

# Response Plan from the Shannon Dolphin and Wildlife Foundation in the case of an Oil Spill in the Shannon Estuary

Lonneke IJsseldijk, June 2011

Shannon Dolphin and Wildlife Foundation, Merchants Quay, Kilrush, Co. Clare

This report is written by the Shannon Dolphin and Wildlife Foundation as a guideline for what to do in the case of an oil spill in the Shannon Estuary. The first chapter will point out the roles and responsibilities of the leading authority and other involved parties, including a contact list. The second chapter will point out the different categories of an incident including a diagram of how to deal with these different categories. The third chapter will give a short explanation of the new and improved GIS-system for tracking oil spills. The fourth chapter will focus on dolphins and birds, and how to deal with those in an oil spill. The last chapter will show some concerning result from the BP oil spill on dolphins in the Gulf of Mexico.

**Keywords:** Bottlenose dolphins, Shannon Estuary, oil spill

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## 1. Leading Authority and other involved parties

In the event of an oil spill in the Shannon Estuary, the **Harbour Master**, Shannon Foynes Port Company is the Lead Authority. The coast guard has the ultimate responsibility for approving action taken by any party responding to a spillage of hydrocarbon in the Shannon Estuary area coastline and to intervene at any point of spill response actions undertaken are considered inadequate. Next to the lead authority, there are many other involved parties with all their own roles and responsibilities:

1. **Oil pollution Consortium:** Also known as the **Shannon Estuary Anti-Pollution Team** (SEA-PT). They are available to assist the coordinator for pollution incidents in the area. Members are: Aer Rianta, Chevron Ireland Ltd., Clare County Council, Electricity Supply Board Moneypoint, Electricity Supply Board Tarbert, Galway County Council, Inver Energy, Kerry County Council, Limerick City Council, Limerick County Council, Maxol, Rusal Aughinish, Shannon Foynes Port Company and Topaz Ireland Ltd.
2. **Coordinator: Harbour Master** as appointed by Shannon Foynes Port

Company. Responsible for coordinating the response activities of the Oil Pollution Committee.

3. **Oil Pollution Committee:** headed by the coordinator, includes representatives from Local Authorities and industry in addition to the Harbour Authorities. They will contact the Harbour or Local Authorities, they will start clean up procedures and they will assist in any possible way.
4. **Oil Pollution Committee/cont.:** All incidents will be reported to Irish Coast Guard, giving details of the amount of oil involved, type of oil, present and future actions and the possible impact of the incident to the environment and industry in the area. The committee has representatives from all members who send their person responsible for oil spill response.
5. **Salvage Operations:** The Regional Coordinator (who is designated by the SFPC) will be responsible for controlling any salvage operation.
6. **On-scene commander:** the officer designated to take charge of the Oil pollution response. He shall designate tasks as appropriate and establish a communications base to coordinate all radio traffic at the scene between

- watercraft, aircraft, shore radio and the command or control centre.
7. **Department of Transport:** overall responsibility for dealing with all aspects of oil pollution of the sea and coastal areas.
  8. **Irish Coast Guard:** under the directorship of Chris Reynolds. Responsible for all marine emergency services. Reporting to the Marine Pollution Response Team.
  9. **Environmental Protection Agency:** no responsibilities but could be called up for assistance.
  10. **Local Authorities:** carry out shoreline clean-ups under the control of the pollution officer.
  11. **Foundations:** The Shannon Dolphin and Wildlife Foundation and the National Parks and Wildlife Foundation will assist wherever they can and provide advice.

When a spill occurs, the spiller needs to remember the following four things: *Safety* comes always on number one. When you are sure that you and your crew is safe, try to *stop the spilling*. When you have managed to get the spill under control, *report* the spill to the Harbour Master and the Irish Coast Guard (a contact list is added in Appendix 1). They know how to deal with everything, just make sure you *cooperate* with them. There are three different categories of incidents, explained in the next chapter.

## 2. Subdivide of spill

It is important to subdivide the amount of spilling into different groups, so the people on shore know how to deal with it. For this reason, there are three different tiers:

**Tier 1:** A tier 1 incident is one in which a small spill be dealt with by personnel in the immediate vicinity and has no external impact.

**Tier 2:** A tier 2 incident is one which will require the combined resources of the organizations represented on the Shannon Estuary Oil Spill Committee. It will also require the involvement of regulatory bodies, local authorities, advisors and advisory bodies. In general, all spills in the Shannon Estuary, other than minor ones, will require a Tier 2 response.

**Tier 3:** A tier 3 incident is a major oil pollution event with potential for actual environmental,

social and economic impacts. It will require local, national and probably international resources.

Please note: **All Tiers need to be reported to the Irish Coast Guard.** A table of how to deal with the different tiers is shown in Appendix II.

## 3. Oil Spill Tracking Model

When an oil spill is reported, the Shannon Estuary Oil spill tracking model and vulnerability atlas will be used to maintain the spill.

The Shannon Estuary Oil Spill Tracking Model and vulnerability atlas is a new and improved oil spill tracking model that is set up by the Shannon Foynes Port Company. In this program, an oil spill can be followed as it spreads out, and is moved by the wind and surface currents. The loss of volatile components to the atmosphere and the formation of emulsion of the oil in the water are modeled. When a spill is reported, the response coordinator can: input the location and size of the spill, input the duration of the spill and the type of oil, see on the screen the movement of oil slicks and can predict where it may come ashore. By doing this, he can view the online relevant ordnance survey maps, aerial photographs and admiralty charts of the Shannon Estuary and coastline. Information on Special Areas of Conservation (SACs), Special Protection Areas (SPAs), areas of importance for fisheries, areas where marine mammals congregate and life on vulnerable salt marches and other ecologically sensitive areas can be obtained very quickly.

There is also information available about aquaculture sites, yacht clubs and marinas, recreational beaches, harbours and port installations and industrial sites, where cooling water is obtained from the estuary. By having this information, other information as places where vehicular access to the shore can be obtained, small harbours where boats can be used to combat oil slicks and locations where booms can be deployed gets immediately accessible. So, with the help of this GIS-system, the consequences of an oil spill might be reduced.

## 4. Effects on wildlife

Every oil spill has a different effect on wildlife and the surrounding environment. This is all depending on:

- The type and quantity of oil spilled;
- The location of the spill;

- The proximity of vulnerable areas and resources;
- The species of wildlife in the area at the time when the spill is taking place;
- The timing of breeding cycles and seasonal migrations;
- The weather at sea during and after the spill.

Oil affects marine life by coating their bodies with a sticky layer. Many oils become stickier over time and adhere to wildlife even more. Since most oil floats on the surface of the water, it can affect many species of marine animals and sea birds as they will not necessarily avoid an oil spill. Fish and sea birds are attracted to oil because it looks like floating food or a big school of fish. Oil spills may also affect marine mammals.

The type of oil that is spilled is very important and differs a lot from each other. As an example, oils such as refined petroleum products do not last as long in the marine and estuary as crude or bunker oil. They are not likely to stick to a bird or animal, but on the other hand: they are much more toxic than crude oil or bunker fuel.

The next two subparagraphs will focus on oil spills on dolphins and on birds, as these are the main two species of wildlife that live in the Shannon Estuary.

#### **Oil on dolphins**

Oil can cause many problems for the Bottlenose Dolphins (*Tursiops truncatus*) in the Shannon. Marine mammals lose body weight when they cannot feed due to contamination of their environment by oil. Dolphins may inhale oil or oil vapor which can cause damage to the airways and lung disorders. The oil can also affect the eyesight. When marine animals or sea birds ingest oil by accident, it can cause ulcers or bleeding in their stomach. Oil can also cause irritations skin, mouth and nasal cavities. Next to all the above things, there are many other things to keep in mind like passing toxic true breeding or mother milk, damage to fish eggs and larvae, stress and other inner diseases.

#### **Oil on seabirds**

Oil can cause hypothermia in birds by reducing or destroying the insulation and waterproofing properties of their feathers. Birds become an easy prey, as their feathers being matted by oil make them less able to fly away. The oil also makes the feather heavier and the sticky feathers cannot trap enough air to keep them buoyant, what can cause the birds to drown.

Birds also lose their body weight as their metabolism tries to combat low body temperature. They become dehydrated and may starve as they give up or reduce drinking, diving and swimming to look for food.

So, what happens when birds come into contact with oil? Oil damages the structure of the feather, allowing water to penetrate onto the skin. The body temperature of a bird lies between 39 and 42 degrees Celsius. When a bird gets oiled, it uses up all its fat reserves trying to stay warm. When they cannot longer keep themselves warm, they will try to get out of the cold water by beaching itself or by jumping onto boats and rocks or anything else they can reach. They will no longer be able to hunt, they will become waterlogged and they possibly drown. Besides that, they are hungry as they cannot hunt. This is because they are not able to dive anymore and their body condition will continue to deteriorate. They also get dehydrated as they get their fluid from their food.

When a bird beaches itself, it is cold, hungry, dehydrated, thin and frightened. Washing it immediately will almost surely kill it. Early capture improves rehabilitation success rate, because the birds which are still on the water are still strong. Capturing and bird can be difficult and dangerous and the washing of them is very hard on the bird. The bird needs to be strong, rested, re-hydrated and have restored some body fat to deal with the stress of the wash.

With an early response, life can be saved. Make sure to provide the following when you want to save oiled birds:

- Heat – if it's too warm for you, it is probably perfect for the bird;
- Fluid – stomach tubed every couple of hours;
- Soft surface – to protect keels and heels
- Quiet – minimize stress
- Dark – will calm the bird

The Shannon Foynes Port Company have purchased equipment to handle up to 200 birds (Beades, 2011).

## **5. Dolphins and the BP oil spill**

The deepwater Horizon Oil Spill in the Gulf of Mexico on the 20<sup>th</sup> of April 2010 was the largest accidental marine oil spill in history of petroleum

industry (Telegraph, 2010). The spill was finally stopped after three months, but had released about 4.9 million barrels of crude oil (Hoch, M. 2010). The spill caused huge damage to marine, wildlife, tourism and fishing industry in the Gulf of Mexico.

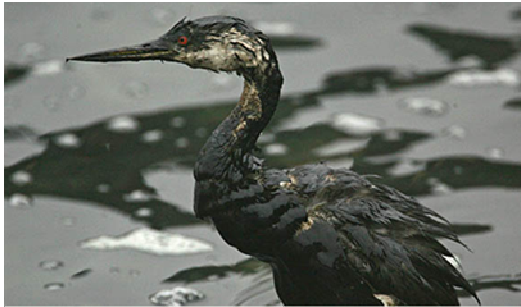
Lately, there seems to be a change in bottlenose dolphin strandings numbers in and around the Gulf. Large numbers of bottlenose dolphin carcasses are washing up on the shore along the coast of Mississippi and Alabama. Within this,

there is an abnormal high number of stillborn and newborn dolphins that washed up (Krech, R. 2011).

Scientists have confirmed that they found oil on the carcasses which can be linked to the BP oil spill. The National Oceanic and Atmospheric Administration (NOAA) said that of the 406 dolphins that washed up ashore in the last 14 months, 15 of them had oil on their bodies. Of that number, eight have been linked to the oil spill from BP. This raises new concern about the true impact the oil disaster had on the food web (Herrmann, L. 2011).

## Acknowledgements

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## Literature

Beades, P. (2011) Presentation: What happens when birds come into contact with oil?

Herrmann, L. (2011) Scientist confirm oil on dead dolphins came from BP oil spill.

Hoch, M. (2010) New estimated puts gulf oil leak at 205 million gallons.

O'Sullivan, J. (2011) Presentation: Oil spillages and marine life, the new oil spill tracking model and updated information on vulnerable areas.

Krech, R. (2011) BP oil spill may be linked to dolphins deaths in Gulf.

Shannon Foynes Port Company (2010) Shannon Estuary: Oil/HNS (chemical) spill contingency Plan.

Telegraph (2010) BP leak the world's accidental oil spill.

## Appendix I: Contact list

Contact	Office Telephone	Home Telephone	Mobile	Fax
IRCG Duty Operator	999/ 01 6620922			01 6620795
Garda	999			
Department of Health, Mid West Board	061 316655			
Limerick Search and Rescue	061 416653	061 326240		
SFPC Pollution Coordinator - A. Coghlan	069 73 103	061 393289	087 2542264	069 65552
SFPC Pollution Officer - H. Conlon	069 73 103	061 331712	087 90673308	069 65552
SFPC Duty Harbour Master: Day	069 73 103		087 2560427	069 65552
SFPC Duty Harbour Master: Night	069 73 103		087 2542266	069 65552
Press/Media Advisors M. Walsh	061 397625		087 2556494	
Department of Environment	01 6793377			
Shannon Regional Fisheries Board Eamon Cusack	061 455171	061 454461	087 2425017	
Limerick City Council – Paul O’Grady	061 407193		087 6784264	
Limerick County Council – M. Reidy	061 496000	061330487	087 2113394	061 496001
Clare County Council – Sean Ward	065 6821616			
Kerry County Council – Mike Boyce	066 7121111		087 9878198	
Galway County Council – John Frawley	091 509000 x236		087 2310474	
GIS Adviser – Aidan McGrath	065 6892250		086 6388883	
Oil Spill Response Limited	00 44 1703 331551		00 44 1703 331972	
HNS – Breamer Howells (24hr)	00 44 1646 697041			
HNS – Enva (24 hr)	057 8678600			
SDWF – Simon Berrow			087 8545450	

## Appendix II: Different Tiers

