



**NAMMCO EXPERT GROUP MEETING TO ASSESS TTD DATA LARGE WHALES**  
4 – 6 November 2015, Copenhagen, Denmark

**DOCUMENT 16**

**MAKAH TRAINING PROGRAMME – DRAFT**



# MAKAH TRIBE

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## Whaling Training Program

*To ensure a safe, efficient and humane hunt, this training program has been developed for all members of a whaling team, any alternates designated on the whaling permit, and whaling support personnel. A whaling captain may add further requirements for whaling team members to meet the physical, mental, and spiritual training requirements of the captain's family.*

*The training program is divided into four inter-related parts: 1) Class Instruction; 2) Field Training; 3) Qualifications and Certification; and 4) Continuing Training and Recertification. In addition, the Safety Requirements appendix will inform the implementation of the training program. Some parts of the training program apply to all whaling team members and alternates and support personnel while others are limited to a specific position or role, as specified in the training program. Certification is specific to a position on the whaling team and is not interchangeable with certification for another position.*

### **I. Class Instruction**

#### **A. Requirements for All Whaling Team Members and Alternates.**

1. Attend a seminar presented by Makah Fisheries Management on the anatomy, ecology, and behavior of gray whales. The seminar will also cover effective killing and harpooning methods, techniques for safely approaching a whale, pertinent information from prior hunts, and biologically sensitive locations in the hunting area. [Certification Criteria A.4]
2. Spiritual preparation and training in the cultural and historical aspects of Makah whaling. The whaling captain shall determine the nature of the preparation and training, but it must include attendance at a seminar presented by the Makah Cultural and Research Center on the Tribe's traditional whaling methods and equipment, use of whale products by the Tribe, and location of cultural sites in the hunt area. [Certification Criteria A.5]
3. Attend a seminar presented by Makah Fisheries Management and experienced tribal members on the appropriate techniques for butchering a landed whale and preventing the whale products from going to waste. All members of the butchering team must also attend this seminar. [Certification Criteria A.7]

#### **B. Requirements for the Whaling Captain.**

1. Attend training for first aid and emergency situations on the water. A valid first aid and/or emergency training certificate may substitute for this requirement. The captain is encouraged to provide emergency training for the whaling team. [Certification Criteria B.4]

C. Requirements for the Rifleman

1. Attend seminar presented by Makah Fisheries Management on the anatomy of the gray whale specific to dispatching the whale with a high caliber rifle, including review of the use of rifles and time to death from previous whaling expeditions. The rifleman is encouraged to confer with other riflemen regarding their techniques and experiences. [Certification Criteria C.1]
2. Attend a seminar presented Makah Law and Order and Makah Fisheries Management on firearm safety. The training will cover safety issues associated with the handling and discharge of a high caliber rifle during training exercises and the hunt, including visibility and background. The training will also review safety issues from previous whaling expeditions, including presentations by other riflemen. Detailed information on the specifications of the rifle to be used in the hunt will be provided. [Certification Criteria C.4]

D. Requirements for the Harpooner.

There is no class instruction requirement specific to the harpooner.

E. Requirements for the Safety Officer.

1. Attend a seminar presented by Makah Law and Order and Makah Fisheries Management on firearm safety. The seminar will cover safety issues associated with the handling and discharge of a high caliber rifle during training exercises and the hunt, including visibility and background. The training will also review safety issues from previous whaling expeditions, including presentations by other whaling team safety officers. [Certification Criteria E.1]

## **II. Field Training**

A. Requirements for All Whaling Team Members and Alternates.

There is no field training requirement specific to all whaling team members and alternates. Under the direction of the captain, all members and alternates must be adequately skilled and knowledgeable so that the captain is able to certify they are prepared to undertake an efficient, safe, and humane hunt.

B. Requirements for the Whaling Captain

There is no field training requirement specific to the captain.

C. Requirements for the Rifleman.

1. Attend training with Makah Fisheries Management involving whale skeletons and whales on the water for visualization of effective kill shot location. [Certification Criteria C.2]
2. Attend training in the handling and discharge of a high-caliber rifle on land and in the chase boat. The training shall simulate actual whaling expedition conditions, including use of a moving target. The rifleman must demonstrate a high level of proficiency in all drills and simulations. [Certification Criteria C.3]
3. Attend training and simulation of actual whaling expedition conditions with safety officer and chase boat skipper focusing on communication, technique for approaching whales, and safe discharge of the rifle (background and visibility in particular).

**D. Requirements for the Harpooner.**

1. Attend training in the use of the harpoon on land and in the canoe. The training shall simulate actual whaling expedition conditions, including use of a moving target.
2. Attend training with Makah Fisheries Management on breathing and surfacing patterns of gray whales. [Certification Criteria D.2]

**E. Requirements for the Safety Officer.**

1. Attend training with Makah Fisheries Management that simulates actual whaling expedition conditions. [Certification Criteria E.2]
2. Attend training and simulation of actual whaling expedition conditions with rifleman and chase boat skipper focusing on communication, technique for approaching whales, and safe discharge of the rifle (background and visibility in particular).

**F. Requirements for Chase Boat Skipper.**

1. Attend training and simulation of actual whaling expedition conditions with rifleman and safety officer focusing on communication, technique for approaching whales, and safe discharge of the rifle (background and visibility in particular).

### **III. Qualifications and Certification.**

**A. Requirements for All Whaling Team Members and Alternates.**

1. Demonstrated ability to swim in the open ocean and tread water in the open ocean for at least 5 minutes. If unable to meet this requirement, a team member must wear a USCG approved personal flotation device at all times while on the water. [Certification Criteria A.1]

2. The whaling team member or alternate must be clean and sober for at least 20 days prior to and during any hunt. [Certification Criteria A.2]
3. The whaling privileges of the team member or alternate must not be suspended or revoked during the term of the permit. [Certification Criteria A.3]
4. The whaling team member or alternate must read (or have read to him) the Makah Whaling Ordinance and Makah Whaling Regulations. [Certification Criteria A.6]
5. The whaling captain must approve that the member or alternate has appropriate preparation, training, physical conditioning, knowledge, and capability for his position on the whaling team. [Certification Criteria A.8]

#### B. Requirements for the Whaling Captain.

1. Understanding of all of the captain's responsibilities and obligations under the Makah Whaling Ordinance, Makah Whaling Regulations, and the whaling permit and agreement to comply with them. [Certification Criteria B.1]
2. Ensure that the canoe, harpoons, rifles, ammunition, chase and support boats, and other equipment necessary for a successful whaling expedition and subsequent butchering and processing of the whale are maintained and in good working order. [Certification Criteria B.2]
3. Mark all harpoons to be used for the hunt with a permanent distinctive mark identifying the captain. Ensure that the harpoon to be used for the initial strike is equipped with a toggle point. [Certification Criteria B.3]
4. Knowledge of hunting area, including culturally and biologically sensitive areas, and ability to safely navigate whaling vessels during a whale hunt. [Certification Criteria B.5]
5. Oversight of the Tribal and family requirements for physical and spiritual training of his whaling team. [Certification Criteria B.6]
6. Knowledge of appropriate techniques for securing, towing, landing and butchering a gray whale and preventing edible whale products from going to waste. [Certification Criteria B.7]
7. Preparation of a written plan for distribution of the whale products. [Certification Criteria B.8]

#### C. Requirements for the Rifleman.<sup>1</sup>

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<sup>1</sup> If a whaling captain believes that a rifleman is capable of efficiently, safely and humanely dispatching a whale but has not satisfied all of the criteria in Part III.C, he may petition the Tribal Council and present information of the rifleman's capabilities. The Council shall make a determination as to whether the rifleman is qualified for the hunt based on the information presented and the objective of carrying out an efficient, safe and humane hunt.

1. Significant hunting experience with rifles or police or military training.
2. Age 21 or older.
3. At a distance on land of 50 yards, place 5 out of 5 shots in an 8-inch target with a 30-06 or equivalent weapon with open sights.
4. Demonstrate proficiency at hitting a moving 8-inch target on the water at a distance of 30 feet using a qualifying whaling rifle.
5. Pass a test given by Makah Fisheries Management to demonstrate knowledge of how to quickly and humanely dispatch a gray whale utilizing knowledge of ballistics and gray whale anatomy. [Certification Criteria C.5]

**D. Requirements for the Harpooner.**

1. Demonstrate a high level of proficiency in all drills and simulations, including knowledge of preferred strike location, assembly and maintenance of harpoon, and deployment of lines and buoys and adequate strength to embed harpoon in whale. [Certification Criteria D.1]
2. Knowledge of breathing and surfacing patterns of gray whales. [Certification Criteria D.2]

**E. Requirements of the Safety Officer.**

1. Pass a test administered by Makah Fisheries Management to demonstrate knowledge of safe discharge of rifle.
2. Knowledge of the hunting area and locations where humans are most likely to occur.

**F. Requirements for the Chase Boat Skipper**

1. Demonstrate safe operation of vessel to be used as a chase boat in the hunt.
2. Knowledge of preferred approach of a harpooned gray whale for secondary harpoon strikes and to put rifleman in position to effectively and safely dispatch the whale.
3. Knowledge of hunting area, including culturally and biologically sensitive areas, and ability to safely navigate chase boat during a whale hunt. [Certification Criteria F.1]

#### **IV. Continuing Training and Recertification.**

Whaling team members and alternates are encouraged to participate in class instruction and field training as frequently as they desire and find productive. A whaling team member's certification is valid until three (3) years after completion of the certification or the last whaling expedition in which he participated as a team member, whichever is later.

Certification is specific to a position on the whaling team and is not interchangeable with certification for another position.

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## Appendix - Safety Requirements

*Safe handling and discharge of high caliber firearms pursuant to instruction in the firearm safety seminar is critical. This list is intended to capture the safety requirements that are central to training for and undertaking a successful whale hunt, and is not intended to be an exhaustive list of safety measures that should be taken by the rifleman and other members of the whaling team.*

1. If the whaling team member or alternate is unable to swim in the open ocean and tread water in the open ocean for at least 5 minutes, he must wear a USCG approved personal flotation device at all times while on the water.  
[Certification Criteria A.1]
2. The rifleman may not discharge his weapon until authorized to fire by the safety officer. Each shot requires a separate authorization.
3. The safety officer will not authorize the discharge of the rifle unless all of the following criteria are satisfied: (1) the barrel of the rifle is pointing downward toward the target area of the whale; (2) the distance from the rifle muzzle to the target area is 30 feet or less; (3) the rifleman's field of view is clear of all persons, vessels, buildings, vehicles, highways and other objects or structures that if hit by a bullet could cause injury to human life or property; and (4) if the rifleman or the harpooned whale are within 500 yards of shore, the rifle muzzle must be pointing away from shore.
4. The whaling captain will suspend the hunt, if the safety officer determines that visibility is inadequate to ensure a safe hunt. In making this determination, the safety officer shall use 500 yards in all directions as a minimum visibility distance.
5. The rifleman must wear adequate hearing and eye protection when training with the high caliber rifle on land. Hearing and eye protection is not required during the hunt or during training on the water because of the importance of maintaining voice communication between the safety officer, chase boat skipper and rifleman. If training on the water does not involve communication training, hearing protection is recommended.
6. The rifleman will not load a round into the chamber until the whale is harpooned and the chase boat is at or near the safe distance from which to fire the weapon. If possible, the safety should be on while the whale is submerged.



## Appendix 1: Whaling team certification guidelines.

### **Whaling Team Certification Guidelines**

*The Makah Tribal Council, working with Makah Fisheries Management (primarily the Makah Marine Mammal Biologist), the Makah Whaling Commission and the Makah Cultural and Research Center, will coordinate the guidelines described below so that whaling captains and the other members of a whaling team can satisfy the requirements in an efficient and thorough manner. This will include coordination of presentations, training activities and evaluation of skills and knowledge.*

*To ensure a safe, efficient and humane hunt, these guidelines have been developed for all members of a whaling team and any alternates designated on the whaling permit. A whaling captain may add further certification requirements for whaling team members to meet the physical, mental, and spiritual training requirements of the captain's family.*

#### **A. Criteria Applicable To All Whaling Team Members and Alternates.**

1. Demonstrate the ability to swim in the open ocean and tread water in the open ocean for at least 5 minutes. If unable to meet this requirement, a team member must wear a USCG approved personal flotation device at all times while on the water.
2. The whaling team member or alternate must be clean and sober for at least 20 days prior to and during any hunt.
3. The whaling privileges of the team member or alternate must not be suspended or revoked during the term of the permit.
4. Attend a seminar presented by Makah Fisheries Management on the anatomy, ecology, and behavior of gray whales. The seminar will also cover effective killing and harpooning methods, techniques for safely approaching a whale, and pertinent information from prior hunts.
5. Spiritual preparation and training in the cultural and historical aspects of Makah whaling. The whaling captain shall determine the nature of the preparation and training, but it must include attendance at a seminar presented by the Makah Cultural and Research Center on the Tribe's traditional whaling methods and equipment, use of whale products by the Tribe, and location of cultural sites in the hunt area.
6. Declaration that he has read (or has had read to him) the Makah Whaling Ordinance and Makah Whaling Regulations.
7. Attend a seminar presented by Makah Fisheries Management and experienced tribal members on the appropriate techniques for butchering a landed whale and preventing the whale products from going to waste. All members of the butchering team must also attend this seminar.

8. The whaling captain must approve that the member or alternate has appropriate preparation, training, physical conditioning, knowledge, and capability for his position on the whaling team.

**B. Whaling Captain**

1. Declaration that the whaling captain understands all of his responsibilities and obligations under the Makah Whaling Ordinance, Makah Whaling Regulations, and the whaling permit and will comply with them.
2. Declaration that the canoe, harpoons, rifles, ammunition, chase and support boats, and other equipment necessary to a successful whaling expedition and subsequent butchering are maintained and in good working order.
3. Declaration that the harpoons to be used for the hunt have a permanent distinctive mark identifying the captain and that the harpoon to be used for the initial strike is equipped with a toggle point.
4. Attend training for first aid and emergency situations on the water (or possess valid first aid and/or emergency training certificate).
5. Demonstrate knowledge of hunting area, including knowledge of biologically and culturally sensitive areas, and ability to safely navigate whaling vessels during a whale hunt.
6. Declaration that he has overseen the Tribal and family requirements for physical and spiritual training of the whaling team and that the team members are adequately prepared to undertake an efficient, safe, and humane hunt.
7. Demonstrate knowledge of appropriate techniques for securing, towing, landing and butchering a gray whale and preventing edible whale products from going to waste.
8. Declaration that a written plan for distribution of the whale products has been prepared.

**C. Rifleman**

1. Attend seminar presented by Makah Fisheries Management on the anatomy of the gray whale specific to dispatching the whale with a high caliber rifle, including review of the use of rifles and time to death from previous whaling expeditions. The rifleman is encouraged to confer with other riflemen regarding their techniques and experiences.
2. Attend field training with Makah Fisheries Management involving whale skeletons and whales on the water for visualization of effective kill shot location.

3. Attend training by Makah Law and Order and/or Makah Fisheries Management on the handling and discharge of a high-caliber rifle on land and in the chase boat. The training will simulate actual whaling expedition conditions, including use of a moving target. The rifleman must demonstrate a high level of proficiency in all drills and simulations.
4. Attend a seminar presented by Makah Law and Order and Makah Fisheries Management on firearm safety. The training will cover safety issues associated with the handling and discharge of a high caliber rifle during training exercises and the hunt, including visibility and background. The training will also review safety issues from previous whaling expeditions, including presentations by other riflemen.
5. Pass a test given by Makah Fisheries Management to demonstrate knowledge of how to quickly and humanely dispatch a gray whale utilizing knowledge of ballistics and gray whale anatomy.

**D. Harpooner**

1. Attend field training in the use of the harpoon on land and in the canoe. The training will simulate actual whaling expedition conditions, including use of a moving target. The harpooner must demonstrate a high level of proficiency in all drills and simulations.
2. Attend field training with Makah Fisheries Management on breathing and surfacing patterns of gray whales.

**E. Safety Officer**

1. Attend a seminar presented by Makah Law and Order and Makah Fisheries Management on firearm safety. The seminar will cover safety issues associated with the handling and discharge of a high caliber rifle during training exercises and the hunt, including visibility and background. The training will also review safety issues from previous whaling expeditions, including presentations by other whaling team safety officers.
2. Attend field training with Makah Fisheries Management that simulates actual whaling expedition conditions.

**F. Chase Boat Skipper**

1. Demonstrate knowledge of hunting area, including knowledge of biologically and culturally sensitive areas, and ability to safely navigate chase boat during a whale hunt.

Appendix 2: PowerPoint presentation for Makah whalers on whale training program and biology and anatomy of gray whales. The presentation is intended as a seminar for the whalers and is broken into five parts: 1) qualifications and requirements for whaling team and support personnel, 2) gray whale biology and ecology, 3) approaching and harpooning gray whales, 4) gray whale anatomy and kill location, and 5) weapons and safety overview. I will show a selection of the slides from the PowerPoint training with the goal of seeking the workshop's input on whether this seminar - along with the complementary field training summarized in the Whaling Training Program – is sufficient for preparing Makah whalers to safely and effectively hunt gray whales using the Tribe's preferred hunting method.

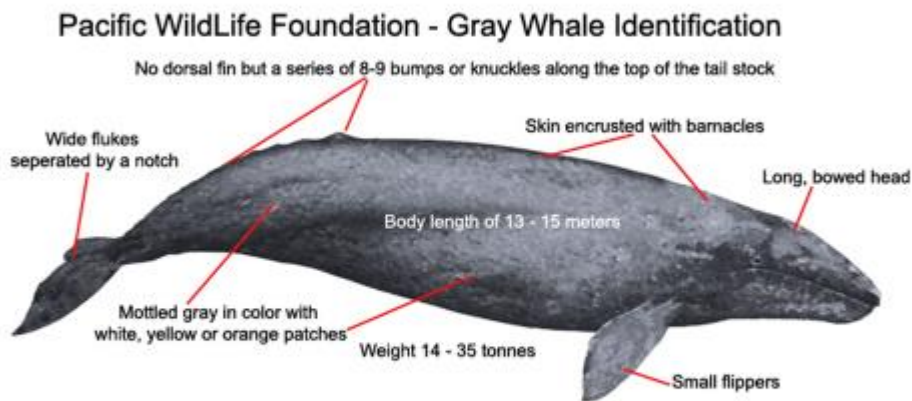
#### Presentation

Part 1: Qualifications and Requirements for Whaling Team and Supporting Personnel – slides 2-11

Slides 2-11: These slides give a background on the certifications and training required for each member of the whaling team. These slides summarize the Whaling Training Program above and are intended to provide the whalers with an overview of the certification and training requirements. They are not re-presented here.

Part 2: Gray Whale Biology and Ecology – slides 13-19

Slide 14: Identification of gray whale



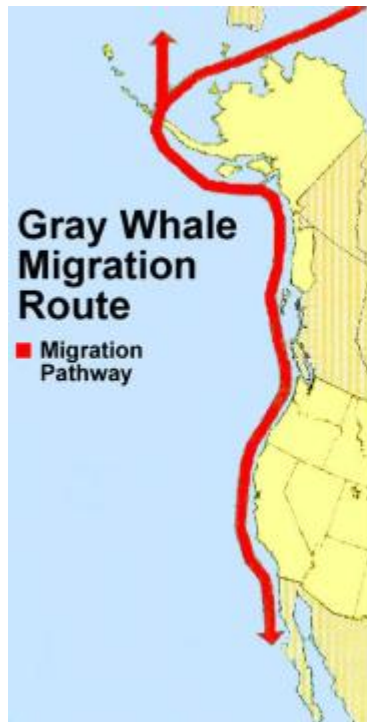
2006 Pacific Wildlife Foundation. [www.pacificwildlife.ca](http://www.pacificwildlife.ca)

$$\text{Weight} = \text{constant} * \text{Length} * \text{Girth(squared)}$$

Objective of slide: First, to inform hunters on how to identify gray whales. Sometimes humpback whales and even minke whales are seen in the same areas where gray whales can be expected. The second objective is to stress to the hunters that the gray whale mass will change drastically based on season and the whale's length. In addition to challenges in the hunt itself that a range of sizes will present, another goal is to help the whalers understand that they need to have plans for butchering and distributing a whale that could be as little as 6 tons or as large as 38 tons.

Slide 15: Presents photographs of common gray whale prey and of a gray whale feeding. The objective is to help the hunters better understand their target. Focus will be on describing the prey of the gray whales when they are being hunted and their feeding behaviors.

Slide 16: Migration timing



## Migration timing

### South bound migration

- December to mid-February

### North bound migration

- Phase A (no calves) mid-February-April; peak mid March
- Phase B (calves present) late April through May; peak in mid-May

Objective: The Makah Tribe has submitted a waiver request under the Marine Mammal Protection Act (MMPA) to the US Government with a proposed hunting season of December through May during the gray whale migratory season. The principal purpose of the season limitation is to avoid Pacific Coast Feeding Group (PCFG) gray whales. In addition to helping the whalers understand the migratory timing of gray whales, this slide will emphasize the importance of avoiding mother-calf pairs during late April through the end of May.

Slide 17: Pictures of mother-calf pairs

## Mother Calf Pairs



Objective: To educate Makah hunters on identification of mother-calf pairs. I will work with them to identify the swimming position of calves at the “hip” of the female and the distinctive large and small blow. I will also talk about some of the behaviors of mother-calf pairs, which will help in avoiding them.

Slides 18 and 19: Surfacing patterns

## Surfacing Sequence



Objective: In order to approach a gray whale to harpoon and then fire a rifle shot the hunters need a general idea of how the whale surfaces. I will also talk to them about the frequency of breathing and how many breaths are taken between dives. This slide cannot replace actual

time on the water observing the whales but should be helpful for those that cannot (and are not required to) spend time on the water training.

### Part 3: Approaching and Harpooning Gray Whales – slides 21 and 22

#### Slide 21 – Danger zone for approaching whales

## Danger Zone For Approaching Whales



Objective: To emphasize to hunters that gray whales are dangerous to hunt. The photograph has a box over it which approximately shows the range that a whale can whip its tail to hit a boat. I will explain to hunters that traditional Makah whalers approached the left side of the whale's head for harpooning. I will also remind them of the dangers of the harpoon line and the importance of watching how the harpoon line is deployed to make sure no one is caught in the line and that the line does not catch to the canoe.



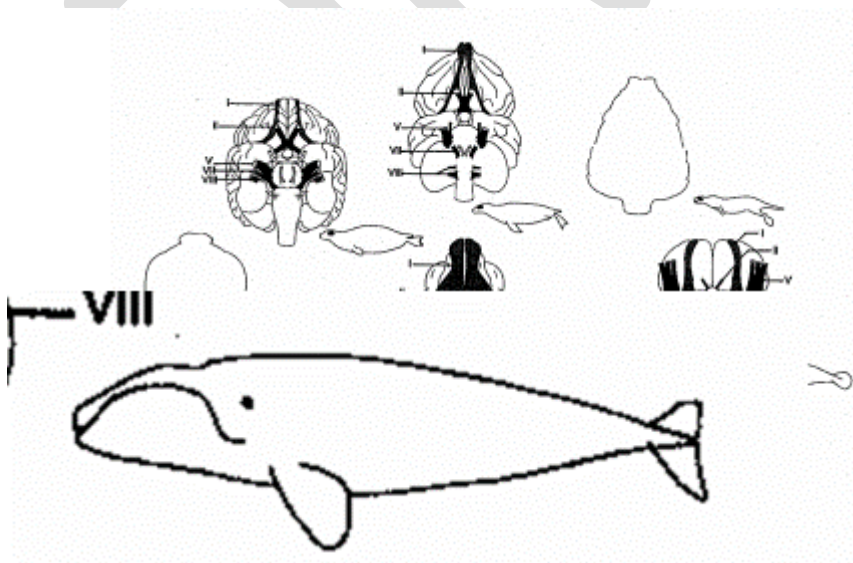
## Harpooning



Objective: Discuss how the harpoon is made and how a whale is harpooned. Traditionally the Makah had a harpoon shaft of around five meters in length that was thrust into the whale. I have also read accounts that suggest the harpoon was thrown. The harpooners will be encouraged to do what works best for them and to practice that approach.

Part 4: Gray Whale Anatomy and Kill Location – slides 24 – 37

Slide 24 – brain size relative to body size



Objective: To first explain to the hunters that the Tribe's approach to killing the whales will be to shoot the base of the brain or the first couple of vertebra with a high-powered rifle. I will then stress that shooting a whale's brain will be different from and much more difficult



than other animals they may have hunted. The illustration will be used to show that the whale's brain is very small compared to the size of the head and body of the whale. I will also emphasize that as the whale grows it becomes more challenging to shoot the base of the brain because it will be harder to visualize where the brain stem is.

Slide 25

## Guidelines for killing minke whales

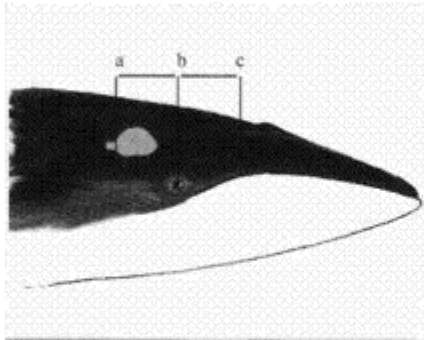


Fig. 2 Viewed laterally the brain is situated in the median plane between the eye and the dorsal surface. When projected on a horizontal line the caudal part of the brain (a), lies as far behind the eye (b), as the blowhole (c) lies in front of the eye.

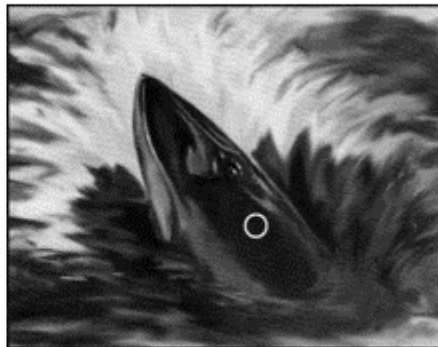
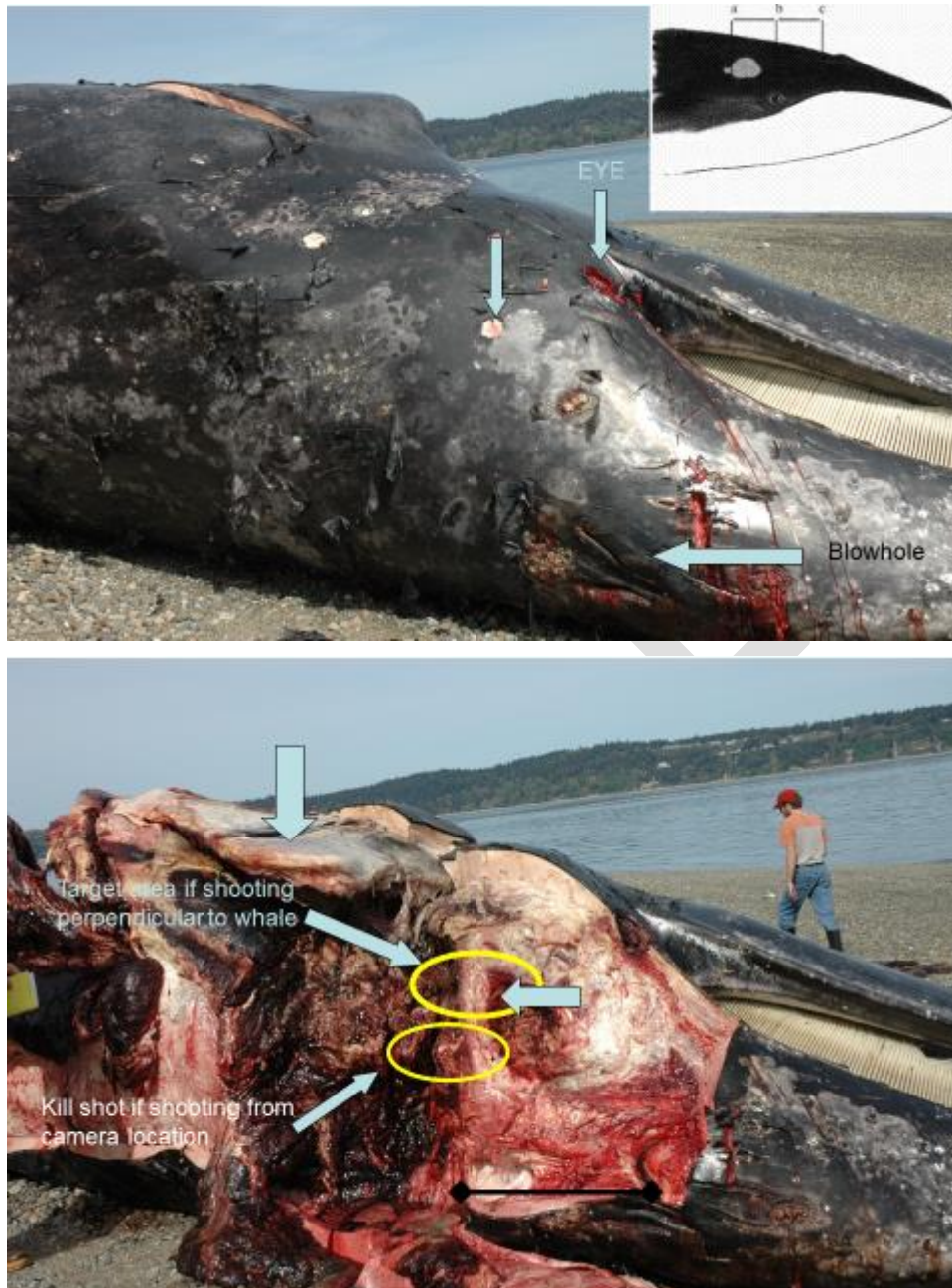


Fig. 3. Minke whale head viewed obliquely from behind, with aiming point for rifle shooting (white circle).

Objective: Present to whalers that Norwegians have developed guidelines for their hunters on how to target the brain of a minke whale.

Slides 26-28: show comparisons of the skull of minke and gray whales so the hunters understand that they are shaped differently but that the brain is located in the same general area.

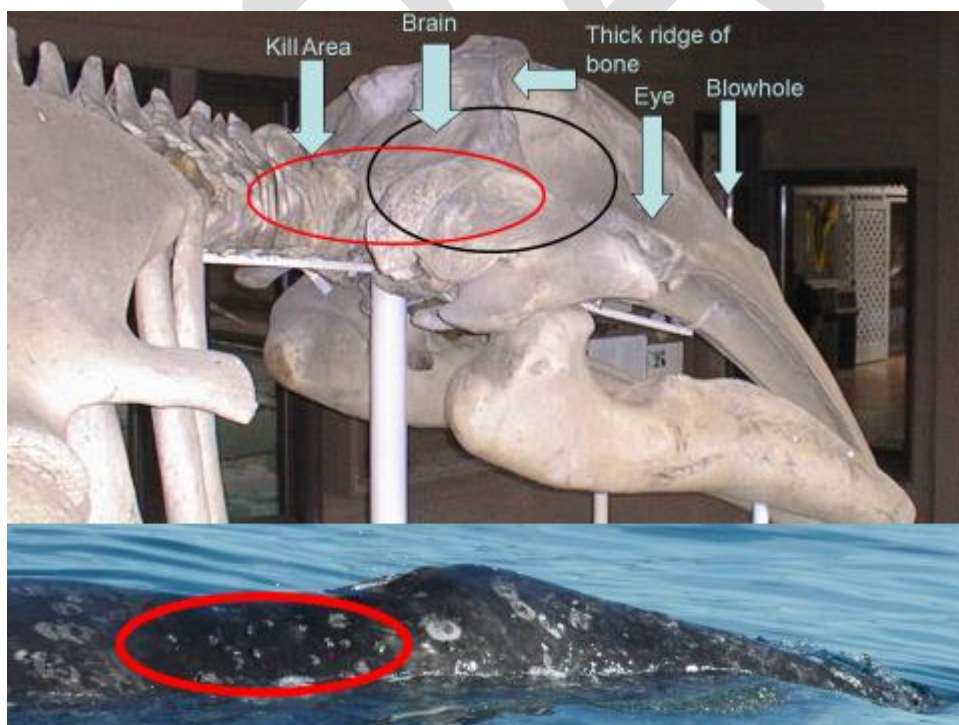
Slides 29-33: Photographs of a flensed gray whale to show the target locations, including a comparison to the minke target locations.





Objective: The primary objective is to show that the blowhole and eye are effective landmarks for locating the base of the brain and best place to target a rifle shot to quickly kill a whale. The flensing was done to help the whalers see how the landmarks can be used and to help them visualize the internal anatomy. This is very important because there will likely be few opportunities for potential riflemen to observe flensed whales to see where the brain is positioned in the body before hunting occurs on a more regular basis. The series of slides also show the flensed whale from a more anterior and posterior view.

Slide 35: view of skeleton and botched whale hunt



Objective: To emphasize to the hunters the importance of correctly aiming their shots. The whale photograph on the bottom is of a whale from an unpermitted and illegal whale hunt in 2007. I will emphasize with this slide that the shots were too far forward and too dorsal to



quickly kill the whale. The whale died from these injuries 10 hours after being shot, which is far too long (especially compared to the 8-minute time to death in the 1999 hunt where proper rifle use occurred). The goal is also to get the hunters to focus on the importance of training in making sure they can do a better job than the 2007 hunt and to focus on the subsequent slides.

Slide 36: Gray whale body condition

Figure from Bradford et al. 2008

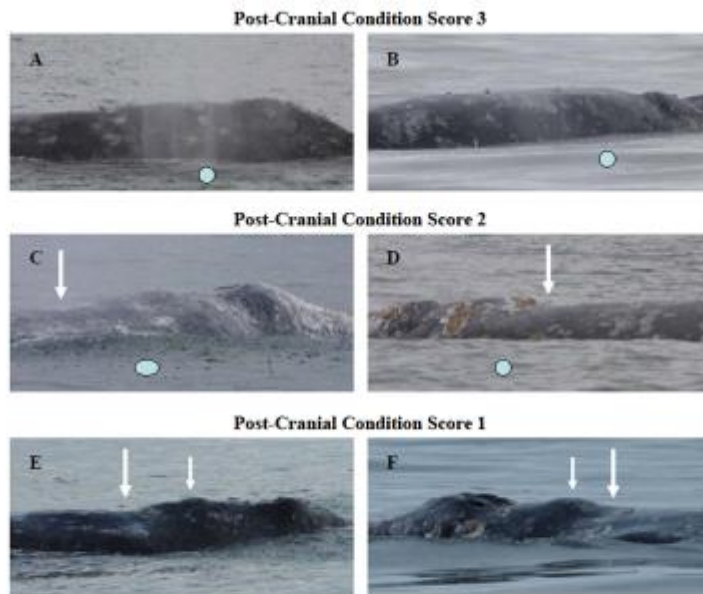


Fig. 1. Example images depicting the three-point scale used to assess the post-cranial condition of western gray whales. A score of 3 was assigned to whales with flat or rounded backs (A-B), a score of 2 was assigned to whales with a slight to moderate post-cranial depression, indicated by an arrow (C-D), and a score of 1 was

Objective: To point out that hunters can use landmarks on free swimming whales to locate the back of the whale's skull. In the 1999 and 2000 hunts the riflemen were taught to shoot at a set distance back from the blowhole for whales of one length and a different distance back for whales of another length. I do not think this was a good approach since it is challenging to determine the length of whale while it is in the water. In the north bound spring migration most gray whales are in poor to fair condition and have a post-cranial depression. Even whales in good condition have a small depression for identifying where the back of the cranium is. I also start showing whalers where I would shoot if I were targeting the whale from the position of the photograph.

Slide 37: Whale shot in 2007



Objective: In this part of the seminar, I will ask the hunters to tell me why the shots did not result in the immediate death of the whale and to identify where they would have shot the animal.

Part 5: Weapons and Safety Overview – Slides 39-45

## Comparison of rifles and rounds

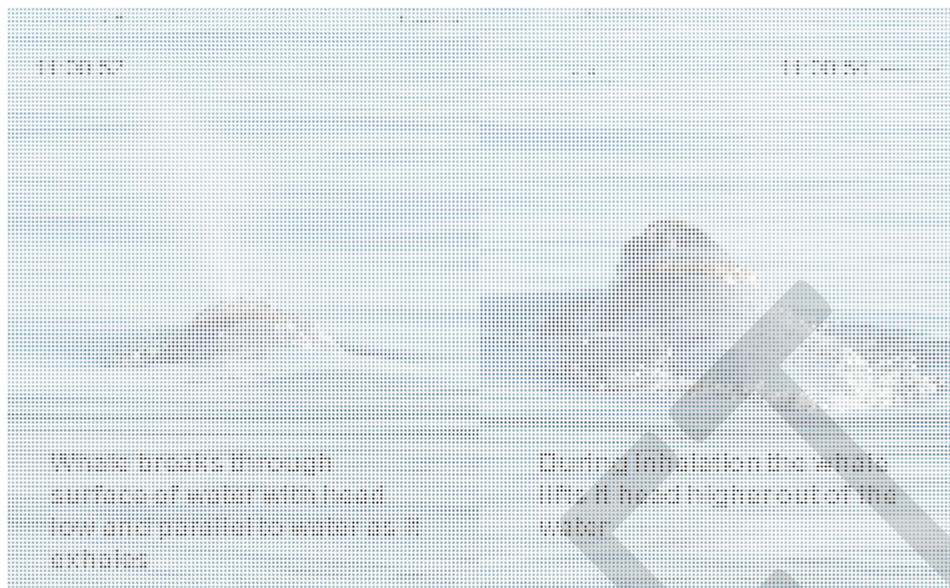
Rifle	Cartridge	Penetration		Flesh Equiv.	
		in.	cm.	in.	cm.
.30-'06	Spitzer	47	120	26	66
.458	Round Mono	79	200	44	111
.460	Round Mono	93	236	52	131
.50 LAR	Spitzer	70	177	39	98
.50 SA	Round Mono	130	330	72	183
.50 SA	Woodleigh	240	610	133	339
.577	Round Mono	240	610	133	339

Table 3. Bullet Penetration in Water

Objective: To explain to hunters how the bullet they use and respective gun are expected to work in terms of how far they shoot and how deep the shot will penetrate a whale. First I want the hunters to recognize that these high-powered rifles can fire a bullet from 2 to 5 miles depending on the bullet and that they need to be very careful when shooting and consider what is behind their target. Second, I want to impress upon them that the bullet of the .50 caliber and the .577 caliber have impressive ability to penetrate both water and flesh. Riflemen will likely have to shoot through water to target the brain successfully so they need to know that the shot should still have enough power to destroy the brain if the shot is accurate. For a 37 foot whale the distance between the skin and the condyle on the skull is 27 inches. So just about any of the guns in this table should be effective at killing the whale if shot accurately. The Tribe's plan is to use a .50 or .577 caliber rifle to increase damage of the bullet to improve likelihood of a kill shot.

Slide 40: Breathing pattern with focus on head

## Breathing pattern

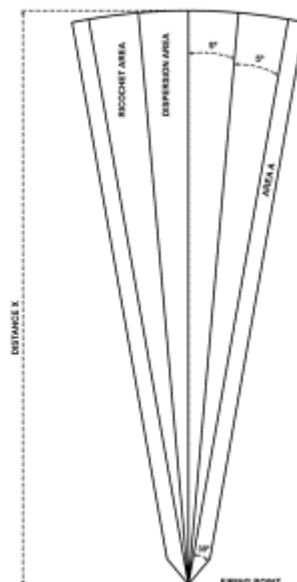


Objective: to point out to riflemen that gray whales often raise their head up prior to rolling in a dive. This is probably the best opportunity to shoot. Gray whales that are stressed also often try to look at what is stressing them which would also present a good opportunity to shoot.

Slide 41: Safety zone of shot and ricochet angle

### SAFETY REQUIREMENTS

- Safety officer makes sure the "danger zone" is clear.
- Rifleman does not fire until safety officer authorizes.
- Shots must be within 30 feet of whale and pointing rifle down – avoid ricochet.
- Point away from shore if within 500 yards.
- Minimum visibility – 500 yards
- Load round into chamber after the whale is harpooned. Keep finger off trigger between surface intervals.



Objective: To give a brief overview of safety concerns of rifle shot during the hunt. All riflemen and safety officers will attend gun safety training in addition to the whaling seminar. The main points of emphasis is that the bullet can travel a long way so you need to be sure



what is behind the shot when you shoot. The bullet potentially could ricochet or a wave could affect the rifleman's balance which requires that a broader range be considered in determining the safety zone. The safety zone applies to all human presence, including residences along the shore, other vessels and likely also to protesters on vessels, jet skis and others.

Slides 42-44 – Putting it all together to show hunters landmarks on whales and then where to shoot

## Quartering Away



## Whale directly perpendicular to platform







Objective: To help the hunters visualize where to shoot. Photographs like these will also be printed and riflemen will have to successfully identify where to shoot before they are allowed to be the rifleman for a hunt.

Where should you shoot on this  
one?



Objective: The slide will be first shown without the “do not” sign. Hunters will be asked where they will shoot. After they answer I will point out that there are houses behind the whale and no shots should be fired at the whale. Photographs like this one will also be included in the test for riflemen.