**BC Salmon Farmers Association**

# Marine Mammal Workshop
# March 19, 2013
# Maritime Heritage Centre

**Marine Mammal Workshop**
Seal and Sea Lion Management

As result of the Restorative Justice process, Grieg Seafood agreed to fund a workshop on seal and sea lion management within the salmon farming sector. The workshop was the result of the restorative justice process based on incidents that occurred at three Grieg Seafood farm sites in 2010, where California sea lions and harbor seals were accidentally drowned. The accidental drownings were reported as per Canadian law. DFO subsequently charged Grieg Seafood; however the charges were dropped January 21, 2013, when Grieg Seafood agreed to participate in the community-based restorative justice process. Prior to the incidents occurring in 2010 Grieg had not experienced any previous drowning incidents. These incidents were due to a change in behavior, an abundance of marine mammals and delays in infrastructure changes at the farm sites

**Workshop Goals**

- better understanding of seal and sea lion population and distribution
- better understanding of seal and sea lion life history and behavior
- Marine Mammal Conflict Mitigation plans
- Policy, procedures and infrastructure

**Workshop Date**: March 19th, 2013

**Workshop Location**: Maritime Heritage Centre, Campbell River, BC

**Workshop Agenda**

| | **Introduction** |
|---|---|
| 9:00 am | Pre-event Coffee |
| 9:15 am | Welcome, Introduction of Participants, Workshop Introduction |
| | |
| | **Marine Mammal Population , Distribution and Life history** |
| 9:15-10:15 am | Dr. Andrew Trites, Director, Marine Mammal Research Unit Fisheries Centre, University of British Columbia |
| 10:15-10:30 am | Session Break |
| | |
| | **Marine Mammal Mitigation Plans** |
| 10:30-10:50 am | Tom Foulds , Mainstream Canada |
| | Richard Opala, Marine Harvest Canada – excused from presenting |
| 10:50-11:20 am | Ian Francis, Creative Salmon |
| 11:20-12:00 am | Blair Billard, Grieg Seafood |
| | |
| 12:00-12:45pm | Lunch - provided |
| | |
| 12:45-2:30pm | Round table discussion |
| 2:30-2:45pm | Closing Remarks |

**Workshop Attendees**

| | | |
|---|---|---|
| 1 | David Minato | BC Salmon Farmers Association |
| 2 | Alejandra Hernandez | BC Salmon Farmers Association |
| 3 | Colleen Dane | BC Salmon Farmers Association – excused after Dr. Trite's presentation |
| 4 | Blair Billard | Grieg Seafood |
| 5 | Mike Crivea | Grieg Seafood |
| 6 | Tim Lelliot | Grieg Seafood |
| 7 | Richard Opala | Marine Harvest Canada –excused for afternoon session |
| 8 | Ian Francis | Creative Salmon |
| 9 | Brock Thomson | Mainstream Canada |
| 10 | Tom Foulds | Mainstream Canada |
| 11 | Dr. Andrew Trites | University of British Columbia |
| 12 | Jason Mulder | Mulder Marine |
| 13 | Rob Mclaughlin | All Pen |
| 14 | Jon Brown | All Pen |
| 15 | Trevor Guinard | Diveco Marine |
| 16 | Chris Engel | Diveco Marine - absent |

Information on marine mammal interactions, including data on authorized control activities, can be found through Fisheries and Oceans Canada

http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/mar_mamm-eng.html

**Presentations**

**Dr. Andrew Trites**:

Professor, UBC Fisheries Centre
Director, UBC Marine Mammal Research Unit
Director, North Pacific Universities Marine Mammal Research Consortium
Research Associate, Vancouver Aquarium
Member, PICES Advisory Panel on Marine Birds and Mammals
Member, Marine Mammal Specialist Group for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

**Summary:**

**California Sea Lions**

- Only males in British Columbia
- Data show high increase in population spikes
- Relatively low numbers in summertime
- Found in high numbers November through April in British Columbia
- Populations expected to increase
- California Sea lions will haul out on manmade structures, Stellar sea lions will haul out on manmade structures if occupied by California sea lions
- Haul outs are defined by historic use; 3 historical sites over the last 15 years now there are 6.
- Sea lions eat by sucking (negative pressure)

**Harbor Seals**

- Straight of Georgia has the highest density of Harbor seals in the world
- Population levels have flat-lined due to Orca predation and have reached k hard, maximum carrying population

**Stellar Sea Lions**

- Largest species
- Distinctly separate genetic populations exist between Alaska and British Columbia
- Large population drop in Alaska numbers
- British Columbia populations are high, Triangle Island is the site of the largest rookery
- Population shifts due Pacific Decadal Oscillation; oceanic regime shift.
- BC populations have not reached capacity, in progress of expansion of breeding sites

**Mitigation**

- Eyesight deterrents – eyesight is not as good on land, visual is better under the water and in darkness
- Generally, intimidation moves animals
- Noise usually makes the animal want to dive
- Scent is not reinforcing, seeking mortalities is a learned behavior?
- Seal and sea lion feeding is based upon visual information, memory and sense disturbances in the water column,
- Acoustic Harassment/Deterrent Devices (AHDs and ADDs ) are prohibited

**Recommendations:**

(1) sector should attend and present at the BC Marine Mammal Symposium, last week end in November, at UBC

(2) behavioral training – sector should meet with marine mammal trainers at the Vancouver Aquarium to increase knowledge on marine mammal behavior

(3) document and publish changes in the mitigation of the interactions between sea farm sites and marine mammals- i.e. use of alternate materials.

**Marine Mammal Conflict Mitigation Plans**

Each presenter was asked to speak on their company's Marine Mammal Conflict Mitigation Plan. The Department of Fisheries and Oceans, as of March 15, 2012, requires that all marine net-pen operations submit a Marine Mammal Conflict Mitigation Plan. The intention of the plan is to describe the policies, procedures and changes to infrastructure which minimizes the harmful interactions between farm operations and marine mammals. The Marine Mammal Mitigation Management Plan complies with the Condition of Licence, section 11, for a Finfish Aquaculture Licence under the Pacific Aquaculture Regulations.

**Aquaculture Regulations – Pacific Aquaculture Regulations**

11. **Marine Mammal Conflict Management**

11.1 The licence holder culturing finfish in the marine environment shall have in place a Marine Mammal Conflict Mitigation Management Plan based on the elements in Appendix XIII and ensure that it is readily available on site and that all site staff are familiar with it.

11.2 The licence holder shall ensure that all reasonable methods are used to deter seals and sea lions from coming onto conflict with the aquaculture facility operation, and shall not use acoustical deterrents.

11.3 The licence holder shall report within 24 hours of discovery any marine mammal accidental drowning mortality to the Department's Observe, Record and Report (ORR) fax line at 1-604-607-4156 or call 1-800-465-4336. The report is to contain as much information as available at the time of the event, found in Appendix XIV-A. A complete follow–up report (Appendix XIV-A) shall be submitted to the department witihin7 days of the initial notification.

11.4 Should a marine mammal be observed entangled but not dead, the licence holder shall, upon discovery, make all reasonable attempts to free the animal without harm and report to the Department's Observe, Record and Report(ORR) fax line at 1-604-607-4156 or call 1-800-465-4336, including as much of the information in Appendix XIV-A as available at the time. If the animal cannot be released and is either a California Sea Lion of Harbour Seal, the licence holder shall dispatch the animal in accordance with sections 11.5 through 11.9 of this licence.All entanglements, including those where the animal is released alive, shall be reported as per Appendix XIV-A and submitted within 7 days of the initial notification.

11.5 In the event that deterrence efforts fail , the licence holder is authorized to kill only Harbour Seals and California Sea Lions:

(a) represent an imminent danger to an aquaculture facility (infrastructure) or to human life

(b) are within or attempting to get within the containment structure array; and
(c) the area where killing is permitted is restricted to within 30 m of the edge of any net pen associated with the containment structure array

11.6 Only employees and/or agents of the licence holder who meet all the following qualifications may kill Harbour Seals of California Sea Lions under authority of this licence;

(a) possess a valid Federal Possession and Acquisition Licence and produce it upon request by the Department
(b) carry, in the case of individuals, photo identification and current contact information, and in the case of a contractor, the business name, business licence number, photo identification, and current contact information o the employee or business and produce it upon request by the Department.

11.7 All firearms used to kill Harbor Seals or California Sea Lions shall have a muzzle velocity of not less than 1,800 feet per second, and a muzzle energy of not less than 1,100 foot pounds. Ammunition must be factory produced and the box available for inspection. The use of hand loads is not permitted under authority of this licence

11.8 If a Harbor Seal or California Sea Lion is shot at under authority of this licence, every reasonable attempt shall be made to retrieve it and ensure that it is dead.

11.9 Within 24 hours, the licence holder shall make all reasonable efforts to recover every marine mammal killed under authority of this licence and, for animals that are retrieved shall;

(a) record date stamped, to scale photographs of the animal to identify the species, size, and sex, and including the tooth dentition of the upper jaw; and
(b) dispose of the carcass in accordance with applicable Federal, Provincial, and Municipal legislation and in a matter that will not attract or be accessible to wildlife, interfere with marine traffic or disturb fish habitat, or at an appropriate land-based facility.

11.10 The licence holder shall ensure that the destruction of any marine mammal is reported to the Department immediately, providing as much of the detail in Appendix XIV-B as possible to the following location: Observe, Record, and Report (ORR) Line; 1-800-465-4336

11.11 The licence holder shall submit to the Department a report of the marine mammal killed under section 11.5, as per Appendix XIV-B, within 7 calendar days of the event.

**Discussion:**
Each company presented their Marine Mammal Conflict Mitigation Plan. The policies, procedures and infrastructure listed below are company and site specific and may not be applied across all companies.

**Policy**
(i) The decision for lethal control is made at the Senior Management level and is only considered after non lethal control measures have been attempted and fully documented; culling is only done as a last resort.
(ii) Full documentation of problematic and persistent animals
(ii) No firearms are kept on site,
(iii) Increased use of predator nets.
(iv) Companies utilize recognized contractors for lethal control

**Procedures**
(vi) Lethal control is usually undertaken when a seal/sea lion has breached the predator nets
(vii) Increase in infrastructure monitoring, net inspections, based upon farm procedures, timing and historical interactions.
(viii) Training of farm site staff on policy and procedures
(viiii) Reduce predator attraction through increased removal of mortalities by increased diving and mortality uplifts

**Infrastructure Changes**
Listed infrastructure changes are site and company specific but are broadly used across companies to reduce marine mammal interactions

**(i) netting materials**
- (a) increase in break strength, differential use of materials for net panels increasing break strength, i.e. bottom panel
- (b) increased use of non traditional materials, incorporate use of Sapphire® mesh, Dyneema® and HDP poly
- (c) trialing of new technology – copper alloy has characteristics of increased antifouling, high strength, and corrosion resistance
- (d) re-design of nets to decrease movement in panels, tensioning and mending of slack in panels
- (e) increase and maintain distance from the predator net and the main holding net, walk-way width.
- (f) jump fences – maybe a combination of steel mesh and nylon net, all cage systems do not require jump fences, and are required only if animals are breaching
- (g) use of predator curtains for seasonal use, November through March, seasonal use due to bio fouling

(h) reduction in use of shark guards
(i) reduction in mesh size (predator nets and guards) to deter predation and avoid entanglement

**(ii) weighting**

(a) use of weights contained within plastic mold to reduce holes from chaffing
(b) use of independent weighting systems to maintain distance between predator and main net
(c) dive companies suggest that the separation between the predator net and the main net is critical to the success of mitigation of predation but requirements are site specific.
(d) copper alloy cages do not require external weighting.

Requests for individual company Marine Mammal Conflict Mitigation Plans can be made by contacting:

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|---|---|---|
| Mainstream Canada | – | Tom Foulds, Licence and Compliance |
| Grieg Seafood | – | Blair Billard, Production Manager |
| Creative Salmon | – | Ian Francis, Operations Manager |