11.00	138.00
109	11/06/2020	08:10	08:30	00:20	4	3	80	8.00	60.00
110	16/07/2020	05:45	06:00	00:15	7	3	60	8.30	62.00
111	06/07/2020	08:40	09:10	00:30	6	3	80	11.00	138.00
112	05/08/2020	09:15	09:35	00:20	7	3	60	8.00	60.00
113	21/08/2020	07:48	08:14	00:26	6	3	60	8.20	62.00
114	29/09/2020	08:41	09:03	00:22	7	3	60	8.10	61.00
115	17/09/2020	09:22	09:32	00:10	6	3	60	7.50	56.20
116	11/09/2020	14:10	15:15	01:05	6	3	80	7.90	59.30
117	06/10/2020	11:40	12:10	00:30	7	3	40	8.00	60.00
118	22/06/2020	10:30	11:00	00:30	8	3	80	8.40	64.00
119	07/08/2020	10:00	10:30	00:30	8	3	80	14.40	317.00

120	29/09/2020	13:35	13:55	00:20	8	3	70	11.90	177.00
121	14/06/2020	12:30	12:50	00:20	8	1	100	14.70	339.00
122	04/07/2020	10:31	10:55	00:24	12	2	100	12.10	186.00
123	01/07/2020	08:40	08:45	00:05	8	2	120	13.80	280.00
124	16/07/2020	10:00	10:30	00:30	12	2	100	12.10	186.00
125	10/08/2020	08:55	09:10	00:15	13	2	100	12.00	181.00
126	20/08/2020	09:20	09:33	00:13	12	2	100	13.80	280.00
127	11/09/2020	12:00	12:30	00:30	13	2	100	12.30	196.00
128	07/10/2020	10:08	10:22	00:14	3	0	100	10.82	131.00
129	22/06/2020	13:50	14:30	00:40	9	4	174	12.50	206.00
130	24/09/2020	11:20	11:40	00:20	7	5	103	8.00	60.00
131	09/09/2020	08:30	08:35	00:05	9	4	66	10.00	103.00
	mean			**00:33**	**9**	**1**	**73**	**10.4**	**130.9**
	sum				**1231**	**155**	**9516**		**17149**

Russian Federation 2021

Time to Death Summary

Russian Federation

2021

Table 1 Summary table of time to death reported based on the list of passports of gray whales landed by Chukotka Native whalers in 2021. For more details on the hunt and the methods used also see document ***SC/68D/ASW/02***[1]

#	Date	Time of first shot	Time of whale's death	Time to death (TTD)	Number of shots			Body length (meters)	Weight (centners)
					harpoon	darting gun	carbine		
1	19/11/2021	12:40	14:00	01:20	8	3	80	9.5	88
2	24/07/2021	17:30	18:00	00:30	10	5	100	12	181
3	13/07/2021	14:00	14:20	00:20	8	0	100	11.1	142
4	11/07/2021	11:00	11:30	00:30	8	0	100	10.8	131
5	05/08/2021	09:30	10:00	00:30	10	1	100	10.8	131
6	21/08/2021	15:30	16:00	00:30	10	0	50	10.8	131
7	17/09/2021	16:05	16:50	00:45	10	0	87	11.2	146
8	04/10/2021	13:20	13:45	00:25	10	0	40	8.9	70
9	19/06/2021	04:10	04:20	00:10	8	2	100	10	106
10	25/07/2021	04:45	05:00	00:15	9	3	100	11.1	142
11	14/07/2021	10:40	10:55	00:15	8	3	0	11.1	142
12	07/07/2021	16:09	19:00	02:51	10	2	100	14.1	297
13	25/07/2021	09:16	09:32	00:16	8	2	100	10.6	123
14	30/07/2021	05:27	06:15	00:48	8	2	100	10.1	106
15	15/08/2021	10:15	11:00	00:45	9	2	100	12	181
16	04/08/2021	10:20	10:40	00:20	10	2	100	12.7	211
17	30/08/2021	09:23	10:00	00:37	14	2	140	13.1	238
18	31/08/2021	16:30	17:00	00:30	14	2	100	10.1	106
19	18/09/2021	12:49	14:00	01:11	8	2	180	12.1	186
20	24/09/2021	13:27	13:35	00:08	6	2	100	10.5	120
21	22/10/2021	09:30	10:00	00:30	10	2	100	13	232
22	23/06/2021	06:50	07:30	00:40	8	2	100	8.8	70
23	11/06/2021	15:00	16:40	01:40	12	2	100	12.3	196
24	23/07/2021	16:10	16:45	00:35	12	3	100	10.8	131
25	15/07/2021	10:55	11:30	00:35	9	3	100	8.7	68
26	08/07/2021	12:30	13:00	00:30	8	2	100	9.1	77
27	04/07/2021	08:00	08:30	00:30	8	2	100	8.2	62
28	12/08/2021	08:15	08:40	00:25	8	1	100	8.2	62
29	18/08/2021	16:45	17:10	00:25	7	0	70	8.4	63
30	31/08/2021	07:25	07:40	00:15	8	1	92	8.7	68
31	30/08/2021	11:20	13:40	02:20	9	0	100	13	232

[1] Lev K. Sidorov, Dennis I. Litovka and Egor V. Vereshagin (2022) Aboriginal Subsistence Whaling in the Russian Federation during 2021. SC/68D/ASW/02

32	23/08/2021	17:05	17:50	00:45	10	0	115	9	74
33	18/08/2021	07:50	08:20	00:30	10	1	115	9.5	88
34	08/09/2021	15:30	16:00	00:30	6	0	70	8	60
35	08/09/2021	12:40	13:10	00:30	8	1	53	8.8	70
36	28/09/2021	12:15	12:40	00:25	8	1	68	8.6	67
37	04/10/2021	13:20	14:00	00:40	8	1	78	8.1	61
38	11/10/2021	11:30	12:30	01:00	9	0	50	12.4	201
39	21/10/2021	13:20	13:50	00:30	8	2	85	9.7	93
40	29/10/2021	11:10	11:30	00:20	7	0	60	9.7	330
41	22/05/2021	06:47	07:00	00:13	10	1	41	10	103
42	29/06/2021	10:07	10:45	00:38	7	1	20	12.1	186
43	28/06/2021	13:57	14:15	00:18	6	0	21	8.5	66
44	25/06/2021	10:42	10:59	00:17	8	0	10	9.2	79
45	16/06/2021	05:45	05:47	00:02	1	0	4	9.7	93
46	11/06/2021	06:47	07:00	00:13	12	1	49	12.4	201
47	08/06/2021	05:34	05:41	00:07	11	0	16	9.6	90
48	03/06/2021	16:45	17:00	00:15	12	0	60	11.2	146
49	15/07/2021	05:40	05:45	01:00	7	0	3	9.5	88
50	23/07/2021	12:25	12:30	00:05	5	1	8	9.2	79
51	08/07/2021	10:39	10:43	00:04	14	0	5	10.4	116
52	11/07/2021	07:50	07:52	00:02	8	0	5	10.1	106
53	06/07/2021	10:00	10:20	00:20	7	0	22	10	103
54	06/07/2021	14:25	14:30	00:05	8	0	1	9.6	90
55	27/07/2021	08:56	09:15	00:19	8	0	24	10.9	134
56	02/08/2021	13:03	13:18	00:15	10	0	18	10.4	116
57	18/08/2021	16:15	16:25	00:10	7	2	19	8.6	67
58	17/08/2021	08:00	08:20	00:20	11	0	30	12.3	196
59	12/08/2021	13:20	13:25	00:05	8	1	0	10.8	131
60	11/08/2021	14:20	14:50	00:30	14	1	0	12.2	191
61	10/08/2021	09:25	09:30	00:05	9	0	7	8.6	67
62	26/08/2021	11:30	11:40	00:10	10	2	18	10.5	116
63	25/08/2021	10:15	10:30	00:15	12	0	49	10.4	116
64	23/08/2021	15:33	16:03	00:30	8	2	46	8	59.3
65	20/08/2021	10:20	10:35	00:15	7	1	7	8.5	66
66	03/09/2021	07:42	07:50	00:08	12	1	56	12.6	206
67	06/09/2021	11:20	11:30	00:10	12	2	20	11.8	172
68	16/09/2021	11:35	11:50	00:15	12	2	0	12.3	196
69	21/09/2021	06:50	07:12	00:22	12	3	40	12.6	211
70	22/09/2021	06:40	06:45	00:05	16	3	40	12.1	186
71	24/09/2021	06:25	06:30	00:05	10	0	50	11.1	142
72	27/09/2021	12:15	12:40	00:25	10	2	60	13.3	244
73	28/09/2021	11:05	11:20	00:15	14	2	49	12.5	206
74	02/11/2021	07:45	07:55	00:10	14	0	60	12.2	191
75	03/10/2021	08:30	08:43	00:13	14	1	55	12.4	201

76	04/10/2021	07:30	07:50	00:20	14	0	54	13	232
77	08/10/2021	07:25	07:40	00:15	14	1	40	10.1	106
78	08/10/2021	12:20	12:40	00:20	12	0	40	10.3	113
79	13/10/2021	08:17	08:25	00:08	14	0	50	11	134
80	13/10/2021	06:40	07:00	00:20	11	0	31	10.6	123
81	14/10/2021	09:10	09:35	00:25	10	0	51	9.5	88
82	24/10/2021	10:47	11:07	00:20	8	0	40	10.4	116
83	28/10/2021	10:50	11:40	00:50	10	0	37	10.2	109
84	28/10/2021	07:55	08:10	00:15	11	0	58	12.5	206
85	31/10/2021	08:46	08:57	00:11	10	0	44	9.8	96
86	24/07/2021	11:00	13:00	02:00	15	2	100	11	138
87	20/07/2021	10:00	12:30	02:30	15	2	100	14.2	304
88	19/08/2021	17:40	19:05	01:25	15	2	90	11	138
89	31/08/2021	13:30	14:20	00:50	15	2	100	14.9	353
90	08/09/2021	14:30	17:00	02:30	15	2	60	13.5	261
91	04/10/2021	13:25	14:00	00:35	15	2	100	13	232
92	28/06/2021	03:25	03:45	00:20	7	3	80	8.3	63
93	07/07/2021	04:45	05:10	00:25	7	3	60	8	60
94	13/08/2021	12:10	12:30	00:20	7	3	60	9	74
95	12/08/2021	07:40	08:05	00:25	6	3	60	8	60
96	24/08/2021	09:40	10:05	00:25	6	3	60	8	60
97	28/09/2021	14:10	14:30	00:20	7	3	60	8	60
98	03/10/2021	14:10	14:25	00:15	6	3	80	8	60
99	13/10/2021	11:40	16:25	04:45	12	0	225	14.2	304
100	23/05/2021	07:45	08:15	00:30	8	2	100	10.5	120
101	09/08/2021	07:10	07:30	00:20	8	2	100	8	60
102	17/09/2021	09:20	09:30	00:10	5	3	100	8.3	63
103	21/09/2021	12:00	12:10	00:10	6	3	40	8.5	66
104	03/09/2021	08:18	08:42	00:24	8	2	100	8	60
105	03/10/2021	12:25	12:35	00:10	8	2	100	8	60
106	13/10/2021	10:35	10:50	00:15	8	1	100	8	60
107	19/06/2021	04:18	04:40	00:22	11	0	100	12	181
108	20/07/2021	06:25	06:30	00:05	10	0	100	8	60
109	14/07/2021	07:35	08:00	00:25	12	0	100	12	181
110	07/07/2021	15:42	16:00	00:18	10	0	100	11	138
111	27/07/2021	05:55	06:00	00:05	10	0	100	8	60
112	14/08/2021	06:45	07:00	00:15	10	0	100	9	74
113	04/08/2021	14:25	14:40	00:15	10	0	100	10	103
114	22/08/2021	07:00	07:18	00:18	9	0	92	8	60
115	19/08/2021	07:12	07:28	00:16	10	0	156	12	181
116	01/09/2021	11:52	12:10	00:18	12	0	136	13.4	255
117	09/09/2021	07:42	07:58	00:16	12	0	240	13	232
118	19/09/2021	06:25	06:50	00:25	10	0	150	11.3	150
119	11/08/2021	10:15	10:40	00:25	11	1	200	11	138

120	12/07/2021	10:00	11:10	01:10	8	5	87	10.5	120
121	20/08/2021	10:10	10:25	00:15	7	0	23	8	60
122	18/09/2021	06:20	06:55	00:35	7	3	76	10	103
123	22/07/2021	10:45	11:00	00:15	6	3	60	9.5	**stinky**
124	29/05/2021	07:34	07:47	00:13	9	1	17	9.5	**stinky**
125	06/09/2021	08:20	09:01	00:41	10	2	20	9.9	**stinky**
126	22/10/2021	08:22	08:29	00:07	11	0	45	10.6	**stinky**
127	23/10/2021	12:00	12:20	00:20	10	0	82	**struck&lost**	
	mean			**00:30**	**10**	**1**	**70**	**10.4**	**132.1**
	sum				**1223**	**152**	**8950**		**16118**

Annex 1: Summary Reporting Form

St Vincent & the Grenadines 2019

International Whaling Commission
The Red House, 135 Station Road
Impington, Cambridge CB4 9NP, UK
Tel: +44 (0)1223 233971
Fax: +44 (0)1223 232876
E-mail: secretariat@iwc.int
Web site: <http://www.iwc.int>

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the forthcoming Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by 7 June 2013.

Contracting Government	**Government of St. Vincent and the Grenadines**
Season	**2019**
Area	**St. Vincent and the Grenadines**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	**Harpoon**	**Primary**
2		
3		

Summary of criteria used to indicate unconsciousness and death:

[Include brief description here]

St Vincent & the Grenadines 2019

Table 2: Summary of information providers:

Percentage of data provided by:	
• **inspectors**	**50%**
• **scientists**	
• **hunters**	**50%**
• **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[insert name]*		**Species 2** *[insert name]*		**Species 3** *[insert name]*	
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	**3**					
• Total killed using Method 1 only	**3**					
• Total killed using Method 2 only	**NA**					
• Total killed using Method 3 only	**NA**					
• Total needing secondary harpoon or other secondary killing method	**NA**					
• If bullets used						
o minimum number	**NA**					
o maximum number	**NA**					
o median number	**NA**					
Time to unconsciousness/death (TTD)*						
• Total for which information recorded	**3**					
• Total estimated TTD to be instant	**0**					
• Maximum estimated TTD	**5 hours**					
• Mean time to TTD	**2.5 hours**					
• Median Time to TTD	**1.5 hours**					
Other information						
• Total targeted and missed	**0**					
• Total struck and lost	**0**					

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

St Vincent & the Grenadines 2019

Table 4: Reporting of data on individual whales killed:

Whale:	Species	Killing method(s) used	Time to Death[1]	Samples taken
1.	Megaptera novaeangliae	Harpoon	1 hour	Yes
2.	Megaptera novaeangliae	Harpoon	1.5 hours	Yes
3.	Megaptera novaeangliae	Harpoon	5 hours	Yes

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

United Kingdom 2016-2018

WKM-form United Kingdom for instances of euthanasia in 2016-18

Table 4: Reporting of data on individual whales killed:

Whale:	Species	Date	Killing method(s) used	Time to Death[1]	Samples taken
1.	Striped dolphin	26/01/16	Chemical- barbiturate	Not recorded	Various- samples collected by the UK strandings investigation programme
2.	Short-beaked common dolphin	21/02/16	Unknown	Not recorded	Various- samples collected by the UK strandings investigation programme
3.	Harbour porpoise	14/03/16	Unknown	Not recorded	Various- samples collected by the UK strandings investigation programme
4.	Harbour porpoise	23/04/16	Chemical- 20mls euthatal intra-peritoneal	Not recorded	Various- samples collected by the UK strandings investigation programme
5.	Harbour porpoise	08/06/16	Unknown	Not recorded	Various- samples collected by the UK strandings investigation programme
6.	Atlantic white-sided dolphin	27/06/16	Chemical- IV 100ml of Pentobarbitone into the tail fluke vein	Not recorded	Various- samples collected by the UK strandings investigation programme
7.	Short-beaked common dolphin	31/07/16	Chemical- IV 50ml pentobarbital into the left dorsal tail fluke vessel	<2 minutes	Various- samples collected by the UK strandings investigation programme
8.	Harbour porpoise	14/08/16	Unknown	Not recorded	Various- samples collected by the UK strandings investigation programme
9.	Short-beaked common dolphin	28/08/16	Chemical- IV 50ml euthatal into dorsal tail fluke	<1 minute	Various- samples collected by the UK strandings investigation programme
10.	White-beaked dolphin	01/09/16	Chemical- IV injection 100ml of pentabarbitone into tail fluke vein	Not recorded	Various- samples collected by the UK strandings investigation programme
11.	Short-beaked common dolphin	02/09/16	Chemical- IV 50ml pentobarbitone into the tail fluke vessels	Not recorded	Various- samples collected by the UK strandings investigation programme
12.	Harbour porpoise	22/01/17	Chemical- IV 15ml Dolethal into tail fluke veins	<2 minutes	Various- samples collected by the UK strandings investigation programme
13.	Long-finned pilot whale	27/01/17	Shooting- shot gun	Not recorded	Various- samples collected by the UK strandings investigation programme
14.	Long-finned pilot whale	08/08/17	Shooting- 0.270 calibre rifle using soft point ammunition	Not recorded	Various- samples collected by the UK strandings investigation programme
15.	Short-beaked Common dolphin	28/09/17	Unknown	N/A	Various- samples collected by the UK strandings investigation programme
16.	Risso's dolphin	17/10/17	Chemical- 100ml IM Pentobarbitone	Not recorded	Various- samples collected by the UK strandings investigation programme
17.	White-beaked dolphin	04/01/18	Chemical- 100ml Pentobarbital sodium IV tail stock, caudal veins	<3 minutes	Various- samples collected by the UK strandings investigation programme

United Kingdom 2016-2018					
18.	Harbour porpoise	14/01/18	Chemical- 20mls of intracardiac pentobarbiturate following initial sedation (medetomidine and ketamine)	Not recorded	Various- samples collected by the UK strandings investigation programme
19.	Striped dolphin	13/02/18	Chemical- 30ml of intrathoracic pentobarbiturate	Not recorded	Various- samples collected by the UK strandings investigation programme
20.	Harbour porpoise	14/04/18	Chemical- 25ml Pentoject IV tail fluke ventral venous plexus.	~2 minutes	Various- samples collected by the UK strandings investigation programme
21.	Harbour porpoise	17/04/18	Unknown	N/A	Various- samples collected by the UK strandings investigation programme

[1] Resolution 1999-1 encouraged reporting of time to death for each animal not killed instantly

Annex 1: Summary Reporting Form

Alaska 2018

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

INTERNATIONAL WHALING COMMISSION

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

Please note that completion of this form is not compulsory but it will greatly aid the discussions at the next Working Group Meeting. The Secretariat would be grateful if you can complete this form as fully as possible, preferably electronically and return it to secretariat@iwc.int by Monday 20 May 2019

Contracting Government	**USA**
Season	**2018**
Area	**Alaska**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	Penthrite	Both
2	Black powder	Both
3		

Summary of criteria used to indicate unconsciousness and death:

Full cessation of movement for a time determined at the discretion of the whaling captain.

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	
▪ **hunters**	**100%**
▪ **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[insert name]*		**Species 2** *[insert name]*		**Species 3** *[insert name]*	
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
▪ Total no. killed (all methods summed)	**47**					
▪ Total killed using Method 1 only	**6**					
▪ Total killed using Method 2 only	**21**					
▪ Total killed using Method 3 only						
▪ Total needing secondary harpoon or other secondary killing method	**20**					
▪ If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
▪ Total for which information recorded						
▪ Total estimated TTD to be instant						
▪ Maximum estimated TTD						
▪ Mean time to TTD						
▪ Median Time to TTD						
Other information						
▪ Total targeted and missed	**NA**					
▪ Total struck and lost	**21**					

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Annex 1: Summary Reporting Form

Alaska 2019

INTERNATIONAL WHALING COMMISSION

The Red House 135 Station Road
Impington, Cambridge
CB24 9NP, UK
t. +44 (0) 1223 233971
f. +44 (0) 1223 232876
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

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Contracting Government	**U.S.A.**
Season	**2019**
Area	**Alaska**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	Black powder only	Both
2	Penthrite and Black Powder	Both
3	Penthrite only	Both

Summary of criteria used to indicate unconsciousness and death:

[Include brief description here]

Alaska 2019

Table 2: Summary of information providers:

Percentage of data provided by:	
▪ **inspectors**	
▪ **scientists**	57%
▪ **hunters**	100%
▪ **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[insert name]*		**Species 2** *[insert name]*		**Species 3** *[insert name]*	
	Balaena mysticetus					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
▪ Total no. killed (all methods summed)	30					
▪ Total killed using Method 1 only	19					
▪ Total killed using Method 2 only	8					
▪ Total killed using Method 3 only	3					
▪ Total needing secondary harpoon or other secondary killing method	25					
▪ If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
▪ Total for which information recorded						
▪ Total estimated TTD to be instant						
▪ Maximum estimated TTD						
▪ Mean time to TTD						
▪ Median Time to TTD						
Other information						
▪ Total targeted and missed	NA					
▪ Total struck and lost	6					

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Annex 1: Summary Reporting Form

Alaska 2020

INTERNATIONAL WHALING COMMISSION
75 years of science and stewardship 1946 – 2021

The Red House
135 Station Road
Impington, Cambridge
CB24 9NP, UK

t. +44 (0) 1223 233971
e. secretariat@iwc.int
www.iwc.int

Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

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Contracting Government	**United States of America**
Season	**2020**
Area	**Alaska**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	Black powder	Both
2	Penthrite and Black powder	Both
3	Penthrite only	Both

Summary of criteria used to indicate unconsciousness and death:

[Include brief description here]

Alaska 2020

Table 2: Summary of information providers:

Percentage of data provided by:	
• **inspectors**	
• **scientists**	
• **hunters**	100%
• **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[insert name]*		**Species 2** *[insert name]*		**Species 3** *[insert name]*	
	Balaena mysticetus					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	54					
• Total killed using Method 1 only	35	63				
• Total killed using Method 2 only	15	28				
• Total killed using Method 3 only	5	9				
• Total needing secondary harpoon or other secondary killing method	52	96				
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded						
• Total estimated TTD to be instant						
• Maximum estimated TTD						
• Mean time to TTD						
• Median Time to TTD						
Other information						
• Total targeted and missed	NA					
• Total struck and lost	15					

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD:

Annex 1: Summary Reporting Form

Alaska 2021

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Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)

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Contracting Government	**United States**
Season	**2021**
Area	**Alaska**
Fishery type (e.g. commercial, aboriginal subsistence, scientific permit)	**Aboriginal Subsistence**

Table 1. Summary of primary and secondary whale killing methods used (Note that the appropriate Method No. should be used throughout the form):

Method No.	Brief description of method (e.g. penthrite grenade, 'cold' grenade, rifle *of stated calibre*, etc). Put the most commonly used method first. Insert more rows if necessary.	Used as: (state whether primary killing method, secondary, or both)
1	Black powder only	Both
2	Penthrite and Black Powder	Both
3	Penthrite only	Both

Summary of criteria used to indicate unconsciousness and death:

[Include brief description here]

Alaska 2021

Table 2: Summary of information providers:

Percentage of data provided by:	
• **inspectors**	
• **scientists**	
• **hunters**	100%
• **other (please specify)**	

Table 3: Summary of hunt:

Item	**Species 1** *[insert name]*		**Species 2** *[insert name]*		**Species 3** *[insert name]*	
	Balaena mysticetus					
	No.	**%**	**No.**	**%**	**No.**	**%**
Whale killing methods						
• Total no. killed (all methods summed)	57					
• Total killed using Method 1 only	29	51				
• Total killed using Method 2 only	22	39				
• Total killed using Method 3 only	6	11				
• Total needing secondary harpoon or other secondary killing method	47	82				
• If bullets used						
o minimum number						
o maximum number						
o median number						
Time to unconsciousness/death (TTD)*						
• Total for which information recorded						
• Total estimated TTD to be instant						
• Maximum estimated TTD						
• Mean time to TTD						
• Median Time to TTD						
Other information						
• Total targeted and missed	N/A					
• Total struck and lost	13					

NB Resolution 1999-1 asks for TTD information for each whale not killed instantly. This can be provided via Table 4 below.

Other: Any other relevant information e.g. with information on technical assistance given to other fisheries or with respect to new studies to (a) improve methods and TTD, (b) develop new criteria for TTD: