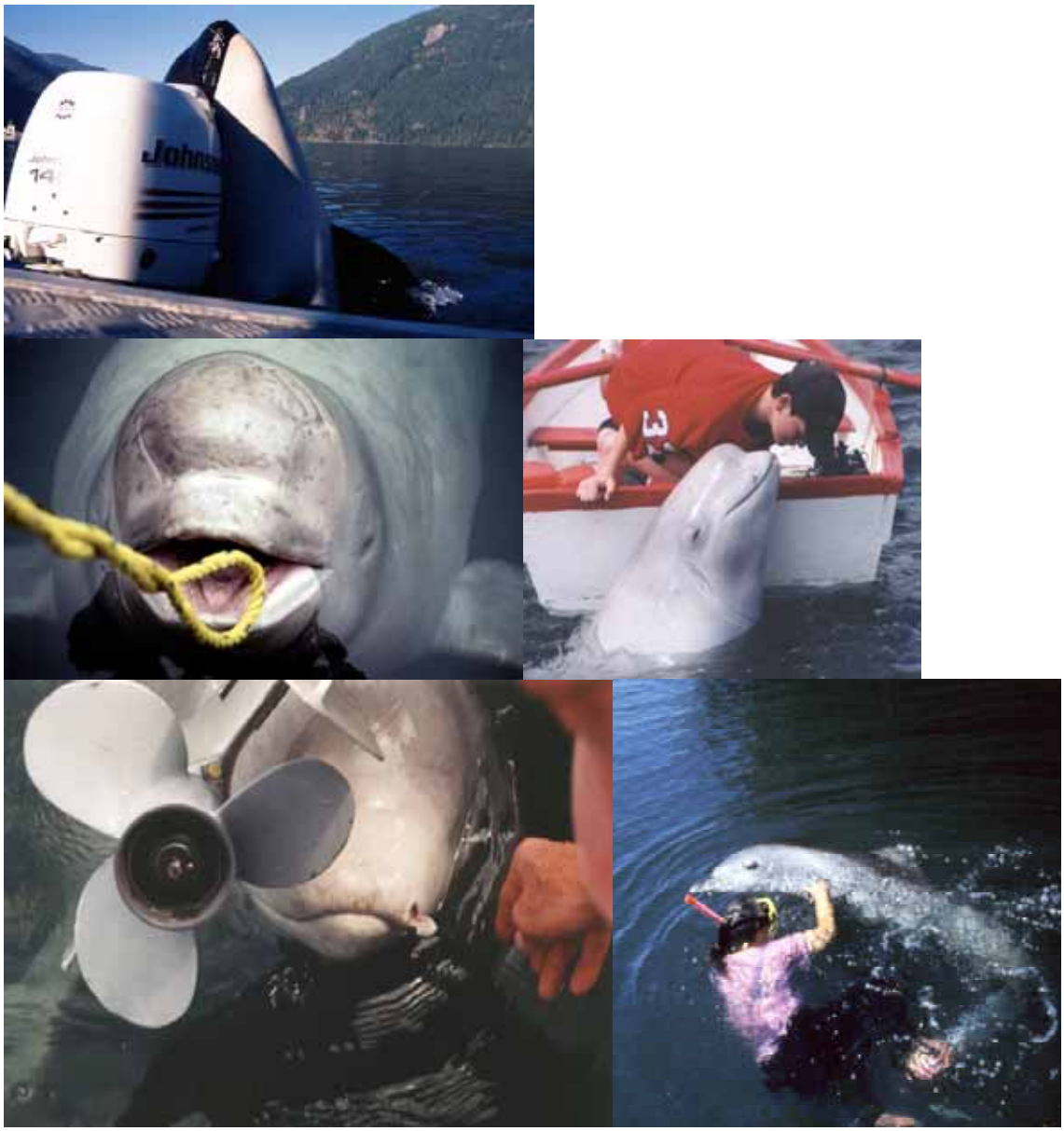
RESEARCH AND MANAGEMENT OF SOLITARY, SOCIABLE ODONTOCETES

Workshop Workbook



SAN DIEGO, CALIFORNIA
DECEMBER 10, 2005

INFORMAL INTERNAL DOCUMENT INTENDED FOR WORKSHOP PARTICIPANTS

Sponsored by: WDCS

SECTION I

WORKING AGENDA

Workshop on the Research and Management of Solitary, Sociable Odontocetes

December 10, 2005 8:30 AM– 6:00 PM
Manchester Grand Hyatt Hotel Conference Center, San Diego, California

Toni Frohoff, TerraMar Research, frohoff@earthlink.net
Courtney S. Vail, Whale and Dolphin Conservation Society, courtney@wdcs.org
Mike Bossley, Whale and Dolphin Conservation Society, bossley@internode.on.net

The workshop will be held in the Douglas D meeting room, in the Manchester Grand Hyatt (location of the SMM Biennial). The Douglas D is located on the Lobby Level behind the hotel registration desk.

PREPARATION

7:30-8:30 Technological set-up for presenters
8:00-9:00 Extended Registration

INTRODUCTION

8:30-9:00 Coffee and Gather

9:00-9:30 Introduction and Overview
-Welcome and Introductions- *Mike Bossley*
- Review Workshop Agenda and Goals- *Courtney Vail*
-Workshop Guidelines: Clarify and Agree-*Toni Frohoff*

9:30-9:45 Christina Lockyer/NAMMCO/Norway
"Overview of Solitary, Sociable Odontocetes"

9:45-9:50 Introductory Session Q & A

SESSION I *Case Studies and Profiles: Bottlenose Dolphins*

9:50-10:05 Mark Simmonds/WDCS/UK
"Management and welfare considerations relating to 'Georges', a solitary male bottlenose dolphin, during his residency off the English coast (March-September 2002)"

10:05-10:20 Mike Bossley/WDCS/Australia
"Jock: Dolphin Therapy in Reverse"

10:20-10:35 Oz Goffman/University of Haifa/Israel

"*Effects and implications of long term (5.5 years) association between an unsupervised dolphin and human swimmers, based on interspecific underwater interactions of "Holly", a solitary sociable bottlenose dolphin (Tursiops aduncus) from the shores of Nuweiba, Sinai, Egypt"*

10:35-10:45 COFFEE BREAK

10:45-11:00 David Day/UK/France

"*Observations and Video Footage on the Interaction of 3 Lone Sociable Bottlenose Dolphins with Humans, Including Records, Observations and Problems with Local People from the French group Reseau Cetaces'."*

11:00-11:15 Diana Reiss/Wildlife Conservation Society/U.S.

11:15-11:30 Session I Q & A

SESSION II *Case Studies and Profiles: Belugas*

11:30-11:45 Cathy Kinsman/Whale Stewardship Project/Canada

"The Whale Stewardship Project: Research and Stewardship of Solitary Sociable Beluga Whales in Eastern Canada"

11:45-12:00 Dana Hartley/National Marine Fisheries Service (NMFS)/U.S.

"*Managing Solitary Beluga Whales in the Northeastern US - the story of "Poco"*

12:00-12:10 Session II Q & A

12:10-1:10 LUNCH

SESSION III *Case Studies and Profiles: Orcas*

1:10-1:25 Ken Balcomb/Center for Whale Research/U.S.

"Early Observations of Solitary Young Killer Whales"

1:25-1:40 Suzanne Chisholm/Michael Parfit/Mountainside Films/Canada

"Luna"

1:40-1:55 Donna Sandstrom/ORCA Alliance/U.S.

"Working together for Springer: the Orphan Orca Fund."

1:55-2:10 **Marilyn Joyce/Department of Fisheries and Oceans (DFO)/Canada**
"Pacific Solitary Killer Whale Case Studies L98 and A73: Considerations for Management Decisions"

2:10-2:25 **Session III Q & A**

SESSION IV Research and Management Considerations: Overviews

2:25-2:40 **Toni Frohoff/TerraMar Research/U.S.**
"Mitigating High Risks for Various Species of Solitary Odontocetes: Options and Alternatives"

2:40-2:55 **Kim Bassos-Hull/ Mote Marine Lab/U.S.**
"A Demonstration of the Need to Increase Public Awareness of Problems Associated with Humans Interacting with Wild Dolphins: A Case Study Near Sarasota, Florida"

2:55-3:10 **Session IV Q & A**

3:10-3:20 **COFFEE BREAK**

SESSION V *Group Discussion: Addressing Current Problems and Future Challenges*

3:20-3:30 **Review objectives (below) and discuss defining "success" for solitaries**

3:30-5:10 **Identify recommendations and action items**

3:30-3:40 **Address Objective #1**
3:40-4:05 **Address Objective #2**
4:05-4:20 **Address Objective #3**
4:20-4:30 **Address Objective #4**
4:30-5:10 **Address Objective #5**

5:10-5:20 **Review: What's Missing?**
5:20-6:00 **Wrap up and Next Step Action Items**

Goals and Objectives for Workshop on Solitary, Sociable Odontocetes
December 10, 2005 – San Diego, California

*Overall Goal***:** To improve the effectiveness of individuals, organizations, and agencies working to improve research and management of solitary, sociable odontocetes internationally by a) developing policy, management/stewardship, and research recommendations and b) improving the exchange of information, communication, coordination, and collaboration between all involved parties.

Meeting Objectives:

Objective #1: Identify the most serious dangers to the safety of solitary cetaceans and humans.

Objective #2: Identify what aspects of protecting solitaries and humans (through management/guidelines, policy, and research):

a) have proven to be the most and least successful at mitigating these dangers
b) have not yet been adequately explored but show the most promise
c) which of the above can be the most generalized to most situations (e.g., species and locations).

Objective #3: Evaluate the effects of interacting with solitaries as part of recreation and management/stewardship.

Objective #4: Identify origin of solitary odontocetes

a). why do animals become solitary
b). are solitaries becoming more common?

Objective #5: Identify the most important needs and recommendations for:

a) Government/Legal policy
b) Management/Stewardship
c) Research
d) Establishing an international communications network for exchange and dissemination of information and updates on solitaries

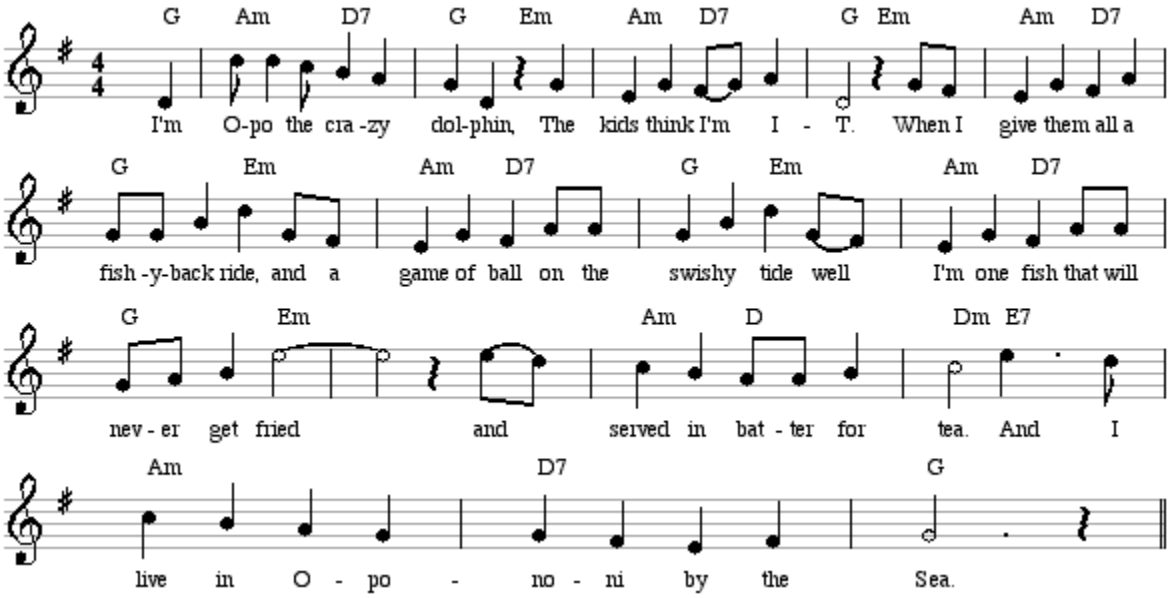
Workshop Overview: Observations of solitary odontocetes who regularly engage in 'sociable' interactions with boaters and swimmers appear to be increasing internationally. In the past, these animals have typically been small delphinids and, most commonly, bottlenose dolphins. However, there has been a recent increase in the occurrence of other solitary sociable odontocetes; specifically, orcas and beluga whales. Although these animals provide unique opportunities for research, their interactions with humans typically warrant immediate, intensive, and innovative methods of management to minimize hazards to humans and the animals. These situations have been the focus of much recent deliberation and debate among scientists, managers, and the public. Relatively few studies of these animals have been published and even less information is available about their management. Thus, management of these situations is often undertaken with little knowledge of previous successes and failures involving the same or similar species. This workshop will provide a rare and invaluable opportunity for researchers and managers from around the world to present new case studies and information, share video footage, evaluate various methods of research and management, and discuss current problems and possible solutions.

SECTION II

WELCOME!

Opo the Friendly Dolphin

Crombie Murdoch, 1956



Welcome! to the first workshop focused on the solitary animals that have found their way, and continue to find their way, into our coastal communities and often-times into our hearts. We anticipate presenters from over 15 countries discussing at least five different species and representing a spectrum of interests: scientists, government agency representatives, filmmakers, naturalists, and animal protection and conservation advocates. This workshop is an opportunity to share the experiences we have had with solitary whales and dolphins, and to discuss areas of commonality in research, management approach, and public education and outreach. These animals pose challenges and dilemmas, where a public eager for interaction may be seen to either benefit, or threaten, the health and welfare of these seemingly wayward animals. It is entirely possible that each animal and its circumstances are unique, requiring tailored and individualized responses and management approaches. Or, maybe it is possible to identify the commonalities that link these solitaries, if not in space and time, to successful approaches to ensure their survival and welfare in the midst of public interest and safety. It is perhaps easier to default to an approach (in a perfect world), where we would be able to 'let nature take its course' with these animals. However, because of their choice, whether by free-will or biological and social requirement, to seek out the companionship and proximity of humans, these animals require special attention and deserve a deliberate plan of action.

It is not uncommon in the mammalian world to find solitary individuals who remain isolated for short or long periods of time and involve more or less spatial separation from their familial or social groups. A variety of factors can account for this separation, including food availability, predator pressure, habitat destruction or reproductive strategies. However, other factors, such as

human interference, disease, or some other form of trauma or the occurrence of special circumstances may also be significant in some cases. Sometimes a solitary state is temporary, perhaps triggered by the loss of a companion or group. The *reasons* some members of the toothed-whales (Odontocetes), and especially of the Delphinidae family, become solitary may be common to other mammalian species, but the *response* of these dolphins to the solitary state, including a redirection of social responses to humans and other species, could be unique to Delphinidae. Whatever the circumstances, it appears that solitary dolphins are the victims of circumstance, rather than being biologically aberrant misfits of dolphin society.

Scientific documentation of on-going sociable interactions with odontocetes have been primarily represented by bottlenose dolphins *(Tursiops truncatus)*. However, several occurrences of solitary, sociable beluga whales *(Delphinapterus leucas)* have been documented, as well as sociable interactions with solitary sperm whales *(Physeter macrocephalus),* killer whales *(Orcinus orca)* and even pilot whales *(Globicephala macrorhynchus)*.

To date, about seventy solitary and sociable dolphins have been recorded worldwide. Of the solitaries studied, the majority are sociable—to some degree, these animals allow close body contact and actively seek human interaction or companionship. Because of the gregarious nature of dolphins, some of these individuals have formed long-term and extremely close association with humans or other cetacean species. However, this orientation of social response toward another species is most likely a consequence of the solitary lifestyle, rather than a cause of it. Furthermore, the popularity of human interactions with free-ranging cetaceans has increased substantially over the last several decades internationally, only exacerbating the issues associated with the protection and management of solitary, sociable odontocetes.

Injury to dolphins and the public

Solitary and sociable wild dolphins display many typical behavioral patterns that may result in injury or increase the potential for conflict with human activities that may eventually result in injury. In fact, odontocetes exhibiting the highest degree of contact with humans are generally at the greatest risk of injury, illness and death. In particular, incidents in which humans intentionally injured or killed animals involved with sociable interactions were reported almost exclusively for solitary animals and animals regularly provisioned with food.

The types and nature of 'sociable' interactions vary widely, but are generally characterized by cetaceans initiating or allowing close and sustained proximity to humans (swimmers, waders, boaters or people on docks) and allowing sustained or repeated interaction (tactile, acoustic and visual) with humans. Some of these behaviors, ranging from 'affiliative,' to possibly aggressive, include:

- Closely following and approaching boats;
- Intensive, repetitive and frequent exploration and manipulation of boats, motors, propellers, cameras and other objects;
- Postural and vocal mimicry of a person's actions or motor sounds;
- Sustained and repeated tactile contact with person;
- Display of sexual action, including the rubbing of genitalia against an object or person;
- Biting or attempting to bite person;

- Hitting or ramming by abrupt body contact with person;
- 'Mouthing' person by placing and holding mouth forcefully around person's body part;
- Forcefully pushing swimmer or small boat;
- Threat gestures such as abrupt head shakes, jaw claps and abrupt body slaps

In many instances, these behaviors, and the responses that they elicit from the public, may result in threats to, and long-term indicators of, survivability, including a). physical condition (obvious boat strikes, ecological impacts, entanglement in fishing gear, vandalism or retaliation by a frustrated or angry public, or pathological indicators; b). cumulative behavioral state (habituation, tolerance, sensitization); c) productivity and fitness (individual, group and population level—for instance, the inability to independently and successfully forage; or the removal of viable genetic material from a depleted species); and d). habitat use and distribution (beyond short-term maneuvers of animals relative to disturbance). Monitoring and interpreting these activities and behaviors is paramount to developing a protective management plan for each animal.

In the early summer of 1955, a lone bottlenose dolphin swam into the Hokianga Harbor in the far North of New Zealand and adopted the people of Opononi as her family. Known as Opo, she became a favorite, first of the local community, then of holiday visitors, and finally of the whole nation. According to reports, Opo reacted well with almost everyone she came in contact with, and especially with a thirteen-year old girl, Jill Baker. Opo and formed a very strong bond with Jill-- Opo would tow her around the bay, and the girl would teach Opo tricks. Opo favored young children, and was especially careful and gentle when she was around them, seeming to know how fragile they were.

As thousands of visitors started to arrive at Opononi, a growing fear for her safety was recognized. Many believed such extreme interaction with humans would harm her. In response, the government passed a law limiting human interaction with Opo. Not everyone welcomed this law, including local fishermen who blamed Opo for their empty nets. Others viewed this law, which protected all dolphins in the Hokianga harbor, as a threat to the sovereign activities and rights of man over nature. The day after the law was passed, Opo was found dead. It was determined that during the night, a fisherman had blown her up with gelignite. The whole nation was devastated. The local community held a public funeral, and erected a statue of her in remembrance of her loving spirit.[1]

This well-known solitary provides an illustration of the challenges, contradictions and potential heart-ache posed by 'solitary sociables.' Our collective reactions to Opo reveal the contradictory forces of human nature that may ultimately determine the fate and welfare of any solitary: loyalty and envy; gentleness and brutality; trust and skepticism; and generosity and avarice. Should we speak of 'managing' these wild animals, or focus primarily on the management of the humans that inadvertently or intentionally interact with these solitaries?

We look forward to the forthcoming discussions and deliberations, and hope that they might make a tangible contribution to the research and management of solitary, sociable odontocetes.

[1] Johnson, Eric and Elizabeth Lee. 1994. *Opo, The Hokianga Dolphin*. David Ling, Auckland Press.

Please note that the contents of this workbook are a work in progress, and serve as a begining to collate and compile existing knowledge related to 'solitary sociables'. Thank you for tolerating last-minute submissions and our inability to correct every formatting and other imperfection in this workbook. **This draft internal document will be incorporated into a formal workshop 'Proceedings' to be published for public distribution at a later date. These Proceedings will include the Recommendations from this workshop, and other additional materials and information provided by you, the participants.**

Thank you for your time and interest!

The Workshop Convenors

SECTION III

PRESENTERS SUMMARIES

1. **Christina Lockyer:** *Overview of Solitary, Sociable Odontocetes*

2. **Mark Simmonds:** *Management and welfare considerations relating to 'Georges', a solitary male bottlenose dolphin, during his residency off the English coast (March-September 2002)*

3. **Mike Bossley***: Jock: Dolphin Therapy in Reverse*

4. **Oz Goffman:** *Effects and implications of a long term (5.5 Years) association between an unsupervised dolphin and human swimmers, based on interspecific underwater interactions of "Holly", a solitary sociable bottlenose dolphin (Tursiops aduncus) from the shores of Nuweiba, Sinai, Egypt.*

5. **David Day:** *Observations and Video Footage on the Interaction of 3 Lone Sociable Bottlenose Dolphins with Humans, Including Records, Observations and Problems with Local People from the French Group Reseau Cetaces*

6. **Diana Reiss:**

7. **Cathy Kinsman:** *The Whale Stewardship Project: Research and Stewardship of Solitary Sociable Beluga Whales in Eastern Canada*

8. **Dana Hartley:** *Managing Solitary Beluga Whales in the Northeastern US—The Story of Poco*

9. **Ken Balcomb:** *Early Observations of Solitary Young Killer Whales*

10. **Suzanne Chisholm:** *Luna*

11. **Donna Sandstrom:** *Working together for Springer: the Orphan Orca Fund*

12. **Marilyn Joyce:** *Pacific Solitary Killer Whale Case Studies L98 and A73: Considerations for Management Decisions*

13. **Toni Frohoff:** *Mitigating High Risk Situations for Various Species of Solitary Odontocetes: Options and Alternatives*

14. **Kim Bassos-Hull:** *A Demonstration of the Need to Increase Public Awareness of Problems Associated with Humans Interacting with Wild Dolphins: A Case Study Near Sarasota, Florida*

Overview of Solitary, Sociable Odontocetes

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What do we mean by the term "Solitary, Sociable"? "Solitary" means alone for most of the time, but not necessarily for life. Many apparently solitary dolphins have at some point in their lives, rejoined a social group or mated, and if female given birth (e.g. "Holly" alias "Olin" in the Red Sea). "Sociable" is generally interpreted in an anthropomorphic sense as apparently seeking and enjoying human company.

Odontocetes, chiefly of the dolphin variety, have featured in the lives of mankind for thousands of years. Many human-dolphin interactions have evolved as myths and folklore in aboriginal and ancient civilisations. Stories of boys riding dolphins and dolphins rescuing drowning men are common, e.g. tales of Pliny the Elder.

The reasons for being solitary may be various, but may include abandonment by or loss of a family group, accident or sickness, aggression within a family group, and life history stage (e.g. puberty). Odontocetes are naturally inquisitive creatures, and their curiosity may lure them into adopting eccentric behaviour either in the short or longer term. Contrary to popular belief, most so-called solitary dolphins are not abnormal, but are undergoing a life history phase which frequently passes. Many such animals have subsequently integrated back into schools, or if not, have at least provided concrete evidence of regular social contact with conspecifics (e.g. actual observation or acquisition of tooth rakes).

Typically, the solitary dolphin adopts a relatively small home range in an area, and then begins to explore and take an active interest in objects and activities in the vicinity. The dolphin may stay in this area for a variable period of time, yet also adopt one or more other small home ranges in a wider area, and alternate visits between them. What determines the pattern of movements among these home ranges depends on the activities there and not least, presence of prey. "Beaky" (alias "Donald"), an adult *Tursiops*, first appeared off the British Isles west coast in March 1972. His home range slowly moved southwards in the British Isles. Finally he disappeared in August 1978. "Beaky" could be identified and tracked because of his distinctive marks and scars; the most distinctive being a healed bullet wound on the right side of the head and a bright white mark posterior to the blowhole.

Objects and activities which frequently attract the dolphin's interest are fishing boats and fishermen, divers and small boats, as well as mooring buoys and anchor chains. The subsequent interactions with such may become obsessive in character, and occupy many hours of repetitive behaviour. Interactions can sometimes become violent in character, and the animal may try to "defend" or "possess" the object , and even a person with whom it has been playing with. At this point, interactions may become unpredictable and dangerous.

Familiarisation with people may take a long time, and actual physical contact may or may not take place eventually. Typically, initiation of physical interaction may take up to several years, but once this barrier has been crossed, interactions may be highly tactile and interactive – even aggressive.

Solitary, sociable dolphins of both sexes have been recorded, and juveniles – such as "Simo" off west Wales, adults and old animals.

Often a dolphin will adopt a small boat and follow it even beyond the normal home range, often interacting with it as it is underway. Perhaps this explains how animals find new home ranges and suddenly leave their familiar surroundings – sometimes for ever.

Interactions may not just be restricted to in-water experiences but also contact with people onboard boats. Often, the dolphin can be summoned by the sound of an engine, or specific calls from the fisherman or anchor chain-clanking. Sometimes tactile behaviour with objects and people can become overtly sexual in nature.

The occurrence of solitary, sociable dolphins is both an exciting and delightful event, but over time, the popularity that this attracts brings a whole suite of attendant problems. Initially there may be few problems, but as the dolphin becomes more familiar with an area and its inhabitants, difficulties may arise through tourism and unhelpful interactions with fishermen and others earning a living from the sea.

Solitary, sociable dolphins are often notorious for interfering with mooring lines, lobster pots, and even biting boat pontoons and striking vessels. Other more dangerous pastimes may involve pushing swimmers out to sea, pushing them to the seabed and generally not allowing them freedom to get out of the water. At this point, people on the water and swimmers especially, need to be educated that one enters the water into the dolphin's world where dolphin rules of behaviour apply.

Public awareness and educational guidelines on how to behave with such animals are as much for the protection of people as for the safety of the dolphin itself. Generally, the greatest risks appear to be in relation to adult males. Often, the presence of too much activity and too many people trying to gain their attention may result in aggressive and potentially dangerous behaviour. The risk is then that people will return the aggression or harm the dolphin in some way. Sadly, many examples of this are on record: e.g. "Beaky" 's bullet wound delivered by an angry fisherman in the Isle of Man, and the New Zealand female dolphin "Opo" 's untimely death following unfavourable human interactions. However, dolphins may also respond to persistent human interference and aggression in violent ways as was experienced off Brazil when a sociable friendly dolphin butted a swimmer and ruptured his spleen. The swimmer subsequently died.

These are extreme examples, but clearly many of such incidents arise as a consequence of the lack of public understanding that such dolphins are wild animals, completely at home in their environment, and following their own codes of behavioural conduct. People need to be taught this and treat the animals with respect at all times.

This completes a very brief review, but hopefully provides food for thought on what can be a most delightful interaction.

Some references

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Management and welfare considerations relating to 'Georges', a solitary male bottlenose dolphin, during his residency off the English coast (March-September 2002)

Mark Simmonds
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Brief description of your work

Focal Species: Bottlenose dolphin *(Tursiops truncatus)*

Professional/personal Capacity: WDCS was involved as cetacean experts and members of a Coalition established to protect Georges in UK waters.

1 **Name used to refer to animal**: Georges/Randy. Male bottlenose dolphin
2 **Location (please be specific):** Off Weymouth, Dorset, UK
3 **Presumed age when first observed (and last or most recent):** estimated at between 3-6 years in 2002, although believed by some to be older
4 **Whether or not the animal is still alive (if known)** Sighted off France in late August, 2005. Believed to be still alive at time of writing.

1). Most serious concerns for cetacean safety during Georges' time off Weymouth:
i) **Boat strike**: Georges had the habit of pushing his beak or flanks right up against boat propellers, incurring quite nasty wounds on several occasions to these areas. The dolphin was frequently seen with fresh wounds, particularly to the left flank and to the trailing edge of the dorsal fin on the left hand side, also wounds to the rostrum and behind the blowhole.

ii) **Malicious or accidental injury from a member of the public**: Georges would initiate contact with often very over-excited members of the public. These sessions could get out of hand and members of the public would frequently be butted, rammed, mouthed etc. On several occasions he was known to grab a child's arm and mouth it, and there were anecdotal reports of parents threatening the safety of the dolphin; and also drunken holidaymakers boasting that they would harm the dolphin.

iii) **Entanglement in nets**: he had the habit of following fishing boats and often spent hours on end around boats which had put out their nets, leading to fears that he would become entangled.

2). Most serious concerns for human safety:

i) **Injury**: Swimmers often interacted in an extremely reckless manner around Georges (especially pror to the public awareness campaign run by the Coalition), allowing their children

and dogs to approach to within a few inches of the dolphin, or to clamber onto his back, grab his dorsal, etc. Interactions frequently involved swimmers suffering minor injuries, including being butted, rammed, hit with flukes, having their arms seized and mouthed by the dolphin. Bruising to the ribs, torso and limbs occurred frequently and on one occasion, a man was hospitalized after he was tossed out of the water by the dolphin and suffered a heart attack.

ii) **Other concerns**: Swimmers were frequently inexperienced and inadequately dressed, especially given the low water temperature in early spring,. They were often unaware of the dangerous currents and powerful undertow in the area.

3). Primary approaches to addressing cetacean and human safety that were attempted:

i) public education, including beach patrols, (with posters and leaflets asking people to view the dolphin from the shore); boat patrols, (including leaflets asking boat owners not to approach the dolphin, or if it did come across, to try to attract the dolphin away from the propellers)

ii) placing articles in the local and national media asking the public to respect the dolphin and to keep their distance, reminding them of the relevant legislation.

iii) regular veterinary assessments

iv) regular monitoring by local cetacean researchers

Successes and failures

Successes

1. Attempts to educate and manage the public, via beach and boat patrols, and media outreach, had some positive effect upon public behaviour, translating into more respectful encounters with the dolphin (eg swimmers giving him more space, or visitors remaining on land to view him rather than getting into the water)

2. Attempts to coax the dolphin to follow a 'safe boat' (operated by Coalition members) into more open water, away from the immediate vicinity of the crowded beach and marina area, were also successful and reduced the amount of time the dolphin spent interacting with people and boats during the busiest parts of the day

3. Regular veterinary assessments and monitoring meant that the Coalition was able to track the condition of the dolphin during its residency.

Failures

1. The Coalition's lack of authority was a major problem. Whilst Coalition membership included representatives of the relevant official agencies, in practice, much of the 'legwork' was done by members of voluntary agencies and volunteers and there was a general absence of coordinated support or response from some of the official agencies: too often, support was dependent upon

the goodwill of certain individuals rather than representing clear strategy or formal support from their agency. Therefore, whilst some members of the public, once educated, were happy to comply with the Coalition's requests for them to keep their distance from the dolphin; others questioned the Coalition's right to manage their behaviour.

2. A significant complicating factor was the fact that there were schisms between members of the Coalition as regards management of the dolphin: namely, between those who primarily sought to educate and manage the public (the majority); and the minority, who wanted to manage the dolphin itself and suggested luring it some distance, either to a seapen from where it could be assessed/rehabilitated; or luring it back across the Channel to France, which some members believed represented a safer environment.

Research and management needs and recommendations

We urgently need to develop a network to share expertise and findings to date:

1. **Research**: Requirement for a coordinated global database of research findings relating to solitary situations, including published and unpublished papers and reports; a contact database of those researchers with experience in researching solitary odontoncetes.

We need to further improve our understanding of the status of the solitaries - not only gender and age; but also the body condition; overall behaviour (how the individual interacts with other cetaceans; with humans (males/females, children/adults, those wearing wet suits, etc) and with other animals (eg dogs); circumstances around any aggressive or sexual behaviour; extent of boat following; more detailed analysis of behaviour around boats, and so on.

2. **Management:** As above, a coordinated global database should be established, including case studies to date; and some analysis of what has worked and what hasn't in these cases.

When a new case presents itself, there should be the capability for relevant individuals/agencies in the vicinity to network immediately with others experienced in the management of solitaries so that they can receive advice and expertise before a solitary situation deteriorates, and any harm comes to either the animal or humans.

It would be valuable to develop an 'action pack' maybe via a web database, which would list the essential factors to be included in developing a management plan.

Better understanding of relevant legislation is required so that those managing a solitary situation are well aware of what protection is afforded a solitary in their local waters. Support may be required in campaigning for improved legislation, maybe based on the experience of others managing solitaries elsewhere.

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Jock: Dolphin Therapy in Reverse

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1. Animal and Situation

This is a story about a young male (approx 5 to 10 years old) bottlenose dolphin (Tursiops aduncus) called *Jock*. He was resident in a relatively quiet part of Adelaide's (Australia) Port River estuary. His home was small in comparison to "normal" dolphins in the area, comprising only about one square kilometre. This home range was artificially heated by the discharge from a nearby gas fuelled power station with the water often up to ten degrees centigrade above ambient. *Jock's* small home range is consistent with many other solitary dolphins, as was his propensity for object play and putting his head close to spinning propellers.

Jock appears to have been orphaned from a young age. When first encountered by me (1989) he had a five pronged spear imbedded in his flank but fortunately it had not penetrated deeply and he managed to dislodge it himself a few days later. Perhaps not surprisingly he displayed no orientation towards humans.

Over time he became increasingly human focussed and eventually initiated indirect contact via a canoe paddle and later skin to skin contact. This change in his social orientation to humans was not mediated with food rewards.

Jock had a deformed dorsal fin caused by an entanglement in monofilament fishing line when young. This deformity became a fouling site for more entanglements but his attraction to humans allowed these entanglements to be removed relatively easily.

Although *Jock* was living only 15 kilometres from the downtown of a city of a million people we managed to keep his existence a secret from the media. However, his increasing human orientation meant that it would be only a matter of time before his existence became widely known. History does not provide a positive prognosis for friendly, solitary dolphins so I was concerned for his longer term well being.

Other dolphins sometimes entered *Jock's* home range and when they did so he would almost always swim with them. There was no obvious negativity between them and him while they were swimming together. However, when these dolphins left his home range area he did not swim away with them.

Jock developed a strong attraction to travelling in the wake wash of my boat, usually leaping spectacularly out of the water as he did so. In this mode he would often travel several kilometres outside of his normal home range. I decided to use this behaviour to lead *Jock* to other dolphins whenever they were in the general vicinity in the hope of facilitating his reintegration into the local dolphin society.

This “therapy” worked effectively and the incidence of him swimming with other dolphins increased, as did the size of his home range.

Unfortunately, in mid 1993 *Jock* was found dead with a long gash in his abdomen. His body was recovered by the local museum but a post mortem examination was unable to determine whether the gash occurred before or after death.

In 1995 a blubber sample collected at the time of his death were analysed for PCB contamination. The total PCB load was 18ppm. This load is high in the Australian context but much higher loads have been recorded in other parts of the world. As yet there is no accurate means of correlating PCB load in dolphins with morbidity or mortality.

In 2002 *Twinkle*, the calf of an estuary resident female, was effectively orphaned when his mother gave birth again when he was only just two years old. Curiously, *Twinkle* had also suffered fishing line entanglements and also took up residency in exactly the same home range *Jock* had occupied. Although *Twinkle* has had to be captured three times to remove entanglements he has shown no indication of developing a social orientation toward humans, and I have carefully not encouraged such.

2. Successes and Failures

Jock died aged only about ten years old so overall this project failed.

However, the process of reintegrating Jock into the broader dolphin community worked successfully.

Our attempts to provide protection to him from too many visitors by keeping his existence a secret was also effective but would not have worked indefinitely.

3. Needs and Recommendations

It is too late to do anything about Jock. I have learned that managing a friendly solitary dolphin situation is enormously difficult and under normal circumstances it is probably best not to encourage solitaries to become too human focused.

Nevertheless, it must be recognised that many solitary dolphins take the initiative in forging social contacts with humans and preventing socialisation from occurring may be very difficult. It is important to respect the dolphin’s own desires and if it seeks to initiate human contact preventing this is not necessarily the most humane option.

My main recommendation is that every solitary event needs to be addressed as a unique situation. Prescriptive approaches to managing solitary dolphin situations are almost certain to fail.

4. References/Citations

I have not formally described the Jock case in the professional literature.

A documentary "A Dance With A Dolphin" was made using extensive video footage taken by me during his life.

Some of the ideas expressed in Muller, M & Bossley, M (2005) "Managing human interactions with solitary dolphins". Aquatic Mammals. (In press) were derived from my experiences with *Jock.*

Effects and implications of a long term (5.5 Years) association between an unsupervised dolphin and human swimmers, based on interspecific underwater interactions of "Holly", a solitary sociable bottlenose dolphin (*Tursiops aduncus*) from the shores of Nuweiba, Sinai, Egypt.

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Aims and methods

The main goal of this study was the analysis of long-term behavioral changes of a female, solitary but social dolphin that interacted with humans over a time period of 5.5 years. The study period is of particular interest since it included two gestation and calving cycles.

The database of the current investigation was made up of underwater video recordings of dolphin-human interactions, collected for 2-3 consecutive days each month, and analyzed in the laboratory. The analysis was performed using the digital software Noldus Observer Video Pro 3.0, allowing precise documentation of behaviors and durations observed.

Study animal

The subject of the current study was a female, Indian Ocean, bottlenose dolphin, *Tursiops aduncus,* named “Holly.” She arrived, of her own accord, at the age of 9 years (tooth section and GLG count courtesy of Christina Lockyer ,(to the beaches of Nuweiba in the Gulf of Aqaba, Egypt, and began to swim and interact on a daily basis with humans. Human contact was limited to the daytime. At first, she followed the fishing boats while they were line-fishing. She would swim in wide circles around the Bedouin fishermen, who would jump into the water to get a closer view of her. However, she did not permit any physical contact at this point, and refused to eat the dead fish that they offered her. She would often attract their attention with aerial acrobatics and spy-hopping. Nonetheless, news of her presence spread and a few tourists began to arrive at this village to see “Holly.” Her initial “escorting” of the Bedouin fishing boats is a characteristic starting point for sociality with humans that has been documented for nearly every other solitary dolphin (Müller et al., 1998). By July 1994, she began to tolerate body contact by the Bedouins and a few tourists.

The dolphin occupied a very limited and highly accessible home range, adjacent to the shore of the Bedouin village, Nuweiba M'zeina, and her behavior was documented over a period of 5.5 years, from 23rd of June 1994 to 14th of November 1999.

"Holly" gave birth to a male calf on December 29, 1996. Her pregnancy (assumed to last throughout 1996) passed unnoticed. However, from August 1996 onwards, throughout her lactating period, she started to take a very small amount of dead fish/ live octopus from the Bedouins. Lactation was terminated six months after parturition by the unexplained death of her apparently healthy calf, on July 22, 1997. Sometime between the night of December 16 and the morning of December 17, 1998 she gave birth to another male calf (dubbed "Ramadan" by the Bedouins), which she again raised within the framework of her sociality with humans. Again, this seemingly healthy calf died ~7 months later, on July 13, 1999.

"Holly" calved for a third time, a female offspring, on October 1, 2000. From this period and until her untimely demise, she mainly abstained from human company and only occasionally returned to interact with the Bedouins and tourists. She still approached swimmers in the Gulf, but not on a daily basis, and with a reduced level of sociality. In April 2004, "Holly" gave birth for a fourth time, a male offspring, but shortly after (in May) the calf died. "Holly" attended her dead offspring's body for 3 days.
On the morning of December 9, 2004 the beached body of "Holly" was discovered 10 km north of Nuweiba. She was in apparent good health except for a small circular entry wound below the dorsal fin. The cause of death is unknown as no autopsy was preformed.

Results

"Holly's" dolphin–human interactions took the form of play and tactile contact. During the time before her first gestation period, lasting about 1.25 years, "Holly" was rather submissive and non-aggressive – any aggression displayed resulted from her reaction to forced and often rough physical contact by her close human companions. With time, the preponderance of aggressive behavior increased. Compilation of Holly's aggressive incidents during her pre-pregnancy, gestation, and lactating periods clearly shows that this behavior increased in response to reproductive events. The drop-off in aggressiveness following the death of her calves also supports the assumption that prolonged contact with humans is one, but not the sole, contributing factor to Holly's increased aggressiveness. Studies with solitary but sociable male dolphins also show that typically they become more aggressive with prolonged contact with humans (Lockyer 1978; Lockyer and Morris, 1986; Webb 1978a, b).

The dolphin exhibited both extreme aggressive and evasive behaviors during the gestation periods. "Holly" was not as tolerant to touch while gestating and even less so when accompanied by her calf. While parental care was taking place she exhibited indifferent behavior towards humans. In view of the changes in selected "affiliative" behaviors observed in the current study, it is deemed inadvisable to initiate physical contact with a gestating dolphin or a mother-calf pair, during the calf's first year of life.

There was an increase in the mean number of swimmers in the water over the years of her sociality that was significantly associated with a higher number of swimmers' attempts to touch the dolphin. Since unsolicited touch or attempt to touch were the main reason for aggression exhibited by the dolphin, it was concluded that the increase in the numbers of (strange, one-time) swimmers was a major factor contributing to the higher level of aggressive behavior observed over time. A higher perceived hierarchical rank in her surrogate human group could be another factor.

An attempt was made to hand out leaflets with guidelines for the swim-with-dolphin tourists. This was successfully attempted with other dolphins (Frohoff et al., 1995; Frohoff 2000). A second measure was to have swimmers familiar with the animal on a daily basis (Bedouins) used as guides. This did not succeed, as these Bedouins[2] behaved carelessly, and instead of controlling the tourists, aggravated the animal themselves. The group size of swimmers with the dolphin at any one time continued to rise, as it was regarded as a heavenly sent source of income and suggestions to reduce the number were frowned upon.

Follow up

By the end of the current study period, the dolphin "Holly" showed a marked wariness of human companionship. As time spent in human company progressed, the dolphin rejected more attempts to pet or chase her. The dolphin exhibited signs that the interactions had come to be of a forced nature, and this resulted in increased aggression towards swimmers of all categories, without preference. From the birth of the 3rd still surviving, female calf through the short period with the 4th male calf, and up until her premature death at the age of 18 (seven years after her arrival at the shore of the Bedouin village) "Holly" changed her social patterns. She widened her home range and drastically reduced the amount of time spent in human company, greatly limiting human physical contact. She also initiated close group interactions with her female calf and 2-3 conspecific males. It is possible that her withdrawal from human company was part of an attempt to improve her maternal skills and success.

Recommendations

Following the findings of the current study, instructions on the behavior of human swimmers with solitary social dolphins are suggested, including those related to joint swimming with mother-calf pairs. Regardless of instructions, it is recommended that all dolphin-human swim sessions should be accompanied and supervised by an experienced guide. The instructions restrict the number of swimmers at a given time (3 or less), clarify situations that allow physical contact (when sought by animal), indicate body parts that are permitted (back, flanks, or chest) or prohibited to touch (head, fins and flukes), and refer to activities that solicit affiliative behavior (swimming slowly aside the dolphin) versus those that may result in aggressive behavior (unsolicited rubbing), as well as provide warning signs for such situations. In the case of a mother-offspring pair, caution should be taken not to interpose between the animals. No attempt should be made to touch or play with the calf. Reference to these suggestions and instruction in appropriate behavior can increase the enjoyment and reduce the risks of swimming with wild solitary dolphins.

[2] In the study this group of swimmers were referred to as Constant / Occasional Pod Members

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Observations and Video Footage on the Interaction of 3 Lone Sociable Bottlenose Dolphins with Humans, Including Records, Observations and Problems with Local People from the French group Réseau Cétacés

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I have worked with 3 lone sociable (LSO's or D's) bottlenose dolphins:
1). Dony.(Randy or Georges) Male who has wandered through 5 European countries: Ireland, France, UK south coast and Channel Islands, Belgium and Holland. First 'friendly' dolphin I swam with and filmed for 2 days in southern England in 2002, and then followed in 2 trips to Brittany, France in 2003 and 2004 but only found in 2003 during a trip of 8 days, for 4 days in the water and one from land. From my first encounter, I got in touch with Graham Timmins at www.irishdolphins.com which led to me going to see:

2). Dusty. Female. West coast Ireland. 10 day trip with 6 days in the water and 3 watching/ filming from land.

3). Jean Floc'h. Male. Brittany, France. 13 day trip with 7 days in the water and one other day observing/filming.

All three are in the most friendly/interactive stage, seeking out and permitting extended 'petting'.

PART 1. INTRODUCTION

I will start my talk by giving my background, 30 years in boats in Galapagos, extended trips with Dr. Hal Whitehead's and Dr. Roger Payne's research expeditions, focusing on sperm whales, then 'retiring' to the UK in 2001.

Dony appeared on the coast near to us in spring 2001 as if 'sent by God', to persuade me to get into cold, murky UK water. This has led to this study of these dolphins and their interactive behaviour. This led to a different approach to the normal, as I hadn't seen or read anything on this particular behaviour, so I was literally leaping in at the deep end. In fact it wasn't until after all these trips that I had time to study any of the literature.

Thoughtless reactions of the 'authorities/experts'

1) Take him back to France for his safety.
2) Don't swim with these animals they are dangerous.
3) Etc.

I find these reactions a total affront to both the dolphins and humans that want to interact with them in a friendly manner.

I hope this attitude is not reflected in this workshop, as in the format we were given for the presentation summaries, under 'Needs and Recommendations' it said: 'Identify the research and

/or management needs to address high-risk solitary odontocete-human interactions' (Note: my underlining) I hope that what was meant was ' …. to address the interactions before high risk situations occur'. I don't believe that normally there are 'high risk situations' from interactions with these animals, except in exceptional circumstances; there is a lot more risk from people doing foolish things in an aquatic environment with which they are unfamiliar.

Question: If dolphins want to swim with people, actively seeking them out, is there any good reason why they shouldn't? Answers at the end please!

There are a number of facts I find truly amazing about these LSO's.

1) How they are able to hold their strength back completely, so as not too harm or kill humans, as any of their conspecific knocks and blows would surely break our bones.

2) How as solitary dolphins they manage to get plenty of food, apparently in a short time? or are they hoodwinking us, and actually alternating 'interaction' fasts with foraging trips?

PART 2. BEHAVIOUR OF THE DOLPHINS.

1) Their similarities.
2) Their differences dolphin by dolphin.

NEEDS AND RECOMMENDATIONS

- Continue with the start made here to put LSO's 'on the map'.
- 1) Push for more research to understand this behaviour..
- 2) Give technical support to the local interest groups that form for each dolphin, to give correct information for the education of the public. Perhaps do this by getting funding for an international support group to draw up guidelines and train these people so they can be honorary wardens. But watch out for egos!
- 3) Make an in depth film or films on the subject, in order to create interest and educate the public. Any donations in the 'hat' please **!**

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The Whale Stewardship Project: Research and Stewardship of Solitary Sociable Beluga Whales in Eastern Canada

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The Work and the Whales

The Whale Stewardship Project (WSP) has been conducting research, protection and education programs on behalf of solitary sociable beluga whales (*Delphinapterus leucas*) in Eastern Canada since 1998. These research and stewardship programs represent the first to be developed for solitary animals of this species (Frohoff et al. 2000) and were conducted with the approval of the Department of Fisheries and Oceans Canada. Our research and management approach includes on-site monitoring, intervention and protection measures, guidelines, public education, data collection and long-term study of the occurrence and behaviour of the whales.

The WSP has to date, collected nearly 500 hours of videotape data while conducting programs to varying degrees for six individual belugas (see Table 1.). Opportunistic observation of the six whales was primarily from shore and from research and stewardship vessels, although underwater videotape and hydrophonic recordings were also made. For an additional six solitary sociable odontocetes (five belugas and one narwhal) (see Table 2), we have collected ancillary data through reports from other researchers, anecdotal information, interviews, photos and video.

The WSP also works co-operatively with other regions. The Quebec Marine Mammal Emergency Response Network includes the WSP as a member of their specialty team for stray sociable beluga whales and our guidelines have been translated into French, by the Group for Research and Education on Marine Mammals for use in that region. We participated in a working group headed by the United States National Marine Fisheries Service concerning one of the belugas in our study that crossed from Canadian waters into the Northeast US region. We were recently invited to conduct on-site assessments and provide recommendations at a 2005 workshop in British Columbia, Canada for a solitary, sociable orca known as Luna or L-98 residing in Nootka Sound, BC. Recommendations were made in consultation with the Mowachaht Muchalaht First Nations (MMFN) people and other biologists with the goal of developing a thorough, systematic research and stewardship program by the MMFN for the orca.

Successes and Failures

We found that consistent on-site management programs designed to protect the belugas and humans, especially when implemented early and intensively, resulted in notable and measurable success. For example, all of the solitary sociable beluga whales we studied escaped serious injury while on-site programs were in operation (Kinsman and Frohoff 2003). By contrast, when a stewardship program was not on the water, all belugas who were exposed to high levels of human activity became injured and scarred - and in one case, killed - from humans, boats, moorings or other anthropogenic sources. Those whales for whom we were not able to

implement a thorough program, but that did not become seriously injured, were those that primarily inhabited remote areas with low human/vessel activity.

We found that greater governmental legislation and enforcement was needed to protect these animals. We also found that although our on-site programs were successful in substantially mitigating risk to both whales and humans, constraints on funding, personnel and equipment seriously impeded our ability to fully achieve our goals. "Failures" may well have been due not so much to *what was done*, but rather to *what was not done*. For example, when more than one solitary sociable cetacean occurred simultaneously, limited resources restricted our ability to provide adequate stewardship for one or more of the belugas. In one case, "Charlie-Bubbles," was killed by a fishing vessel in 2002. In another case, "Casper-Echo" was left solitary far from the nearest beluga population in 2001, when two juvenile belugas, who initially accompanied him, died. Both of these events occurred in part, we believe, due to the lack of resources for stewardship. In a further example, although the vast majority of human interaction was curtailed by WSP on-site programs, "Casper-Echo" eventually became severely injured by a vessel during "off hours" in 2002.

We believe such injuries and mortalities could have been mitigated, if resources had been available for additional protective and preventative measures (see below). Limited resources have also impacted our long-term research goals. Only about 20% of our videotaped data have been quantitatively analyzed to date. We have been able to directly observe and collect data on only 50% of the occurrences and have been unable to capitalize on numerous unique opportunities to implement wild-based studies in areas such as cognition and acoustics.

Needs and Recommendations

Due to the numerous unique factors involved in each solitary sociable event we recognize that there is no single prescription for the design of management programs. However, there are some commonalities that have been observed across species and situations (see Frohoff this volume). Pro-Active governmental legislation, enforcement and direction of resources to these situations is vital. We believe that in every instance, the minimum response of early and consistent monitoring and documentation is required. Then, depending on the degree and type of risks present, the program complexity needs to expand preventatively to include public education, media sensitivity, and on-site intervention. Additional pro-active measures may be warranted in the most intensely challenging cases and frequently where there is a clear need to focus more attention on the psychological well being of the animal. Therefore, we recommend that innovative, carefully designed protocols be developed such as those that the WSP has been developing that are not associated with humans or vessels (i.e. acoustic and non-human tactile stimuli, non-human interactive refuge areas). Without positively reinforcing proximity to humans, pro-active measures such as these may assist in the prevention of physical injury to whales, enhance psychological well being and increase human safety.

In every situation, regardless of risk level, research should be conducted and incorporated into the overall program design. Studies on solitaries (e.g., Frohoff 1996; Frohoff et al. 1996, Kinsman and Frohoff 2003) have shown that ongoing, systematic research conducted concurrently with, and as an integral part of the management program, provides vital and real-

time feedback with which to adjust a management protocol. We believe research to determine a solitary animals' natal population, possible reasons for separation, and follow-up after departure are also vital. All of the needs and recommendations above are dependent on the underlying need for funding. Our specific requirements also include personnel, research equipment and a designated stewardship vessel. While the vast majority of the public who meet a solitary sociable, clearly recognize the value of individual cetaceans, there is a need for government, research and funding organizations to not only recognize the potential contributions to education and animal welfare, but also to science, conservation (especially of the species or populations from which these solitaries originate), and management that can be made by supporting the work for solitary sociable cetaceans.

Table 1. Solitary sociable beluga whales observed directly by Whale Stewardship Project.

Whale Name	Sex	Location	Year(s) Observed	Estimated Age First Observed	Injuries S= Superficial PS= Permanent Scars LT=Life Threatening	Still Solitary	Status as of December 2005
Wilma	F	Guysborough, NS	1993 -1998	2-3 yrs old	S, PS, LT	?	Unknown
Kuus	M	Green Bay, NL	1999	2-3 yrs old	S, PS	?	Unknown
Lenni	F	East Coast, NL	2000 -2002	2-3 yrs old	S, PS, LT	?	Unknown
Casper-Echo	M	St. Paul's River, PQ Codroy, NL	2001* 2002	2-3 yrs old	S, S, PS, LT	?	Unknown
Ce'Sea	F	White Bay, NL	2003	2-3 yrs old	None	?	Unknown
Poco	M	Bay of Fundy, NB NE Coast USA	2003 -2004 2004	2-3 yrs old	S, S, PS, LT	-	Died of infection (L. Dunn 2004)

*** Casper initially strayed to dangerous location far from nearest beluga population with two other juveniles, Shadow(F) and Phantom(M) who died, leaving Casper solitary in 2001**

Table 2. Solitary sociable whales observed by others, reported to Whale Stewardship Project, ancillary data collected.

Whale Name	Sex	Location	Year(s) Observed	Estimated Age First Observed	Injuries S= Superficial PS= Permanent Scars LT=Life Threatening	Still Solitary	Status as of December 2005
Beluga [1] – no name	F	Chevery, PQ	1998	2 yrs old	N/A	?	Unknown
Charlie-Bubbles [2,3] (beluga)	F	South East Coast, NL	2001-2002	2-3 yrs old	S, PS, LT	-	Killed by long-liner boat propeller
Beluga [1] – no name	?	Mingan Is, PQ	2003	Juvenile	N/A	?	Unknown
Beluga [1] – no name	?	Musquaro, PQ	2004 -2005	Juvenile	N/A	?	Unknown
Chance [4, 5] (beluga)	?	Bonavista Bay, NL	2005	Juvenile	S	?	Unknown
Narwhal [2, 4,6]	M	Conception Bay, NL	2003	Sub-adult	PS	?	Unknown

Sources: [1]R. Michaud; [2]K. Prince & S. Johnson; [3]W. Ledwell; [4]J. Lien; [5] J. Dean; [6]J. Lawson

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Managing Solitary Beluga Whales in the Northeastern US - the story of "Poco"

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Description of work

Sightings and strandings of beluga whales (*Delphinapterus leucas),* have been documented in the US waters of the Northwest Atlantic since as early as 1857 (Smithsonian Cetacean Database) and there was at least one instance of lone sociable behavior noted among these historical sightings (Overstrom et al. 1990). More recently, we have documented a solitary social beluga whale in US North Atlantic Waters from March through November, 2004.

The first sighting was on March 5, 2004, when a young beluga whale was seen in coastal waters off Gloucester, Massachusetts. The whale was photographed interacting with moorings as they were being raised and lowered. The beluga was later identified as "Poco" a male of approximately 2-3 years in age, first seen off of Pocologan, Canada in September of 2003 (C. Kinsman pers. Comm., 2004). Frequent sightings of Poco continued through the summer and fall. During this time the whale actively sought interactions with vessels, divers, and swimmers. The whale's attraction to small outboard motors was of particular concern and there were several times where Poco sustained minor injuries, presumably from these encounters.

Unlike many of the solitary social beluga cases studied to date, the whale often spent only a day or two in one region before moving to the next. Poco ranged from Southwest Harbor, Maine to Provincetown, MA, a straight line measure of more than 155 nautical miles. These unpredictable movements presented unique challenges for managers attempting to locate and assess the whale on a regular basis.

Poco was found stranded dead in a marsh in South Portland, ME on November 15, 2004. Following contingency plans for this scenario, the whale was shipped on ice to Woods Hole, MA and necropsied that evening. Although there were superficial signs of human interaction, there was no evidence that these interactions contributed to the death. Gross necropsy findings revealed enlarged lymph nodes especially in the thoracic region, edema surrounding the esophagus and inflated lungs; although not conclusive, these changes were consistent with, but not necessarily diagnostic for, infectious disease that could have caused the death.

Additionally CT scans of the head revealed a malformed right ear that was later confirmed via dissection. Gross diagnosis revealed a malformed right periotic bone with no evidence of a conventional inner ear or portion of an inner ear. The left ear appeared normal in its shape and content but will require thin section microscopy to determine if it was functioning. Both ears had extensive adhesive processes extending through the peribullar spaces. These processes consisted of partially calcified, fibrous threads, representing long-term pathological process. Extensive amounts of blackened granular material were distributed amongst these threads and throughout the peribullar spaces bilaterally. This is the first time this combination of pathologies has been described or observed in any cetaceans to the best of our knowledge. Histopathologic examination of head and ear tissue samples is still underway though results are expected soon.

Microscopic and ultrastructural findings documented herpes-like viral infection of the skin and oropharyngeal mucosal epithelium. Histopathologic examination of tissue samples collected at necropsy (independent of the head and ears) did not reveal the definitive cause of death of this animal.

Needs and recommendations

Primarily NOAA Fisheries and its partners used a public awareness and monitoring program to manage Poco (see next section). Early in the event, NOAA Fisheries formed a focus group to identify and address issues created by the sociable nature of the animal. It quickly became apparent that the issues warranted a wider range of expertise and more resources. As a result, the focus group became the basis for an international working group of researchers, managers and Stranding Network participants to address concerns about the whale's interactions with humans and vessels. The working group was comprised of 17 members that met 6 times via conference call; on occasion, there were invited guest experts on a particular topic. Group members were charged with objectively considering a number of possible options for Poco weighing pros, cons and risks of each action and providing individual recommendations, comments, and opinions for consideration by the NOAA Fisheries Northeast Region Regional Administrator.

The following actions and/or contingencies were considered and will be further discussed in the presentation.

- No action
- Opportunistic monitoring and outreach
- Strong media and outreach followed by enforcement pulse
- Directed monitoring and outreach 24/7
- Acoustic deterrence/attraction
- Collection of an apparently healthy animal
- Emergency collection if wounded (or beached)
- Tagging
- Necropsy and examination (if stranded dead)
- Other

Successes and failures

Public Awareness and Outreach

Since the first Poco sighting, NOAA Fisheries, the New England Aquarium, other partners in the local Stranding Networks and officials from the state of Maine focused a great deal of time and resources on a public awareness and monitoring program. These measures met with limited success. Often it was reports of interactions with the whale that first made its presence known in a given area. The area was then targeted with outreach information to report sightings, Marine Mammal Protection Act language regarding violations and messages to avoid the whale when possible.

The most effective outreach was likely accomplished through mass media (regional television news primarily), and by working with local newspapers in the towns/areas where Poco occurred or reoccurred over several days. Rarity of occurrence and the very large geographic area covered confounded attempts to make this a more sophisticated effort. Poco rarely demonstrated site fidelity, so a one-on-one training strategy was difficult to deploy efficiently.

Alerting the general public to Poco's whereabouts had to be done carefully so to avoid inadvertently encouraging people to look for, and interact with, him. To be more effective, we needed far more effort than was practical at the time to bring stranding responders, local law enforcement, and their volunteers and supporters up to speed and into the effort.

NOAA Fisheries Northeast Region is likely to experience encounters with solitary sociable beluga whales in the future but because persistent solitary, sociable belugas are a rarity, the people trained today may not be in the area when the next sociable whale appears.

Necropsy

Contingency plans for necropsy allowed for rapid recovery of the whale and examination while tissues were still relatively fresh. Information gleaned from this whale poses intriguing questions relating to the apparently active herpes infection and any possible association with stress. Unfortunately the state of decomposition of the carcass prevented the thorough microbiologic assessment that would have been possible on a fresher carcass. Contingency plans for solitary sociable odontocetes should include a plan for rapid carcass recovery and thorough examination including CT scans, when possible.

Resources

Managing and tracking Poco required tremendous staff time and resources In the case of Poco, word spread rapidly throughout the coastal communities about a “friendly whale” further complicating the situation. Government officials and stranding network members spent nearly nine months monitoring this animal and educating the public. On days of high visibility, which was much of the summer, stranding network participants were spending the better part of their day working on this case. Although we did not institute a 24-hour onsite monitoring program, we did spend a great deal of time on the water looking for the often elusive whale, observing its behavior, working with local officials

and distributing education materials to boaters. The effort was extremely taxing on the staff and volunteers involved.

Future solitary sociable odontocetes will continue to be reviewed on a case by case basis and incorporate lessons learned from past cases. However, when considering limited resources for recovery and management of protected species it is important to weigh threats to populations in the wild, particularly critically endangered populations vs. threats to an individual animal.

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Luna: Observations and Options

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Brief description of your work

We have been observing and informally documenting L-98, Luna, since March 2004. Luna is a male orca, now 6 years old, currently living in Nootka Sound, on the west coast of Vancouver Island, British Columbia. He was separated from his pod in 2001. He belongs to the Southern Resident community of orcas. We covered the DFO attempt to capture and move Luna in the late spring of 2004, and since then have observed Luna frequently from the water and the shore.

During the summer and spring of 2005, we spent hundreds of hours on the waters of Nootka Sound, observing Luna's behaviour and talking to people on and near the water about Luna. Prior to and during the Kakawin Guardianship, a stewardship project conducted by the Mowachaht/Muchalaht First Nation, we coordinated our activities with the First Nation to augment their presence and to call attention to situations that the stewards could prevent or end by using their DFO interaction permit. We helped assess situations for potential risk to Luna or humans. We conducted extensive public interface activities, discussing Luna's situation at length with angry sports fishermen and other members of the public. We interviewed many individuals involved with Luna, and are currently writing a non-fiction book and producing a documentary film about Luna.

Starting in November, 2005, we will be conducting daily on-the-water monitoring of Luna. We will be recording his behaviours and compiling reports.

Successes and failures

There is very little precedent for management of solitary orcas. Springer, A-73, a juvenile female orca from the northern resident community, was separated from her natal pod in 2002, and was successfully reunified with her extended family later that year. Springer's circumstances were different from Luna's; she was ill and her mother had died.

Luna has been physically healthy and thriving since his separation from his pod in 2001. His mother, L-67, is still alive, and bore another calf. Luna has had significant social interaction with humans almost from the time he arrived in Nootka Sound in July 2001. He has remained in Nootka Sound since that time, and doesn't appear interested in leaving the Sound. He has occasionally ventured to the mouth of the Sound when following boats, but will not travel far out. Sporadic on-the-water stewardship programs have been conducted since August 2002, and they have been administered by a variety of individuals and organizations.

It has been very difficult for all groups to keep Luna away from humans. Luna approaches boats -- both moving and stationary -- and rubs against hulls, solicits human contact, and plays with boat fenders, logs, and other toys offered by humans, such as fire hoses or brooms. For many of the people working in Nootka Sound, Luna is incidental to their day's activities; he swims alongside slow-moving logging boats or barges or tugs, and the men carry on their work. Such interactions, though not normal for an orca, are probably relatively safe for Luna. There is a great amount of affection for Luna from the residents and workers of Nootka Sound, and many are very protective of him.

The biggest challenge is keeping Luna away from float planes, kayaks, small boats, and sportfishing boats, whose occupants have threatened to harm or kill Luna. But in the absence of continuous monitoring, it has been impossible to keep Luna away from all these situations.

Needs and recommendations

The highest risk interactions for Luna are those with people who do not want him to approach their vessels. Primarily, these are the sportfishermen, whose boats Luna has approached, pushed around, and sometimes damaged. All who encounter Luna perceive that there is also a high risk in his potential interaction with small boats such as canoes, kayaks and car-topper fishing boats. He has interacted with kayaks and with native canoes, and appears to respond to them in ways commensurate with their size; none has been capsized. However, in spite of Luna's relative gentleness with these boats, the risk of an inadvertent capsizing seems real.

It is unlikely that Luna will spontaneously cease approaching vessels. Stewardship activities focused on preventing vessel interaction has simply replaced unwanted interactions with intentional ones conducted by the stewards. The biggest management issue now is keeping Luna away from "unfriendly" vessels. Keeping vessels out of the area is not feasible, because it is a very large fiord, and many people use the water for their livelihoods and recreation. It appears that the best way to keep Luna away from the high-risk interactions is to have a consistent stewardship program.

Some scientists have proposed behavioural conditioning of Luna; i.e. getting him accustomed to a particular vessel, and encouraging him to swim to the open ocean so that he may someday be in acoustic contact with his pod. Others have suggested non-human enrichment as a means for keeping him away from humans. The short-term goal is to

keep him safe so he has the opportunity for a reunion. Some scientists and managers believe that a capture and relocation of Luna to his natal pod should be tried again, though there are political and financial constraints to that option. Long-term options should also be considered. Some members of the L-98 scientific panel are skeptical that Luna will ever successfully reunite with his pod, which further underscores the importance of considering a long-term management program for him. And some believe that the only possible long-term solution to the issue in the absence of a reunion is permanent captivity. We oppose that option even as a contingency plan and believe there are realistic options available to keep Luna safe and free throughout his lifetime, whether with his pod, or alone in Nootka Sound.

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Working together for Springer: the Orphan Orca Fund

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Brief description of your work

Springer (A-73) is an orphaned orca calf who appeared in the urban waters of central Puget Sound in January 2002—far outside her home range, and alone. Six months later, she was relocated and released to her pod in her home waters of British Columbia. The precedent-setting project was jointly undertaken by the National Marine Fisheries Service (NMFS), Canada's Department of Fisheries and Oceans (DFO), and the Vancouver Aquarium. Three years later, Springer is healthy and still swimming in the company of her extended family.

The Orphan Orca Fund was formed in May 2002 to support the Springer project. It was comprised of seven non-profit organizations, which joined together to form a single fund-raising entity. Our primary goal was to support NMFS in its relocation and rehabilitation efforts. Members of the Orphan Orca Fund were as follows: People for Puget Sound, American Cetacean Society (Puget Sound chapter), Orca Alliance, the Whale Museum, Orca Conservancy, Earth Island Institute, and Friends of the San Juans.

At the time that OOF was founded, public interest in Springer was high, and citizens throughout the region were deeply concerned about her fate. With strong support and urging from the community, NMFS and its partners had committed to an *in situ* rescue and relocation effort. The risks were considerable, the outcome was uncertain, and the project funding was unsecured. The timing was also critical – to maximize the chance of a successful reintroduction, Springer had to be returned to the Johnstone Straits while her pod was still in the area. By forming a single fund-raising entity, we hoped to eliminate confusion in the public mind about which group to contribute to, and where the money was going.

To get Springer home, we had to learn how to work together. In the process, we created a new organizational model for working with each other, and with NMFS. In retelling our story, my hope is that other groups and agencies can learn from our experience. What follows is a summary of what we did, how we did it, and lessons we learned along the way.

In late spring of 2002, Springer's relocation was moving quickly from concept to reality. The idea for a collective fund-raising effort had been discussed among local NGOs informally, but was first officially posed during a conference call convened by NMFS. The entity would serve as a focusing lens to convert public interest into concrete contributions, and, in turn, provide NMFS with a consolidated conduit to reach the public. We could receive and process donations quickly, providing NMFS with the timeliness the project demanded. As an added benefit, the cash and in-kind donations that

we received would help NMFS achieve the public match criteria for a Prescott Grant, which had been identified as a potential funding source for the project.

We met as a group for the first time on May 27. Over the next week, we set up the framework for our efforts, in the form of an operating agreement. We established a fund under the aegis of the Whale Museum 501(c) 3, and ourselves as a steering committee to oversee it. We set up a process for fund disbursement, and created template receipts for project donors. We organized into three subcommittees (fundraising, supply and communications) and decided what to call ourselves. Within two weeks of the first meeting, we held a press conference announcing the Orphan Orca Fund, and began actively soliciting public contributions.

An important stipulation of our operating agreement was that no money raised through the fund would go to any member organization. If there were money left at the end of the project, it would be used "to support research, recovery and conservation efforts for the southern resident orca community." Another critical stipulation expressed our core and collective opposition to housing Springer, or any orca, in an aquarium: "No funds will be used to support any activities associated with A-73's transfer to or rehabilitation in an aquarium or marine park facility. The Steering Committee will immediately withdraw all support if this option is initiated."

We worked closely with the NMFS project management team, and kept them apprised of our progress and goals. They, in turn, kept us apprised of project status, needs, and timelines. As a group, we met weekly or more to share information and updates.

We were busiest, and perhaps most useful, in the initial phases of the project, when Springer was captured and moved to a temporary holding pen at Manchester (near Seattle). Shortly before the rescue attempt, NMFS staff provided us with a list of project needs. We divided up the responsibilities, and appealed to specific suppliers throughout the region. The response from the community was generous and immediate. Within a few days days, we had procured nearly every item on the list. These ranged from duct tape, buckets, towels, to veterinary supplies, a foam pad, and a scale to weigh her. These also included items to support the monitoring team, such as groceries, ferry passes, and port-a-potties.

The next few weeks were a period of intense activity. As NMFS assessed Springer's viability for relocation, we conducted fundraising through outreach programs at venues like the Seattle Aquarium. Internally, we recruited a facilitator to help keep our meetings on track, and a public relations specialist to expand our media campaign. Springer got treated for worms, and went from eating two salmon a day to fifteen. Her overall health improved considerably.

As the project progressed, and Springer continued to pass her medical tests, her relocation to Canada became not just plausible but certain. On the Canadian side of the border, the team was busy assembling her temporary home in Dong Chong Bay, where she would be kept for a period of up to two weeks. At Paul Spong's suggestion, the

Orphan Orca Fund hired the nearby Namgis band to supply Springer with live wild salmon while she was in the holding pen.

On the day that Springer was returned to the Johnstone Straits, many members of OOF traveled to Manchester to witness her sendoff. Other members of OOF traveled to Canada to witness her reintroduction.

The day took on a mythic quality as members of the Namgis band turned out in droves to greet her, dressed in ceremonial robes and headdresses. When she was finally lowered into the water, a collective cheer went out across the bay. The first person that spoke was the Namgis band chief, who welcomed her home in the Kwakwala language. As US and Canadian officials exchanged messages of goodwill, Springer spyhopped, explored her pen, and began chasing the salmon that were waiting for her.

At around 2 in the morning, orcas were within acoustic vicinity of her pen. From hydrophone recordings made by OrcaLab, we can hear the precise moments when Springer and the pod become aware of each other. Their vocalizations are awe-inspiring, especially for everyone who participated in the project. The next day, sooner than anyone would have guessed, Springer's pod swam into Blackfish Sound and entered Dong Chong Bay. The project team recognized this as the optimal condition for her release, and lowered the side of her net pen. She swam out, stopping just long enough to take a salmon with her.

Over the rest of the summer, Springer became reintegrated into the northern resident orca community, with a little help from humans, and a lot of help from the orcas. She has returned to the Johnstone Straits each summer since then, in the company of her pod. She is a little bit smaller than other whales her age, but healthy and apparently thriving.

Within days of the release, three member organizations of the Orphan Orca Fund resigned. When the outstanding work for Springer was finished, the remaining members decided to have the fund go dormant rather than disband, in the event that our organization would be useful for a Luna relocation effort or similar project. We stopped actively fundraising, but left our agreement and account intact through the winter.

We met again in February 2003, and decided that OOF had accomplished its goals, and could be retired. We allocated our remaining funds to the Luna Stewardship Project, and to the southern resident monitoring efforts conducted by Mark Sears.

Successes and Failures/ Needs and Recommendations

In the end, we didn't raise nearly as much money as we had hoped (We raised approximately $13,000 in cash and in-kind contributions. We had set a target of $33,000.) However, ***it was enough***. Through the contributions that came through OOF, Project Seawolf and others, NMFS successfully met the matching criteria for two Prescott Grant funds, which were the major funding sources for the project.

Ours is one small part of a very big story. Our greatest reward is in witnessing Springer's success, and watching her thrive and grow in the company of her pod. We are also aware that the success of this project depended not just on our human efforts, but on Springer herself, and the whales to whom she was returned. She turned out to be a healthy, resilient orca, who withstood the traumas of the project with aplomb. The response of her pod further affirms the strength of their family bonds, as well as the complexity of their culture. Their spectacular timing points us, once again, to a shared intelligence we have barely yet begun to understand.

Aside from Springer's individual success, the legacy of the project is a network of new and transformed relationships. Grounded in trust and forged under pressure, these relationships have created a solid platform to continue our individual and collective efforts for the whales and their habitat. In hindsight, we instinctively did some things that helped build those relationships, and achieve our goals. Summarized into recommendations, these are as follows:

- *Make the rules clear, and play by them*. Our operating agreement clarified our purpose, goals, and operating guidelines. These were critical touchstones later in the project, as we evaluated requests for funding.
- *Recruit professionals.* We sought volunteers to address critical needs that we couldn't fill within our group. These included a facilitator, who helped us navigate through contentious meetings, and a public relations expert, who helped develop our media strategy.
- *Share the project risks, and the responsibilities.* We had encouraged NMFS to pursue this approach, among all the other alternatives that were available. In supporting them, we shared the risk that the story would turn out much differently than it did.
- *Extend trust, and earn it.*
- Above all, *keep your eyes on the prize*: *every action we took was focused on helping create the best possible outcome for Springer, and we all agreed what that outcome was.* There was too much at stake for us to let this project fail, or become derailed.

Though Springer is safely home, there are many other issues facing the orcas and other cetaceans that desperately need our collective attention. In the Pacific Northwest, these include reducing PCB contamination; restricting the Navy's use of sonar; restoring salmon and other prey habitat; and reducing stress caused by whale watching and other vessel impacts. Our challenge is to move forward on these issues with the same sense of urgency, and hope, that propelled us through the Springer project, and led to its success.

Pacific Solitary Killer Whale Case Studies L98 and A73: Considerations for Management Decisions

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Three distinct forms, or ecotypes, of killer whales *(Orcinus orca)* inhabit the Canadian and US Pacific waters: transient, offshore and resident, each differing in their behaviour, social organization and ecology (Ford et al. 2000). Resident killer whales are the best understood ecotype owing to more than 30 years of photo identification studies and focused research. The occurrence of a killer whale remaining solitary is rare (G. Ellis, personal communication) with only three documented cases in Canadian and US Pacific waters. In 2001 and 2002 two juvenile resident killer whales presented. The only other case that has been reported, "Miracle" (undetermined ecotype), occurred in 1979 (personal communication G. Ellis). Residents live exclusively in matrilines; groups of closely related whales of maternal descent consisting of an older female, or matriarch, her male and female descendants, and the offspring of her daughters (Ford et al. 2000). As such, survival of the young is thought to be highly dependent on matrilineal care and provisioning (Ford and Ellis, in press).

In 2001 and 2002, two juvenile solitary killer whales presented in the northeastern pacific. L98 ("Luna" b. 1999 to L67) a male southern resident was first sighted in the summer of 2001 in Nootka Sound, British Columbia; an area within the geographic range of southern residents, but isolated within an inlet from the presumed travel routes of this population. A73 ("Springer" b. 2000 to A45), an orphaned female northern resident was identified in January 2002 in waters around Vashon Island, Washington State, an area outside the usual travel routes of northern residents.

The US National Oceanic and Atmospheric Administration (NOAA), in the case of A73, and Fisheries & Oceans Canada (DFO), in the case of L98, were faced with the responsibility of assessing each of these "incidents" to determine whether intervention was warranted and, if so, to ensure that it occur within the legal and administrative framework for marine mammals in each of their respective countries. The rareness of these occurrences and the requirement for international coordination and collaboration, along with the high public profile these cases attract, added to the complexity and challenge of determining a "best" course of action.

While solitary resident killer whales are rarely observed, it is possible that young killer whales separate from their kin more frequently than observed and, if so, it must be presumed the fate of these animals must be either to perish or reunite. Why then, in the case of potentially naturally occurring events, would intervention be considered? Ultimately, public safety and/or protection of the individual whale provide the legal authority to initiate intervention. In rare cases it is possible that conservation, in the case of a severely endangered population, could drive intervention. However, often underlying these factors is a humanitarian drive to see these animals living with their kin. Unfortunately, given the rarity of this type of occurrence with killer whales, there exists

no policy or legislative framework in which to make decisions. In addition, a lack of knowledge regarding why these whales became separated, what their ultimate fate would be without intervention and no experience with intervention, the process of decision making has been difficult. The following overview briefly provides the details of the L98 and A73 case histories in support of the presentation of management considerations that have influenced the course of action for both these cases.

Case Overview

A73 was sighted traveling with G matrilines (personal communication J. Ford) during the summer of 2001. It was presumed that she was left behind or abandoned by her own matriline as an orphaned juvenile. She presented in January 2002 with a skin condition, believed to be whale pox, uncharacteristic ketone smelling breath and possibly underweight. It was unclear whether she was foraging adequately and traveled exclusively within a very restricted area of a less than 8 square kilometres (B. Norberg, personal communication). She developed an interest in interacting with boats, including spending extended periods of time around the Vashon Island public ferry. Her safety and risks to the boating public were of concern.

In the summer of 2001, there were unconfirmed reports of another solitary juvenile killer whale, and the presence of L98, a then 2 _ year old male offspring of L67, was confirmed in November of the same year. Upon inspection, L98 appeared healthy and was observed successfully foraging (G. Ellis, personal communication). Like A73, L98 initially confined his movements to a restricted area (G. Ellis, personal communication). Subsequently, he has increased his range, but not into the open, ocean waters beyond Nootka Sound. Although there was some uncertainty whether there would be adequate prey resources to support L98, particularly in the winter, L98 has remained healthy and has exhibited normal physical growth for four years (G. Ellis, personal communication).

Initially, in both cases, attempts were made to advise the public not to initiate or engage in any interaction with these whales. Both whales were attracted to interactions with boaters and in the case of L98, the people at a local dock. The success of compliance has been marginal, in spite of public education and stewardship programs and the potential for prosecution. Ultimately, for both A73 and L98, it was bi-laterally decided by NOAA and DFO that the best course of action was to attempt to relocate these individuals with the hope that they would reunite with members of their respective populations and cease interacting with boaters. In both cases, the respective governments consulted formed a panel of experts to provide advice. After considering the situation and potential options, these panels recommended relocation. In addition, there was strong support from the non governmental organization (NGO) community and the public for relocation. Support for relocation by First Nations in Canada, however, has been mixed. In the case of A73, the Namgis First Nation supported the relocation and contributed in several ways including provisioning A73 with wild salmon and performing traditional welcoming and naming ceremonies. In the case of L98, the Mowachaht/Muchalaht First Nation (MMFN) were opposed to intervention in the form of physical relocation and, as a result, plans to relocate L98 have been suspended. Instead, measures to protect both L98 and the public from potential harmful high risk interactions have subsequently focused on public

education and stewardship of the whale that has been collaboratively implemented by DFO and the MMFN.

In the case of A73, it was determined that survival was unlikely under the presenting circumstances. Concern for her survival, due to health conditions, the potential for a lethal interaction with a vessel and protection of the public from a high risk interaction, along with a humanitarian desire to see this whale survive and live naturally within her population, drove the decision to initiate rehabilitation and relocation efforts in the spring of 2002. A73 was successfully relocated and, although the transition was not immediate and without concern about continued interactions with boaters, has integrated successfully within the northern resident population and presents no public safety risk.

The course of decision making has been more adaptive and complex in the case of L98. Given L98 presented within his known range, without health concerns and successfully foraging, DFO, in spite of tremendous public pressure, decided that intervention, other than management of the public, would not be undertaken. However, as time progressed, it was clear that L98's desire to interact with people and the increasing intensity of these interactions put both the public and L98 at risk. In several cases, large vessels had been disabled, leaving occupants in need of rescue. Consulting with a panel of experts and NOAA, DFO concluded in the fall of 2003 that risk could potentially be mitigated if L98 were to be relocated to an area where the likelihood of reunification with his population was higher. The details of the plan to relocate L98 are publicly available by contacting DFO, Pacific Region. As noted previously, with the suspension of plans to relocate L98 in June of 2004, there has been an opportunity to explore alternative management strategies, including public and First Nations engagement in education and stewardship, active management of the whale, rescue response for boaters and the use of an acoustic deterrent device to protect people and property. The success of these strategies has been mixed through time. However, through increased management efforts during the summer of 2005, high risk incidents and property damage decreased.

Management Considerations

For the sake of brevity required by the workshop format, the following table describes some of the key factors considered in the assessment and decision making process to choose a course of action in the A73 and L98 cases. Public safety, protection of killer whale populations and protection of L98 and A73 from disturbance/harassment became the key factors driving decisions in these cases. However, practical and logistical factors were considered and support and direction from First Nations, NGO's and the public, weighed heavily into the mix of factors driving decision making. These considerations are explored in Table 1.

Table 1. Intervention and management considerations for the L98 & A73 case histories.

Consideration	Case History
Protection/Survival of Population	▪ Neither population at risk from loss of an individual, although some consideration for support of at risk populations. ▪ Possibility that individuals were rejected for the well being of the population evaluated. ▪ Possibility that intervention could have a negative consequence. considered. ▪ In evaluating relocation, risks of introducing disease considered and medical screening and treatment protocols developed and implemented.
Protection of the Public	▪ Risk resulting from interactions with boaters noted in both cases. ▪ Over time, the intensity of interactions escalated in the case of L98 with several large vessels disabled. Risk level deemed high if the situation was not managed.
Protection of the Individual Whale	▪ Marine mammals protected in Canada and US from disturbance and harassment. ▪ Concern for vessel strike or accidental harm present in both cases. ▪ Deliberate attempts in both cases by public to disturb or harass considered. ▪ Over time, concerns about threats to L98 developed.
Survival of the Individual Whale	▪ No government mandate to rescue individual animals unless directed by a recovery plan. ▪ Health concerns for A73; deemed unlikely to survive without intervention. ▪ L98 presented "healthy" and able to forage, some uncertainty about long term ability to survive without support of matriline.
Likelihood to Reunite Naturally	▪ A natural reunification for A73 deemed unlikely due to health concerns and location out of the usual range of the population. ▪ Initially, natural reunification of L98 deemed possible given proximity to potential travel route of southern residents. However, given L98's restricted range, generally out of acoustic range, after four years, natural reunification now deemed unlikely. Attempts to "train" L98 to expand range to open waters unsuccessful to date.
Intervention Options	▪ When intervention was deemed appropriate, a full evaluation of various intervention options was conducted. ▪ Evaluation incorporating scientific, traditional and local knowledge is used. ▪ Experience from other similar solitary odontocetes situations considered. ▪ Cultural and societal values influenced the decision regarding which course of action. was/is most appropriate. (The specific course of action may differ by species, location, timing and surrounding circumstances).
Legal and Legislative Framework	▪ The Marine Mammal Protection Act in the US and the Fisheries General Regulations and the Marine Mammal Regulations in Canada contain both prohibitions and conditions for the various options that were considered; including disturbance, capture, relocation (transplant) and release. The key vehicle to permit activities conducted was a licence. ▪ Because A73 was transported across an international boarder, CITES permitting was also required.
Funding	▪ One of key limiting factors. ▪ Relocation extremely costly (>$500,000 US) and public stewardship and education estimated at between $50,000 and $100,000 annually. ▪ No dedicated government program for management of solitary sociable odontocetes ▪ Some public questioning as to appropriateness of the expenditure of public funds on the rescue/protection of single whales.

Consideration	Case History
	▪ NGO and public commitments of funding and other resources only partly covered costs of relocations and there is no non-governmental commitment for ongoing stewardship in the case of L98.
NGO Support	▪ Strong vocal support for relocation from many NGO's and commitments to contribute to relocation efforts for L98 and A73 key to approval for intervention. ▪ Differing views on details of intervention lead to challenges in implementation. ▪ Need for individual NGO organizations to be seen as leading efforts undermine ability to efficiently and effectively implement intervention plan.
Public Support	▪ Most letters, emails and telephone calls from the general public to government agencies indicated strong support for relocation in both cases, and subsequent to the suspension of relocation efforts, for the ongoing protection of L98. ▪ Some negative feedback regarding the effort and resources directed to a single whale and the interference with a natural process. ▪ Mixed support from local community for L98 that has shifted over time.
First Nations Support	▪ *(These comments pertain only on Canadian First Nations)* ▪ Support from Namgis First Nation for the return of A73 including participation in operational aspects ▪ MMFN First Nation not supportive of any intervention for L98, due to cultural and spiritual beliefs of allowing nature to take its course. Support for MMFN view expressed by broader BC First Nations Community.
Intervention Capacity	▪ Given the expertise and experience required to capture, care, transport and release a killer whale, expertise external to the government agency essential. ▪ In the case of ongoing management of L98, a variety of government, NGO and First Nations groups and individuals have contributed. In this case, an adaptive learning approach has proven somewhat successful.
Monitoring and Contingency Planning	▪ With the decision to initiate intervention, sound contingency options are essential, particularly where the likelihood of success is unknown or low. ▪ Contingency plans, including post relocation stewardship and recapture were developed for both A73 and L98 ▪ Contingency options may be unpalatable to NGO's, First Nations or public and strong opposition may undermine approval of any intervention.

Successes and failures

Without a complete description of the L98 and A73 cases, it is not possible to present an adequate evaluation of successes and failures of the specific intervention methods chosen to date. Success or failure also depends on the priority placed on the objective being considered and hindsight fails to recognize the difficulty of decision making when data and experience are lacking.

Certainly, most would consider the fact that A73 survived and remains a contributing member of her population a success. From a governmental perspective the fact that A73 no longer poses a risk to the boating public and the fact that L98 and the public have been "managed" such that neither L98 or the public have been harmed, can also be looked upon as successful. However, for the purpose of this management review, longer-term success or benefits of these cases include the experience and knowledge gained in observing these unique occurrences, the results of intervention methods tested and a better understanding of the factors that must accompany sound decision making in cases where marine mammal intervention is being considered.

Needs and recommendations

Decision making is fraught with challenges under the highly emotional environment that ensues when a juvenile killer whale becomes separated from its kin. To better inform and ground decision making in future cases of solitary odontocetes, two recommendations can be made based on this evaluation of the case histories of A73 and L98. First, systematic observation and documentation of solitary odontocete cases, including the results of interventions attempted are essential to inform decision making in the case of concern and future cases. Secondly, development of policy (government and among response groups), informed by an exploration of options for solitary sociable odontocetes occurrences, would be beneficial in ensuring that decisions made regarding these cases support the broader mandate to protect marine mammal populations, are effective and practical and are broadly endorsed by the public, First Nations and NGO's in the future.

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Mitigating High-Risk Situations for Various Species of Solitary Odontocetes: Options and Alternatives

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My work with solitaries has involved direct observation and study of numerous individuals of different species (bottlenose dolphins, orcas, beluga whales, narwhals) in a wide range of conditions. My initial analysis has revealed that most of the behaviors observed, in what were previously the more commonly documented solitary bottlenose dolphins, have also been observed in the more recent documentations of solitary orcas and beluga whales. Here, I present options that are proposed for consideration as alternatives to a) actions typically taken that do not result in the desired outcome and b) premature consideration of actions that would have negative impacts on the welfare, if not the survival, of these animals. These options have been derived from my research, and also from lengthy discussions with colleagues[3] and research conducted by others. The careful implementation and testing of the options presented below are recommended to determine their feasibility and effectiveness in different species, individuals, and situations.

First, I have identified what I consider to be three of the most problematic yet common human responses to the presence of solitary odontocetes:
1) *Human encouragement of sociable contact with solitaries (from boats, from land, or in water).* Sociable interaction appears to serve as a form of short-term positive reinforcement to solitaries for increasing proximity, acclimatization, and attraction (and even what may be psychological reliance on) to humans, boats, and human activity. Although these interactions may be enjoyed by the cetaceans in the short-term; the long term implications are that they increase the likelihood that the solitaries will become injured or killed – intentionally or accidentally - by humans and human activity (Frohoff 2000; Samuels et al. 2000; Samuels et al. 2003). A literature review revealed that odontocetes exhibiting the highest degree of contact with humans are generally at the greatest risk of injury, illness, and death (Frohoff 2000). In particular, incidents in which humans intentionally injured or killed sociable odontocetes were reported almost exclusively for solitaries as well as dolphins regularly provisioned by humans with food. Further, because of the short-term psychological benefits that solitaries may derive from some sociable human interactions, such interaction may likely inhibit their motivation to seek contact with conspecifics and therefore impact their long-term welfare and survival.

Similarly, because contact with solitaries is often pleasurable, exciting, and positively reinforcing to humans, many people are resistant to voluntarily sacrificing opportunities for such contact. Thus the occurrence of solitary odontocetes in coastal waters worldwide quickly leads to increased presence of boaters and swimmers which is often followed by an increased incidence of dangerous situations and injuries and mortalities to the cetaceans and even humans (e.g., Frohoff 2000; Lockyer 1990, Samuels and Bejder 2003; Wilke et al. 2005). This is most often associated with inappropriate (accidentally or otherwise) human behavior and/or apparent frustration (exhibited as agonistic behavior) in the cetaceans because the humans simply cannot meet all of their social and

[3] In particular, Cathy Kinsman of the Whale Stewardship Program contributed many ideas, among many others.

physical needs. This is complicated by solitaries often being initially observed as juveniles and may therefore exhibit increasingly unpredictable behavior as they mature. The lack of maturity in many solitaries warrants further responsibility on the part of humans to not encourage high-risk behaviors in these sub-adults who might otherwise be discouraged by mothers or other pod members. Regardless, I note that there may be unique situations in which judicious interaction with solitaries may be considered as an option towards increasing the cetaceans' long-term welfare such as when other options have been exhausted.

2) *Limited, passive, and/or delayed response to the presence of solitaries by regulatory agencies.* With few notable exceptions, there appears to be a tendency for regulatory agencies to wait for dangerous situations involving solitaries to develop, rather than addressing them pro-actively and preventatively. This is reflected in a lack of financial support (for government and non-government entities) to conduct early and intensive monitoring, a paucity of broad public education and outreach programs, a lack of systematic research on high-risk interactions, and a typically passive and inconsistent, if any, on-site management or enforcement program. For example, even when agencies monitor solitaries on-site, they typically do not conduct systematic research and often simply wait for high-risk situations to occur before intervening. This type of intervention may do little to prevent further incidents from occurring and may even inadvertently positively reinforce high-risk behaviors in the cetaceans. Also, unjustifiable delays in leading-out or actively relocating solitaries who are in danger or are geographically isolated from appropriate conspecifics is also a problem. A lack of clear and *enforceable* laws protecting cetaceans as well as government funding appropriation issues often further inhibit the ability and effectiveness of government and non-government agencies to protect solitaries.

3) *Premature consideration of negative reinforcement, captivity or even killing the animals by regulatory agencies.* The perceived need to negatively reinforce solitaries for high-risk behavior is a form of management that may be inhumane, dangerous, and avoidable if preventative measures are taken. The capture of cetaceans for permanent captivity is clearly risky to their survival (Small and DeMaster 1995a,b; Woodley et al. 1997) as well as to their psychological well-being (Frohoff 2004; St. Aubin and Geraci 1988); my research on solitaries and that of others indicates that doing so is unjustifiable without thoroughly exhausting all other options.

Successes

Research has shown that successful protection of solitary odontocetes and humans with whom they associate is directly related to early implementation and consistency of on-site, pro-active stewardship/management and research program (Frohoff 2000; Kinsman and Frohoff 2003; Kinsman and Frohoff, this document). At least two studies have documented that timely, on-water management of human activity mitigated serious high-risk incidents involving humans and solitary bottlenose dolphins (Dudzinski et al. 1995; Frohoff 1996; Frohoff et al. 1996) and beluga whales (Frohoff 2003; Kinsman and Frohoff 2003). Such programs can serve as lower-cost and smaller-scale preventative mechanisms to discourage high-risk interactions before they develop; particularly in

coastal areas of intensive human activity - as well as to mitigate already dangerous situations. Programs that appear to work best often include expeditious implementation of on-site monitoring, stewardship, and research program, wide-scale public education and dissemination of guidelines and laws, and enforcement when necessary (see Kinsman and Frohoff 2004; Wilke et al. 2005)

Needs and Recommendations: Alternative Options

(1) Goals first need to be clearly identified before actions are implemented.
(2) Despite similarities across solitary species, it is important not to generalize, even within species, due to individual differences of animals (e.g., gender, personality, age, health) as well as habitat and the nature of human activity (Frohoff et al. 2000; Wilke et al. 2005).
(3) It is clear that the comprehensive stewardship/management programs (such as described above are a necessary component of protecting solitaries and people. Yet, they are rarely implemented adequately. Even when they are, they still can only serve as necessary bandage while the source of the concern **-** the fact that these highly social animals are solitary - persists. So, in addition to these programs, there is a complimentary and perhaps additionally preventative option (although definitely not a substitute) that has yet to be systematically explored …
(4) An "Enrichment Program" could improve the welfare of solitaries in a similar way to such programs designed for captive cetaceans (e.g., Markowitz 1990) – but would have even broader utility for free-ranging solitaries. If determined to be effective, this program could be modified to be applicable to various (although certainly not all) situations. The purpose could be, depending on the situation, to a) alleviate the psychological suffering of solitaries due to the absence from conspecifics and to b) serve as a form of distraction from, and an alternative to, more dangerous sources of stimulation, and, when appropriate, c) encourage the ultimate reunification of the solitaries with conspecifics by providing positive stimulation *in the absence of association of the stimulation with human interaction*.

Such an enrichment program would conceivably begin with the responsible and systematic introduction of objects into a region of the animal's vicinity that is *not* typically utilized by humans. This would need to be combined with methodical monitoring and documentation of the animals' behavioral (including acoustic) reaction to such stimuli to determine what would be considered "positive" to the animals. For example, humans could provide sources of audio stimulation (such as an underwater speaker – operated cautiously at safe levels of intensity with sounds not associated with human activity[4]), tactile stimulation (e.g., a large broom), a combination of both (such as a large hose), or even visual stimulation. It would be necessary for humans would be hidden behind a blind (as much as possible) to observe and operate equipment. Ideally, perhaps even a 'telephone' between a synthesizer played through the speaker and an underwater hydrophone played through headphones to the 'musician' on land could be developed to provide interactive acoustic enrichment. Once sources of positive

[4] I believe that the playing of recordings of other cetaceans to solitaries should not be considered, except as a last resort, due to the great potential for psychological cruelty given the absence of other "real" cetaceans.

stimulation are identified, such an enrichment program could potentially be used to 'recall' (e.g., through underwater speakers) the cetacean to a safer area when sources of danger are identified in adjacent areas. If there is a need to encourage the animal to move to a different location, a **"***Movable* Enrichment Area" (C. Kinsman and K. Balcomb, personal communication, 2005) could be developed either by gradually moving the sources of stimuli gradually along the shore or by putting them on a designated boat if necessary (such as for the purpose of "leading" the animal away). A simple program could be initiated on a small scale fairly quickly, and with relatively little risk and cost. Such a program could conceivable reduce engagement in more dangerous human activity. Furthermore, it might serve as a preventative option deserving exploration before government agencies even consider forms of negative reinforcement or the capture or killing of these animals. However, caveats include the program's experimental nature and that the risks and benefits of implementing it would clearly need to be evaluated for each individual situation.
(5) Increased funding and support are needed to implement stewardship and enrichment efforts adequately, especially due to the apparent increase of solitary occurrences around the world.

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Brief description of work

We have documented "Beggar" (Tursiops truncatus, presumed male, Sarasota, Florida) approaching boats for food and handouts since 1990. He is typically alone but has been observed interacting with other dolphins. Some of these associate dolphins have exhibited begging behavior too. We are also seeing different individuals "beg" or hang out close to fishing boats in the Charlotte Harbor area to the south of Sarasota.

Successes and failures

Signage was put up in the area near where begging behavior was most observed. Educational pamphlets were handed out to boaters that were attempting to engage in interacting with "Beggar". Some people claimed they did not know feeding wild dolphins was against the law and others said they did not care. A few people have been ticketed but generally there is little enforcement.

Needs and recommendations

Public outreach (media attention and public talks), education on the water first in problem areas followed by enforcement of laws and ticketing violators.

References/literature citations

This is currently a paper that has been submitted to Aquatic Mammals and is in review.

SECTION IV

COMPILATION OF SURVEY RESULTS FOR SOLITARY, SOCIABLIE ODONTOCETE WORKSHOP

As part of the Workshop on the Research and Management

of Solitary, Sociable Odontocetes

December 10, 2005
Manchester Grand Hyatt Hotel Conference Center, San Diego, California
Sponsored by the Whale and Dolphin Conservation Society

Respondents and their ID Initials:
SC: Suzanne Chisolm
CL: Christina Lockyer, Ph.D.
MB: Mike Bossley, Ph.D.
DD: David Day
OG: Oz Goffman
PH: Peter Hamilton
MW: Monika Wilke, Ph.D. with Sandra Guyomard
CM: Connie Merigo
AT: Armando Manolo Alvarez Torres
DH: Dana Hartley
KB: Kim Bassos-Hill
DS: Doug Sandilands
CK: Cathy Kinsman
KK: Kari Koski
TF: Toni Frohoff
KB: Kim Bassos-Hull
MS: Mark Simmonds
KW: Keith Wood
DS: Donna Sandstrom

Focal Species:
-SC: *Orcinus orca*
-CL: *Tursiops truncatus*
-MB: *Tursiops aduncus*
-DD: *Tursiops*
-OG: *Tursiops aduncus*
-PH: False killer whale (Psuedorca)
-MW: *Tursiops truncatus*
-CM*: Beluga (Delphinapterus leucus)*
-AT: *Tursiops truncatus*
-DH: Beluga; Bottlenose dolphins
-KB: Bottlenose dolphin
-DS: Orca
-CK: Beluga
-KK: Orca (residents)
-TF: 1) Bottlenose dolphins (*Tursiops truncatus*), 2) Beluga whales, 3) orcas
-KB: Bottlenose dolphins
-MS: Bottlenose dolphin *(Tursiops truncatus)*
-KW: *orcinus orca*

-DS: orca

Professional/personal Capacity:
-SC: Documentary film producer, writer, observer
-CL: researcher and manager
-MB: Researcher/Environmentalist
-DD: Film maker/researcher observer with many hours in water experience
-OG: Researcher
-PH: Researcher - Animal Behaviour
-MW: Supervising Scientist
-CM: Stranding coordinator
-AT: Researcher
-DH: Manager Federal Stranding Program (NOAA Fisheries)
-KB: Researcher
-DS: Researcher
-CK: Manager/researcher
-KK: Program director
-TF: Researcher/Management Coordinator
-KB: Researcher
-MS: Cetacean experts/members of Coalition established to protect Georges in UK waters.
-KW: researcher
-DS: Stakeholder, member of public

1) Please identify up to three of the most important questions or topics that you would like to see addressed in this workshop?

-SC:
i)How can positive management experiences with solitaries be applied to other solitaries?
ii)Can lessons learned from dolphins and belugas be used to develop management programs for orcas? Why are some instances of permitted interaction with solitaries relatively successful at least in keeping the animals wild and alive -- such as with Jo Jo and Fungie?
-CL:
i)Guidelines to protect solitaries from harassment
ii)Communications network (website or circular e-mail network address) for exchange of information on solitaries
iii)Monitoring procedures and public awareness
-MB:
a) How to manage human interactions with solitary, sociable cetaceans in an effective manner and b) to explore the options for "resocialising" solitaries.
-DD:
i) Dissemination of honest information by managers and organizations/scientists in these situations.
ii) How to make odontocete/human interactions safer.

iii) Support for individuals/groups who are trying to analyse and put forth good information, such as www.irishdolphins.com and www.reseaucetaces.org

-OG:

i)Initiate one common underwater ethogram for solitary, sociable Odontocetes

ii)Form a website with updated information on all existing solitary, sociable Odontocetes worldwide.

iii)Establish a web video bank for solitary, sociable dolphins

-PH: Since most lone dolphin create temporary home territories, how do these individuals determine the invisible boundaries? mimicing these boundaries would help prevent human/cetacean conflicts.

-MW:

i)How to manage the problems concerning the behaviour of Jean-Floc'h who regularly destroys boat and nautical material?

ii)How to manage the problem of the two dolphins who may react in an aggressive way when somebody interrupts or disturbs them during interactions with a preferred swimmer or want to leave the water?

iii)A solitary dolphin is not just a solitary dolphin: there are often important differences in behaviour and general attitudes between male solos and female solos. How do you explain these differences to the public and in general, how to explain that both genders react just like wild male or female dolphins?

-CM:

i)Addressing the issue of natural selection and when to allow nature to take its course.

ii)Addressing the issue of resource allocation: individual animal focus versus a population approach.

-AT:

i)How to make environmental programs successful and locally relevant.

ii)Obtain new ideas on the cause of solitary social odontocetes

iii)Obtain new ideas on how to manage solitary cetaceans.

-DH:

i)Balancing threats to individual animals versus populations.

ii)Maintaining "watchable wildlife" messages while optimizing opportunities for public education.

-KB:

World distribution of beggar and solitary dolphins; current management actions; best options for education.

-CK:

Funding sources for individual animals; Reunion of solitaries with conspecifics; origin and fate of solitaries.

-KK:

Identification of first actions required in solitary situation; actions that are in animal's best interest; success stories.

-TF:

Creation of better and more specific and preventative options (in management and research) for protecting solitaries, 2) Identification of what methods are more situation-

specific and which can be more generalized, 3) Exchange of information regarding previous successes and failures.
-KB:
i)How widely occurring are begging dolphins or sociable solitaries around the world and what species
ii)What are the current management and enforcement actions being taken to protect these wild sociable animals
iii)What are the best ways to educate the public about how to behave around these animals?
-MS:
i)Ideas on how to 'get the public onside' and actively respecting the reasons why the welfare of the animal might need to take precedence over their own desires to interact with that animal.
Our experience was that many members of the public were hostile to being educated on the risks involved to both them and the dolphin of continuing interactions.
ii) How can voluntary and official agencies work cooperatively together to safeguard the welfare of a solitary?
Our experience was that there was a marked reluctance of some of the official agencies to take a lead in coordinating efforts (or indeed, to play any active role unless a serious incident occurred), yet the public was not always willing to accept being talked to by voluntary agencies.
iii) Are there any examples where legislation has either been enacted or improved following the case of a 'difficult' solitary?
In the UK, we found that the needs of solitaries did not seem to be properly covered by existing legislation. Crucially, whilst we have laws against deliberate or reckless disturbance, this is difficult enough to prove when involving 'ordinary' cetaceans - who are generally fairly shy around boats and people and will keep their distance - in the case of solitaries, it can be almost impossible to establish 'who was approaching who'.
-KW:
How best to integrate science with stewardship
-DS:
i)How do agencies and NGOs work together more successfully to resolve issues successfully.

2) Please identify the solitary animal(s)/situations with which you have experience (if numerous animals, please summarize in the best way possible or refer to a reference):

a) name used to refer to animal
-SC: Luna
-CL: Beaky, Simo, Percy, et al!!
-MB: Jock
-DD: 1) Dony/Randy/Georges, 2) Dusty, 3) Jean- Floch
-OG: Holly
-PH: False killer whale – Wilma/Willy/Foster/Elvis)

-MW: Dony and Jean-Floc'h. Actually, two male solitary dolphins are frequently present at the coast of Brittany: Dony and Jean-Floc'h. They both interact, alone or together with boats and humans in a very vigorous way, causing sometimes injuries to people when these are not attentive or aware of the dolphin's intentions and "demands". Both males show dominant behaviour, chasing people in a potentially aggressive way out of the water when they feel disturbed. Dony shows often also sexual attitudes with his penis extruded regularly during interactions. Jean Floc'h is much attracted by boat propellers and has yet destroyed several oars and other ship material and makes people who did not know how to swim fear for their life.
Réseau-Cétacés realises a close survey of the two animals since 3 years, managing the situation from Paris with telephone and e-mail, with regular visits in Brittany and the direct help of local people in the marine area of the dolphins in Brittany. A huge network has been established for collecting information on the movements and behaviour of the animals. This network includes the harbour institutions, town halls, fire towers, coast guards, tourist offices, diving clubs and different passionate local contact persons.
-CM: Poco
-AT: El Pechocho (adult male)
-DH: Poco, Helis (both Belugas) Note only Poco to be discussed below.
-DS: Springer
-CK: a) Female Beluga: Wilma; c) 2-3 yrs old until 8-9 yrs old; d) unknown; e) unknown
1) a) Male Beluga: Kuus; b) Green Bay, Newfoundland (NL), Canada; c) 2-3 yrs old; d) unknown; e) unknown
2) a) Female Beluga: Lenni; b) 2000-Ming's Bight, NL, Canada; 2001-Hare Bay to Gunner's Cove, NL; 2002-Bonavista Bay to NotreDame Bay, NL; c) 2-3 yrs old until 4-5 yrs old; d) unknown; e) unknown
3) a) Male Beluga: Casper (in Quebec)*, Echo (in Newfoundland); b) 2001-St. Pauls River, Quebec, Canada; 2002-Codroy and West coast NL, Canada; c) 2-3 yrs old until 3-4 yrs old; d) unknown; e) unknown; Note*: Casper initially observed far from nearest beluga population together with two other juveniles, Shadow(F)(2-3 yrs old) and Phantom(M)(1-2 yrs old) who both died, leaving Casper solitary in 2001
4) a) Female Beluga: Ce'Sea; b) White Bay, NL, Canada; c) 2 yrs old d) unknown; e) unknown
5) a) Male Beluga: Poco; b) 2003/4 Bay of Fundy, Passamaquoddy Bay, New Brunswick, Canada; 2004-NE USA (see D. Hartley) c) 2-3 yrs old; d) Died of infection November 2004 (L. Dunn 2004)
6) a) Female Beluga: Charlie-Bubbles; b) 2001-Southern Bay (Bonavista); NL, Canada; 2002-Bay Bulls to Calvert, NL; c) 2-3 yrs old; d) killed May 2002 by propeller of long line fishing vessel moored alongside wharf
7) a) Beluga: Chance (gender note determined); b) Trinity Bay, NL, Canada; c) Juvenile; d) unknown; e) unknown
8) a) Male Narwhal: NarBilly; b) Trinity Bay, NL, Canada; c) 6-8 yrs old (J. Lawson 2003); d) unknown; e) unknown
9) See Robert Michaud for details on three additional juvenile solitary sociable beluga whales in Gulf of St. Lawrence, Quebec, Canada
-KK: Springer/A-73; Luna/L-98/Tsuxiit

-TF: 1) Pita, 2) multiple names for multiple belugas (please see CK's list of names for belugas), 3) Springer/A-73, 4) Luna/L-98
-KB: Beggar
-MS: Georges/Randy. Male.
-KW: Luna
-DS: Springer (A-73)

b) location (please be specific)
-SC: Nootka Sound, BC, Canada
-CL: British Isles
-MB: Adelaide, Australia
-DD: 1) Numerous in Ireland, England, France, Belgium and Holland, 2) Dereen, West Coast of Ireland, 3) Cap Sizun, Brittany, France.
-OG: The beaches of Nuweiba in the Gulf of Aqaba (Red Sea), Sinai, Egypt
-PH: Mainly Vancouver, BC but also Puget Sound, WA and Northern BC
-MW: - Dony visits actually different places along the French Atlantic coast and is frequently observed on the Brittany coast of the Finsitère, mostly together with Jean Floc'h. - Jean-Floc'h is more sedentary and remains on the coast of Britanny, being observed most time in the Finistère (department of the region Brittany) close to the Pointe de Brézellec and l'Anse du Vorlenn.
-CM: New Brunswick, Canada to Cape Cod, MA.
-AT: Topolobampo Bay, Sinaloa, Mexico.
-DH: New Brunswick, Canada to Cape Cod, MA.
-KB: Albee Bridge area, Nokomis, Florida (west coast)
-DS: Johnstone Straight, British Columbia, Canada
-CK: see above
-KK: Springer: Puget Sound, Vashon Is, Washington State.
Luna: Nootka Sound, Vancouver Is, BC
-TF: 1) Pita: Lighthouse Reef Atoll, Belize, 2) multiple beluga whales: Eastern Canada and NE Coast U.S. (see specific locations provided by CK), 3) Springer, Puget sound, WA, U.S. 4) Luna: Nootka Sound, BC. Canada
-KB: Albee Bridge area Nokomis Florida (west coast)
-MS: Off Weymouth, Dorset, UK
-KW: Nootka Sound, BC
-DS: Central Puget Sound (near Vashon Island, WA)

c) presumed age when first observed (and last or most recent)
-SC: less than 2 years old when first observed, now 6 years old
-CL: variable: very young and very old
-MB: Approx 3yrs to 10yrs
-DD: 1) Young adult male, 2) Young adult female, 3) Young adult male.
-OG: When first observed at 1994, she was 9 years, as determined by tooth sections taken when she was found dead on December 2004
-PH: Approx. 10 years
-MW: - Dony : adult male, probably an older animal (skin highly scarred and well worn teeth

- Jean-Floc'h : adult male
-CM : 2-3 yrs old
-AT : Initial observation at 2-3 years old and now approx 15 years.
-DH: 2-3yrs
-KB: Subadult
-DS: 1 year
-CK:
-KK: Springer: 1-2 years initially
Luna: six years now
-TF: 1) Pita: approximately 10 years , 2) Muliple belugas: Mostly juveniles but also subadult initially (see CK for specifics), 3) Springer: approximately 2 years/now approximately 5, 4) Luna: approximately 2 years/now approximately 6.
-KB: subadult
-MS: estimated at between 3-6 years in 2002
-KW: 1.5 yr
-DS: First observed: 2, most recent: 5

d) whether or not the animal is still alive (if known)
-SC: Yes
-CL: dead
-MB: dead
-DD: 1) Yes, 2) Yes, 3) Yes
-OG: No, deceased
-PH: No sightings since August 2003
-MW: Both dolphins are still alive
-CM: Found dead Nov 15, 2004.
-AT: Still alive
-DH: Found dead Nov 15, 2004.
-KB: still alive
-DS: still alive
-CK:
-KK: Springer: Alive and back with natal pod. Luna: Alive
-TF: 1)Pita: unknown, but cited at least once with conspecific before 'disappearing' , 2) Beluga whales (unknown or dead – see CK), 3) Springer: yes, 4) Luna: yes.
-KB: yes – still alive
-MS: Yes believed to be
-KW: yes
-DS: yes!

e) whether or not the animal is still solitary
-SC: Yes
-DD: 1) Yes, but often associates with the third animal below, Jean-Floch, 2) Yes, 3) Yes
-OG: She was not solitary, or at least not sociable, during the last 3 years of her life.
-PH: See (d)

-MW: Both animals are solitary but interacting together and – at least Dony interacting also with other wild dolphins and Fungie, the solo dolphin at the dingle Peninsula in Ireland.
-AT: Still solitary
-KB: Mostly solitary
-DS: Not solitary
-CK:
-KK: Springer: Not solitary
Luna: Solitary
-TT: a) Pita: unlikely, b) Beluga whales: currently unknown, c) Springer: no (actively reunited with pod), 4) Luna: yes.
-KB: solitary mostly solitary but interacts occasionally with other dolphins
-MS: Mainly, but has been seen in the company of another solitary male Tursiops, Jean –Floch, off France (in June and July 2005, for example).
-KW: yes
-DS: no

f) basis for knowing whether animal is still alive or not solitary (e.g., photo i.d., "word of mouth", etc.).

-SC: Regular observations
-MB: NA
-DD: 1) photo IDs on web site. Has large cut/scar on dorsal fin, 2) Information from www.irsihdolphins.com group, 3) from photos and information on the resaeaucetaces.org web site. He has a large, recognisable scar on the lower jaw.
-OG: Photos of dead body with definite ID marks in fins and spotting.
-PH: Not known.
-MW: Nearly daily reports about the dolphins from contact persons, members of the huge information network
AT: Photos
-KB: Photos
-DS: Field observations, photos
-CK:
-KK: Photo ID, acoustics, natal group is part of wider research and whale watch effort.
-TT: 1) Pita: word of mouth and occasional survey effort, 2) Belugas (see CK), 3) Springer (see KK), 4) Luna: Regular, on-site observation
-KB: have photographed with other dolphins during our surveys
-MS: Pers comm from WDCS members and contacts; Irishdolphins.com website maintains a comprehensive sightings database for this dolphin (NB they believe that Georges/Randy is also the same as Dony, sighted off Ireland April-July 2001)
-KW: Observation
-DS: Direct observation.

3) Most serious concerns for cetacean safety and reasons why?

-SC: Human-induced injury; people have threatened Luna; specifically, sportfishers have threatened to shoot him. Also, threat of captivity if government thinks that is the only solution to ensure public safety.

-CL: Physical harm both to dolphin and humans
-MB: Over enthusiastic visitors.
-DD:
i)With 1st Dony. He has a habit of putting his beak into outboard motor propellers, but luckily only ones large enough to do minor damage!
ii)With 2nd Dusty: There were some problems from local residents with the parking of visitors cars tasking up local spaces.
iii)With the 3rd, Jean-Floch. Problems from the locals, as he does damage to small fishing boat moorings, and apparently to some rudders. Also the small landing stages get crowded with the extra people attracted by the dolphin(s). So there has been rumours of the solution to these problems being to kill the dolphin.
-OG: Addressing the inclination (need?) for continuous human contact. Concern for the success of calf-rearing under the increased stress of unregulated "over=tourism"
-PH: Boats getting too close and abrupt, fast changes in direction. Scars and wounds that could have been collisions with boats were observed.
-MW: Local people who risk to kill one day the dolphins because of their behaviour: they attract to many people which may disturb local people and their professional activities, in particular the fishermen who bear not only entanglement of their boats and the destruction of boat material (for example oars), but also those, who know not swimming may fear for their life when Jean Floc'h hits sometimes vigorously a boat which make it moving heavily around. Fishermen have already hit Jean Floc'h several cases with a paddle. One fisherman tries actually to drive Jean Floc'h out of the area using bangers.
Propeller injuries: both dolphins had already deep wounds and scarves from boat propellers.
-CM: Animal approached boat engines and rubbed against vessels and other objects.
-AT: Tourists expect close encounters with the dolphin and pursue him to achieve this possibly disrupting feeding and resting. Also, increasing tourism means more boats and the increased chance of boat strike.
-DH: Injuries from outboard motor propellers.
-KB: Swims and begs next to moving boats and sometimes given poor quality food.
-DS: Poor physical condition (thin, listless, poor skin, ketosis)
-CK: Injury from boat strike and other objects; possible psychological/sensory deprivation; inappropriate human interaction.

-KK: Luna: Public perception of animal as a nuisance (including death threats); long term management as whale ages; self injury because of risky behaviour and humans.
-TT: Intentional human or unintentional human activity injury (e.g., boat propellers, industrial activity) for all solitaries – especially regarding Luna because of threats of death by locals.
-KB: Swims and begs next to moving boats and sometimes fed poor quality food. Sometimes has bitten people.
-MS: i) Boat strike: Georges had the habit of pushing his beak or flanks right up against boat propellers, incurring quite nasty wounds on several occasions to these areas.
ii) Entanglement in nets: he had the habit of following fishing boats and often spent hours on end around boats which had put out their nets, leading to fears that he would become entangled.

iii) Malicious or accidental injury from a member of the public: Georges would initiate contact with often very over-excited members of the public. These sessions could get out of hand and members of the public would frequently be butted, rammed, mouthed etc. On several occasions he was known to grab a child's arm and mouth it, and there were anecdotal reports of parents threatening the safety of the dolphin; and also drunken holidaymakers boasting that they would harm the dolphin.
KW: Redneck fishermen. Sea World/Six Flags Aquariums.
DS: Close encounters with and attachment to boats/boater; public curiousity/exploitation.

4) Were cetacean injuries or fatalities incurred (briefly describe and state whether intentional or unintentional, if known – as well as describe the situation)?:

-SC: Yes. Luna has had some gashes and cuts; recently there appeared to be a small puncture wound ahead of his dorsal. It is unknown if these are intentional.
-CL: several types – damage to boats and physical aggression to humans
-MB: Injuries included being speared (presumably intentional); entanglement in fishing line; and propeller cuts.
-DD: Maybe to Jean-Floch, which rumour has it was done by someone.
-OG: Holly was probably killed. She was found freshly dead with a small puncture on the side of her body. At the time she was found, her 3rd calf was injured too, raising the possibility of human intentional assault. We have no evidence to this support there was no autopsy.
-PH: Several scars and in one year a head wound.
-MW: See above, propeller injuries; still moderate violent behaviour from the fishermen.
-CM: Poco incurred several superficial wounds. Death was due to disease.
-AT: Scar probably caused by propeller.
-DH: Healed scars of penetrating wounds, superficial scars.
-KB: None
-DA: None
-CK: One unintentional death by boat strike; one death from infection; numerous "accidental" injuries, both superficial and severe, from boat strike; entanglements; deliberate attacks.
-KK: Luna: Self inflicted cuts due to play with boats.
-TT: 1) Pita: potential scarring due to humans but not confirmed, 2) Belugas (see CK), 3) Springer: (see KK), 4) Luna: minor scars potentially caused by humans.
-KB: no serious injuries to dolphin observed
-MS: Georges was frequently seen with fresh wounds, particularly to the left flank and to the trailing edge of the dorsal fin on the left hand side, also wounds to the rostrum and behind the blowhole.
-KW: No
-DS: No

5) Most serious concerns for human safety and reasons why?

-SC: As Luna grows bigger and retains his interest in humans, many fear he will inadvertently capsize a kayak or other small vessel and one or more humans will be thrown into dangerously cold water.

-CL: Already answered
-MB: No serious concerns, some concern re sexual arousal of dolphin.
-DD: Being injured by the sea, boats or dolphins because: The lack of good information/informed people at the site.
-OG: Not enough respect for a wild, strong, and agile animal in its natural environment, an environment often unnatural and hazardous to humans. Even not so serious injuries may become aggravated by the lack of prompt medical attention, in remote locations.
-PH: People may consider swimming with the dolphin and the dolphin's reaction could possibly result in intentional or unintentional injury.
-MW:
i)Lack of consciousness and attention of swimmers who try to encounter the dolphins by swimming in the harbours and other areas where swimming is not allowed, who swim to much in the open see without noting the tidal state or who do not watch out for approaching boats.
ii)Lack of respect concerning the wild nature of the dolphins and their interaction "demands", risk to be bitten, pushed or slapped by the dolphins who show dominant and aggressive behaviour or approach swimmers sexually.
-CM: Poco approached and interacted with divers, occupied small water craft, and people attempted to touch and swim with him.
-AT: Lack of education for how to interact appropriately with the dolphin.
-DH: People acting inappropriately, including attempting to swim with and feed animal.
-KB: People might get injured or bitten.
-DS: Animal rubbed on boats
-TT: For all animals, inappropriate human activity and behavior (deliberately or accidentally – the latter of which is more common since most people – do not have knowledge of appropriate dolphin 'etiquette' and cannot reliably predict threats and warnings exhibited towards them by cetaceans). Such situations could result in the injury or death of cetaceans (and to a lesser degree in many cases, humans)
-KB: That people will get bitten or seriously injured if they try to feed or swim with this dolphin
-MS: Swimmers often interacted in an extremely reckless manner around Georges (especially prior to the public awareness campaign run by the Coalition), allowing their children and dogs to approach to within a few inches of the dolphin, or to clamber onto his back, grab his dorsal, etc. They were frequently inexperienced swimmers, inadequately dressed, especially given the low water temperature in early spring, and often unaware of the dangerous currents and undertow in the area.
-DS: Small boat navigation in her vicinity – concerns didn't' really materialize.

6) Were human injuries or fatalities incurred (briefly state and describe situation):
-SC: No.
-CL: injuries minor and requiring medical attention, but not fatal
-MB: Nil
-DD: No
-OG: A few bites (some requiring stitching) or scrapes; ramming, mostly after unsolicited rubbing & chasing of the dolphin.

-PH: No.
-MW:
i)When people have been to intrusive meanwhile Dony or Jean Flo'h have been interacting with a particular person, the dolphins have performed dominant and aggressive behaviour. Dony has already inflicted several times injuries to people by biting, slapping with his tail or pushing people in a violent manner.
ii)Jean Floc'h has also recently adopted intimidate behaviours (beak pushes and slaps) when people try to leave the water or with some of his regular partners (for details, please see the report on Jean Floc'h)
iii)Several times in recent past, people in boats who do not know swimming have panicked when Jean-Floc'h has slapped his tail or body against the border of the boat.
CM: No human injuries.
AT: A woman who touched the dolphin's fresh propeller wound was bitten.
DH: Nil
-KB: Several people have been bitten, including one bitten severely on leg during swimming.
-DS: None
-CK: Some incidents of whales impeding swimmers leaving water; forceful contact by whales; whale becoming possessive of objects.
-KK: Luna: Mostly damage to property rather than people, swamping small boats, potential damage to float plane and fishing gear.
-TF: 1) Pita: Occasional forceful bumping/ramming (typically, Pita appeared to be possessive of objects (perhaps including people) and actively attempted to prevent swimmers from leaving the water, 2) Belugas: see CK summary in this document, 4) Springer: none observed - see DS, 5) Luna: see CC and KK.
-KB: This dolphin has bitten several people and one person that tried to swim with it was bitten badly on the leg and had to be taken to the hospital
-MS: Injuries but not fatalities. As above, swimmers were butted, rammed, mouthed, hit by tail flukes and sometimes prevented by the dolphin from leaving the water. One man was tossed right out of the water and was hospitalized after suffering a heart attack.
-DS: No.

7) Primary approaches to addressing cetacean safety that were attempted
-SC: On-the-water stewardship and intervention
-CL: local public awareness programmes – reasonably successful
-MB: Keeping animal a secret; attempt to resocialise.
-DD: Because of the danger to the dolphin (and swimmers) they tried to guide him back to France!!!
-OG: Having a responsible swimmer that is familiar with the animal (Bedouins) used as a guide that control swimming. On-site distribution of leaflets, in several languages, with swimming guidelines.
MW:
i)Huge information campaign with 880 personal contacts of Réseau-Cétacés with harbour institutions, town halls, fire towers, coast guards, tourist offices, diving clubs all along the French Atlantic coast. Regular contact with journalists of newspapers and local and national radio.

ii)Conciliation work with fishermen and ship owners to get them tolerate the presence of the sociable dolphins. Regular meetings with all interested fishermen begin now in November.
CM: Production of outreach materials.
AT: Education
DH: Public outreach and boat based interventions informing people to stay away from animal.
-DS: Whale was captured, restored to health, transported to vicinity of natal group and released.
-CK: Onsite monitoring and proactive stewardship with intervention in high risk behaviors; consistent observation and data collection.
-KK: Luna: Stewardship efforts focused on education, monitoring, and in some cases, interacting with Luna to change his behavior. Other groups did lead outs, interactive play, limited enforcement. Deterrent devices fitted to float plane and some docks.
-TF: 1) Pita (please see references in my summary for description), 2) Belugas (please see CK and my references in our workshop summaries), 3) Springer: please see CK and DS, 4) Luna: Please see SC.
-MS:
i)attempts to manage the public via education (beach patrols, with posters and leaflets asking people to view the dolphin from the shore, etc); and boat patrols, asking boat owners not to approach the dolphin, or if it did come across, to try to attract the dolphin away from the propellers.
ii)placing articles in the local and national media asking the public to respect the dolphin and to keep their distance, reminding them of the relevant legislation.
iii)regular veterinary assessments
iv)regular monitoring by local cetacean researchers

a) Of these, which succeeded and why do you think this happened?
-CL: From our observations and from the journals of stewards, sporadic active intervention with Luna very often succeeded in ending specific problem situations. This intervention primarily consisted of stewards actively distracting Luna with toys and human attention. He would leave the problem situation to follow the stewards, who then would usually spend minutes to hours leading him to an area far from the problem vessel and then eventually leave him. In many cases he would then forage instead of returning directly to the problem area. It seems likely that this tactic was successful because stewardship boats interacted regularly with Luna, often for long periods of time.
-MB: Both were successful.
-OG: Probably none, since short-sighted considerations of commercial profit were overwhelming.
-PH: Public education - distribute whale watch guidelines.
-MW:
i)The information campaign was successful in the way that the network was this way much extended along the Atlantic coast where all local institutions are aware of a potential visit of the dolphins and can contact directly Réseau-Cétacés.
ii)The educational pamphlets, plaques and information posters are friendly welcomed by people, although we do not know the educational impact of them. It is important to note

that the informative plaques do not interdict contact with the dolphins but encourage people to respect the essential rules for the safety of both, dolphins and humans. The humans are content that they are allowed to interact with the dolphins and share more easily their experiences with Réseau-Cétacés. Overall interdictions are very hard to get accepted and to controlled and do neither satisfy the needs of the dolphins, nor those of the humans.
iii)A dialogue has been established with the fishermen who know at least that their problems because of the dolphins are considered and solutions searched for.
-CM: Materials educated the humans but not the Beluga!
-AT: Education materials were successful.
-DH: Some control over human behavior.
-CK: Preventative and early interventions successful in reducing dangerous human behavior; research camera also acted as a deterrent.
-KK: Luna: Education effective but not adequate as long term solution. Leadership from governing agency too slow.
- TF: For both 1) Pita and some 2)Belugas (see CK for more about belugas): Managing human behavior according to a) what we know about solitary behavior in general, b) based on what we observed in terms of previous research/knowledge of signs of stress/frustration in Pita as well as c) individual variation in Pita's exhibition of these behaviors that was learned through observation and systematic research. In the case of the 2) belugas, various degrees of on-site stewardship/management programs including public education and research were provided relative to available resources (see CK and my summaries in this document for details).
-MB: Both beach patrols and boat patrols had a noticeable effect in tempering public behaviour, however see below. Regular veterinary assessments, and monitoring meant that the Coalition was able to track the condition of the dolphin during its residency

b) Of these, which failed and why do you think this happened?
-SC: Stewardship often failed to prevent problem interactions when the stewardship boats were far from Luna's location because stewards were otherwise occupied. On occasion Luna would also push stewardship boats away from his interaction targets when the stewards approached, apparently so he could continue to play. However, with persistent efforts to engage him, stewards were usually effective in removing him from the problem. However, because stewardship was designed solely for crisis management and did not have any long-term management goals or structure, it did not succeed in solving the general concern over Luna's presence. Despite the efforts of stewards, stewardship largely failed to provide the public on the water with a sense that Luna was being successfully managed.
-MB: Neither failed but the dolphin was still found dead. Cause of death unknown but may have been pollution related.
-OG: Unfortunately the Bedouins who swam on a daily bases with the dolphin were show-offs and instead of controlling the tourists they behaved carelessly and probably stressed the animal even further.
-PH: Some boaters harassed the dolphin thinking that the dolphin always wanted to boat follow.
-MH:

i)The dialogue with the fishermen could not yet calm down the tensions but we continue to communicate with them and to try to find solutions for their problems together.
ii)Only very few swimmers and local passionate people take over a feeling of responsibility to be attentive towards possible dangers for the dolphins.

-CM: Poco did not show site fidelity so difficult to know where to target materials.
-AT: Unable to provide education for the duration of the incident.
-DH: Nothing was successful in deterring whale from seeking interactions with people.
-CK: The deaths of three belugas constituted failures due to the inability to undertake stewardship because of lack of funding, personnel, a boat and other equipment. Ill defined regulations made enforcement difficult.
-KK: Luna: Limited and inconsistent enforcement; conflicting jurisdictions; divided community; no leadership; limited understanding of situation; no collective plan so splinter groups working in competition; lack of money.
-TF: For all except Springer, lack of funding, resources, and often, lack of adequate government support, legislation, and willingness and ability to enforce. Also, lack of ability to think "outside of the box" and exploring new potential solutions.
-MS: Whilst some members of the public, once educated, were happy to comply, others were more resistant and resented by told what to do by voluntary agencies such as the Coalition.

c) What did you want to attempt but could not (and why not – what were the main challenges/obstacles)?

-SC: We observed that Luna was determined to interact with people, would seek interaction many hours of the day, and would frequently find it, either by forcefully interacting with people who could not get away from him or by playing with stewardship boats when they led him away from such interactions. Therefore we concluded that highly consistent stewardship with careful managed interaction should be a management option. We believe that if his interaction patterns were made more consistent -- without increasing the quantity of interaction -- he could more easily be kept away from potential problems. We also believed that such a program could give him a more stable life and that he could then be led to areas more conducive to acoustic contact with other orcas, which would give him more of a chance of reunifying with his pod naturally. We could not attempt this effort or get anyone else to attempt it, because of opposition from the scientific community.
-OG: Controlling the number of tourists, by instituting swimmer-free periods into the dolphin's daily regime. Obstacle: the dolphin became an attraction integrated into daily tours, which poured out busloads of people with only a short time to swim (and touch) the dolphin.
-PH: Photographing and video taping behaviour were successful.
-MW:
i)To get journalists to write better articles about the wild nature of dolphins, explaining in a reasonable and not sensationalistic way the behaviour of the two male dolphins. Journalists in general, at least in France, prefer to write sensationalistic articles and are

not really interested in explaining information about dolphins which do not fit in the opinion of the public.
ii)To have a more direct support of the environmental police, or as demanded by the fishermen by the "Affaires Maritimes" (sort of marine police or guardians who are regularly in contact with the fishermen) during prolonged week-ends and school holidays.
-CM: Cross national issues.
-DH: Unable to predict where he would be.
-DS: Delays in being able to implement capture, treatment and release.
-CK: Wanted to implement innovative, non human interactive programs; undertake comparative research; and run programs for all solitary belugas in the area.
-KK: Luna: Planned safe type of human/whale interactions; unified approach to desired outcomes;
-TF: For all animals except Springer, funding and support to implement adequate stewardship/management programs, sufficient government support, new options such as enrichment programs in the absence of human association (see Frohoff this document), and the ability to systematically explore cognitive aspects of these animals with the goals of improving their protection (as solitaries and in populations) because of the reasons above and the consequential need to focus on simply keeping them alive.
-MS: We sought to manage the public rather than the dolphin. This was successful to a degree and the dolphin remained alive despite being in a very busy tourist area with many leisure vessels, etc. Main obstacle was that there were schisms between members of the Coalition: namely between those who sought to manage the public (the majority) and the minority, who wanted to manage the dolphin itself and suggested luring it either to a seapen from where it could be assessed/rehabilitated; or luring it back to France, which they believed represented a safer environment.

8) Primary approaches to addressing human safety that were attempted
-SC: See 7a above.
-CL: local public awareness programmes – reasonably successful
-MB: The only one attempted was to try and calm him down when he got sexually excited.
-DD: Informing people of the dangers of swimming with these animals, and explaining and demonstrating correct behaviour.
-OG: Since "Holly" was very near to the shore, there was usually no problem of getting out of the water. Only in several incidents did she prevent swimmers from going out to the beach. The handouts stressed both animal and swimmer safety.
-MW:
i)Distribution to the swimmers and other visitors of pamphlets and posters with guidelines and information on the behaviour of the dolphins and oral explanations by local contact people who try to manage sometimes difficult encounter situations with the dolphins.
ii)Contact of the coast guards to assure direct help for boat owners who are in danger because of the vigorous interactions of Jean Floc'h with their boat.
-CM: Public outreach emphasizing Poco a protected species and wild animal who could be carrying diseases.
-AT: Education.

-DH: Public outreach emphasizing Poco a wild animal with unpredictable behavior.
-DS: Post release monitoring to limit opportunity for more boat interactions.
-CK: Onsite education, distribute guidelines and explain their importance, develop good rapport with relevant people, maximize media.
-KK: Luna: Emphasis on personal responsibility to know guidelines/regulations.
-TF: See 7a above.
-MS: As above, public education via leafleting, posters and beach patrols. Media articles, radio interviews etc appealing for the public to keep their distance.

a) Of these, which succeeded and why do you think this happened?
-SC: In addition to the above stewardship programs, we initiated a specific effort to prevent potentially troublesome interactions with several groups of young kayakers who came to Nootka Sound throughout September, 2005. We made regular contact with the supervisors of the kayak program so we could know when the groups would be on the water near areas frequented by Luna. We then monitored Luna's presence during those times and if he was nearby we alerted the kayak group leaders and suggested routes that would avoid him. On one occasion when Luna was seeking interaction very close to a group of about 20 kayaks, we called the First Nations stewardship boat and requested assistance. It arrived and conducted a preemptive interaction under the DFO permit. In other words, Luna was kept busy while the kayaks passed.
During September there were no encounters between the young kayakers and Luna.
-MB: He seemed responsive to our mood and intentions.
-DD:
-OG: Hard to judge.
-PH: Education and monitoring boat traffic.
-MW:
ii)The information of the visitors is probably much helping, because without the pamphlets and posters much more accidents are probably.
ii)The cooperation with the coast-guards is engaged.
-CM: Not sure how successful outreach was because started late in incident.
-DH: Difficult to gauge success of outreach materials.
-CK: Preventative approach using personal approaches, helped intimidated swimmers, conducted information sessions, avoided media as long as possible and then used to augment education.
-KK: Luna: Most people were aware of rules.
-TF: See 7b above.
-MS: As Q7)

b) Of these, which failed and why do you think this happened?
-SC: See 7 b) and c) above.
-OG: In a crowded situation, a "well behaved" swimmer may undeservedly be the target of aggression induced by a misbehaved one.

-PH: Whale watch boats did not follow general whale watching guidelines.
-MH: To make people aware of the danger of the marine environment and the sometimes aggressive and possessive reactions of the dolphins seems very difficult because people seem to loose often all reason and awareness when being in the presence of the dolphins.
-CM: Assumed incorrectly that the animal would move away in a short time.
-CK: Delayed or intermittent stewardship was not successful because precedents had been set.
-KK: Luna: Most people chose not to follow rules, and no action was taken against such people.
-TF: See 7b and 7c above
-MS: As 7)

c) What did you want to attempt but could not (and why not what were the challenges / obstacles)?

-SC: See 7) above.
- DD: To inform all at the sites, but without any official capacity and with large numbers this was impossible. Also my French was good enough in France.
-OG: Limiting swimmer numbers; controlling swimmer behavior. Obstacle: people were not cooperative.
-PH: No funds to be there all the time to stop pleasure/commercial boat traffic harassment.
-MH:
i)To discourage in an efficient way some passionate dolphin "partners" to interact in an intimate and very physical way with the dolphins when other people are present who would like to interact themselves with the animals.
ii)To discourage people to go swimming in interdicted and dangerous areas and to be attentive to the approaches of boats.
-CM: We were not able to implement an enforcement process.
-AT: Education was successful while it could be maintained but lack of financial resources to extend the outreach program. Working on an official set of guidelines for tourists.
-DH: Would be interesting to have done more public outreach and involved official enforcement but his extensive movements made this difficult.
-CK: Wanted to produce print and interactive DVD materials; update website and film; be able to make use of boat.
-KK: Luna: Unable to implement regulations.
-TF: See 7c above
-MS: As 7)

9) Was systematic research conducted on human and or cetacean behavior (please briefly describe)?

-CL: Yes, in all cases – most results published
-MB: Systematic research conducted on sighting location, time and behaviour of dolphin, and also interactions with other dolphins.

-DD: No, just observation and filming.
-OG: Yes, on both human and cetacean behaviors. My investigation was made up of underwater video recordings of dolphin-human interactions, collected for 2-3 consecutive days each month for 5.5 years and analyzed in the laboratory. The analysis included precise documentation of behaviors and time periods observed. A total of 822 human-dolphin interactions were randomly taken to represent 10 periods in the dolphin's reproductive cycle. These were divided to 6 behavioral categories. The first five were Samuels and Spradlin's (1995*) behavioral categories. The last one: "Neutral" or "Indifferent" category was defined in this research, being: animal and human in close proximity, sometimes with human behaving towards animal, with no apparent behavioral change or response by the animal).
-PH: Yes
-MW: No systematic research has been realised on the two dolphins.
-CM: Behaviour documented using interviews, photos and video.
-AT: Some observations made on behavior in relation to location.
-DH: Beluga assessed by experienced veterinarian; human behaviour documented.
-DS: Past photos, acoustics and genetics used to identify natal group
-CK: Data sheets and video, including underwater video and acoustics.
-KK: Luna: Some initial monitoring done but no one interested in receiving data and so data collection was abandoned. Other groups did some later systematic observations.
-TT: 1) Pita: yes, 2) Belugas: varied- extensive to minimal, 3) Springer: Minimal, 4) Luna: Some, but minimal and inconsistent.
-MS: Yes, research was conducted on the dolphin's behaviour by researchers from Durlston Marine Project, based at Swanage, Dorset.
KW: No
DS: While she was in Puget Sound, NMFS conducted ongoing monitoring of human and cetacean behavior (use of subcontractors like SoundWatch, researchers). NMFS published flyers asking boaters to stay away from her. Post-release, close monitoring of Springer's interaction with boats. On-water monitoring program, requests for public help in discouraging her contact with boats.

a) How, if at all, did any systematic research conducted on animal (if any was conducted) help with ongoing management?

-SC: Research on Luna has been infrequent and sporadic due to funding shortfalls and apparent lack of interest in such research from the scientific community. Stewardship activities resulted in limited data. A program of acoustic monitoring conducted during the spring and early summer of 2004 has provided the only consistent data on Luna's behaviour throughout the years of his residence in Nootka Sound.
-MB: Allowed development of resocialisation strategy.
-DD: One learns quickly about the behaviour of these animals.
-OG: Understanding long terms changes in the dolphin's behavior and why they occurred. Learning the animal's preference by swimmer's gender/familiarity, "forbidden" areas of the body and the influence of the reproductive cycle, all helped in formulating the guidelines that may have been followed by at least some of the swimmers.

-PH: Could determine travel patterns and territories to keep boats away and/or monitor traffic.
- MH: No, systematic research has been realised on the two dolphins.
-CM: Information obtained was used to help direct the management effort.
-AT: Information on critical areas used by the dolphin assisted with management.
Collection of baseline breathing patterns when tourists absent.
-DH: Written and video descriptions assisted with determining management options.
-CK: Research enabled real time feedback to be provided for management.; presence of camera also a deterrent.
-KK: Luna: Original monitoring was meant to provide data to aid management but became too much work for volunteer organisation with limited resources and no involvement in management process.
- TF: Research has been an integral and critical part of the management efforts designed for each species, individual, and situation. I emphasize that the research about which I speak is not that which is typically conducted on non-solitary animals (although it is often applied to solitaries). Although some of those components are necessary, systematic research of high-risk behavior in solitaries and humans and indicators of stress in solitaries based on best available science on this subject is vital towards implementing or improving management/protection efforts. Systematic observation and analysis has revealed important aspects and patters of both cetacean and human behavior that exist at the time that otherwise would have been overlooked. Further, such research has indicated changes that we would have otherwise would not have noticed. Consequently, it has been invaluable in designing/tailoring guidelines and management programs for the specific solitaries/situations as well as for modifying them as the cetaceans and situations change.
-MS: The researchers were part of the Coalition and so could feed their findings (on the dolphin's movements, behaviour and general condition) back to the Coalition, to assist with the developing management plan.

b) How (or if) do you think such research might contribute to other solitaries and to learning about protecting populations?

-SC: More consistent research on Luna would need to take place before conclusions could be made. All research programs must take account of the highly unusual circumstances of a single sociable orca. Research that seeks to draw conclusions about other orcas based on this situation will be suspect. However, research designed to add to the knowledge base on solitary sociables would have value. Also, other research focused on physiological, psychological and acoustical abilities of orcas could be usefully conducted with Luna because of his wild status but cooperative behaviour.
- MB: It helps understand the causes, development and "treatment" of solitary dolphins.
-DD: Any research/observation will increase our knowledge, which will improve any management needs.
-OG: It was a long-term research that probably covered most situations likely to arise in encounters with (female) solitary dolphins, such that the conclusions should be both specific to the animal and possibly of general relevance.

-PH: The research gave me long term study opportunities to observe behavioural patterns and changes of behaviours over 10 years. Understanding the lone dolphin's creation of temporary home ranges is important for management and to develop plans to reunite lone dolphins with family/familiar pods.
-MH: It could contribute to understand better the needs of both, male solitary bottlenose dolphins and humans which are confronted of typical male bottlenose dolphin behaviour; although to understand how solo dolphins react with other solitary dolphins – why, for example, do they continue to interact with humans although a conspecific is around which could satisfy their species-specific needs?
-CM: Information from other solitary sociable animals did not apply to our animal.
-AT: Breathing patterns may be an indicator of stress.
-DH: Information from other solitaries can assist in anticipating how animal will behave.
-DS: Knowledge of what population solitary came from is essential if it is to be returned.
-CK: Provides information relating individuals to species, as well as developmental processes.
-KK: Luna: Availability of standard manual based on existing knowledge of solitaries to assist managers to collect relevant data.
-TF: For all the species of solitaries I've observed, it has been inarguably evident that previous research on other solitaries is invaluable (especially in light of the numerous and often striking similarities across species and individuals) for both designing research and management programs. Such research also offers unique opportunities to understand individual behaviors towards protection of others of that species.
-MS: Since Weymouth was such a busy area, full of tourists and leisure boats at peak season, their research might contribute to the management of other solitaries in similar habitat.

10) What would you identify as the biggest logistical (or practical) research needs (e.g., money, personnel, equipment, government agency or non-profit assistance)?

-SC: The need for innovation in research structure and objectives, funding and personnel.
-CL: Personnel's initiative and enthusiasm
-MB: As always, money.
-DD: MONEY.
-OG: Non-profit personal assistance
-PH: Lack of financial assistance.
- MH:
i)Funds to appoint officially one person or a team of competent persons to assure the security of the dolphins and the humans
ii)Funds for the realisation of systematic scientific research on the behaviour of the dolphins and the humans and the high conflict situation
iii)Financial support of the ministry of Environment to pay the make up for the destroyed material of the fishermen and boat owners caused by the dolphins
iv)Performing tools to inform the public and visitors of a larger scale about the high risk situation with the dolphins and the urgency to respect important rules when encountering them; intelligent articles written by the journalists or good documentaries on this subject.
-CM: Time and resources.

-AT: Video and acoustic equipment.
-DH: Resources, time and money. What was achieved happened because of the voluntary participation of many organizations and individuals. Full necropsies important, as well as examination of live animals where appropriate.
-DS: Government approval process
-CK: Money, personnel and equipment; appreciation by public and authorities of value of studying solitaries; timely reporting.
-KK: Luna: Agreed upon plan to drive funding and achieve coordination.
-TF: For all animals, funds, equipment, personnel, government approval, support, and assistance.
-MS: Lack of coordinated support or response from some of the official agencies – it was at best, piecemeal and dependent often upon the goodwill of certain individuals rather than representing the agency position, which often tended to be very passive and disinterested. (Note that this was not universally the case, some agencies were very hands-on and helpful, but these tended to be the exception.)
-KW: Money. Money. Money.
-DS: These were all critical needs for the Springer project.

11) What type of research on solitaries would be most helpful to this or other situations?

-SC: Research on how on-the-water stewardship has helped prevent injury to cetaceans. What kinds of stewardship work? Something in the structure of Luna's stewardship is failing him. And often stewards themselves get burned out with the situation. Although stewardship has helped prevent some specific individual problems, it has in general failed to offer a consistent solution.
-CL: Monitoring of behaviour with humans, fishing boats and also other conspecifics to build up a "pattern". The latter may explain the ultimate return of some solitaries to groups or sudden disappearance and presence of rake marks from socializing. Some solitaries e.g. "Holly" in the Red Sea – became pregnant several times.
-MB: Long term studies of why some sociable solitaries survive but most don't.
-DD: Behavioural and filming.
-PH: Behaviour studies. No invasive methods.
-MW: Systematic ethological and psychological research on the behaviour of both, humans and dolphins.
-CM: Information on why animals become solitary. Necropsies.
-AT: Long term study of solitary cetaceans.
-DH: Deterrence based on behavior modification might be worth trying; tagging.
-DS: Comparison of case histories.
-CK: Testing alternatives to human interactions; origins of animal and why it is solitary; why there appears to be an increase in solitaries; what happens to them when they disappear. Also, review of introduction scenarios; investigating options for long term management of free ranging solitaries.
-KK: Luna: Understanding of behavioural development; identification of behaviours to be discouraged.
-TF: See 7c above as well as determination of what anthropogenic activities may be increasing the occurrence of solitaries.

-MS: Maybe some greater understanding of the status of the solitaries might be informative
- not only gender and age; but also the body condition; overall behaviour (how the individual
interacts with other cetaceans, humans (males, females, children, adults, those wearing wet suits, etc); circumstances around any aggressive or sexual behaviour; extent of boat following; more
detailed behaviour around boats, and so on.
KW: Results of 'leaving him alone'.

12) What publications and publicly available video (e.g., documentaries) can people refer to, if any, to learn more about management and/or research on this animal/situation (please provide full reference(s)) written by yourself or others:

-SC: We are currently writing a non-fiction book and producing a documentary film on Luna. To our knowledge, there is not yet an English-language book or documentary on Luna. Reports on Luna's history, condition, activities and policies designed to manage him can be found on several web sites. Among the sites are www.ReuniteLuna.com.

- CL: Mention at workshop
  - MB: Video documentary "A dance with a dolphin". Shown nationally on Channel 10 and internationally via National Geographic.

Muller M, Battersby, M, Buurman, D, Bossley, M & Doak, W. Range and sociability of a solitary bottlenose dolphin *Tursiops truncatus* in New Zealand. Aquatic Mammals 1998, 24.2, 93-104.

Muller M & Bossley, M. Solitary bottlenose dolphins in comparative perspective. Aquatic Mammals 2002, 28.3, 298-307.

Muller, M, Bossley, M and Doak, W (2005) Managing human interactions with solitary dolphins.Aquatic Mammals (2005, in press)

-DD:
i) My article and those of others in www.irishdolphins.com and www.reseaucetaces.org
ii) My film footage (c. 11 hours total) above and below water of the 3 different dolphins, which I want to make into a documentary.

-OG: Samuels, A. and Spradlin, S. (1995). Quantitative behavioral study of bottlenose dolphins in swim with dolphin programs in the United States. *Marine Mammal Science* 114: 520-544.

- PH: A) Preliminary study Info at: www.lifeforcefoundation.org
B) Photos/video available
C) Final paper being prepared.

-MH:

Books and publications:

Athanassiadis Nikos (1990) « Une jeune fille nue »Editions Albin Michel.
Augier Henry (2000) « Les dauphins, ambassadeurs des Mers » Editions Délachaux et Niestlé, Lausanne, Suisse
Cahill Tim (2000) « Dauphins », National Geographic.
Cousteau Jacques-Yves (1990) «Les dauphins et la liberté» Editions J'ai lu.
Doak, Wade (1993) -«Ambassadeur des dauphins», Editions Lattès.
Demay Eric (2003) «L'homme qui parlait aux dauphins», Editions France Delory.
Lockyer C. & Müller M. 2003. Solitary, Yet Sociable.- In: "Between Species: A Celebration of the Dolphin-Human Bond", (Frohoff, T. & Peterson, B. eds.). Sierra Club Books, San Francisco, California, 138-150.
Müller Monika. (1998): La place des dauphins solitaires et familiers dans la Socio-écologie des Grands Dauphins (*Tursiops truncatus*). Thèse doctorale à l'Université de Pierre et Marie Curie, Paris VI.
Müller M. & Bossley M. (2002): Solitary bottlenose dolphins in comparative perspective.- Aquatic Mammals 28(3), 298-307.
Müller Monika, Boutière Henri., Weaver A.C.F., Candelon, Nathalie. (1998): Nouvel inventaire du comportement du Grand Dauphin (*Tursiops truncatus*), approche comparative des comportements des dauphins grégaires et solitaires et familiers.- Vie et Milieu 24, 2: 93-104.
Müller Monika & Ferrey Marc (1998): Les dauphins solitaires et familiers: Les Dauphins Ambassadeurs.- Dans "Un sanctuaire pour baleines et dauphins en Méditerranée." Parc National Port-Cros, Porquerolles: 46-47.
Noa Bercovitch Pascale (1999) « Oline, le dauphin du miracle » Editions Robert Laffont.
O'Barry Ric & Coulbourn Keith (1999) « Pour sauver un dauphin » Editions le Pré aux Clercs.
Paccalet Yves (2002) - «La vie secrète des dauphins» editions l'Archipel.
Réseau Cétacés (2005) : Dossier Jean Floc'h, in press
Sifaoui Brigitte (2002) «Le guide des dauphins et des baleines» Editions Albin Michel.
Smolker Rachel (2002) «Parmi les dauphins» Editions Presses de la Cité
Soury Gérard (2000) «Dauphins en liberté» Editions Nathan.
Stenuit Robert (1972) « Dauphin, mon cousin » Editions Dargaud.
Van Eersel Patrice (1993) « Le cinquième rêve » Editions Le Livre de Poche, Paris.

Films:

« Homme-Dauphin : mode d'emploi » : film de Eric Demay, raconté par Jean-Marc Barr, disponible auprès de l'Association SOS GRAND BLEU :
http://www.sosgrandbleu.asso.fr/

CM : NOAA Technical Memo in progress.
See DH (below)

AT:

Alvarez-Torres, A. M., Gutiérrez-Osuna, M. y J. L. Ibarra-López. 2002. Estudio preliminar sobre la frecuencia respiratoria de un delfín habituado (Tursiops truncatus) en

Topolobampo, Sinaloa, México. XXVII Reunión Internacional para el Estudio de los Mamíferos Marinos. Pto. de Veracruz. México.

Alvarez-Torres, A. M. y Valdéz E. 2001. Programa de Educación Ambiental sobre la importancia de un delfín habituado en Topolobampo, Sinaloa, México. XXVI Reunión Internacional para el Estudio de Mamíferos Marinos. Ensenada, B.C.S., México.

Alvarez Torres, A. M., Vega, Y. y A. Pinzón. 2000. Primer registro de un delfín habituado (Tursiops truncatus) en aguas mexicanas. XXV Reunión Internacional para el Estudio de Mamíferos Marinos. La Paz, B.C.S. México.

DH : "Histopathological, Immunohistochemical and Ultrastructural Evidence of Herpes viral Infection in Skin and Tonsillar Epithelium of a Beluga Whale" Shannon Wallace1 Terrell W. Blanchard[1] J. Lawrence Dunn[2] Constance Merigo[3] Dana Hartley[4] [1]Armed Forces Institute of Pathology, Washington, DC; [2]Mystic Marinelife Aquarium, Mystic, CT; [3]New England Aquarium, Boston, MA; [4]NOAA Fisheries Service, Gloucester, MA. [Poster presentation at the 36th ANNUAL IAAAM CONFERENCE Seward, Alaska May 14-18, 2005]

-DS: Book in progress

-CK:
Films:
*Where Whales and Humans Meet - Educational Documentary that won three awards at the International Wildlife Film Festival for Educational Value and Human/Animal Relationship;
*The Whale Stewardship Project: Research and Stewardship of Solitary Sociable Beluga Whales in Eastern Canada
Publications:
Frohoff, T.G. and Kinsman, C. 1999. Unusual occurrence and behavior of a lone, sociable beluga whale in Nova Scotia. Page 62 in Abstracts from the 13th Biennial Conference on the Biology of Marine Mammals, Maui, Hawaii, 28 November – 3 December 1999.

Frohoff, T.G., Scheifele, P.M., and Kinsman, C. 1999. `Anomalous occurrence and behavior of a solitary beluga whale (*Delphinapterus Leucas*) in Nova Scotia. Page 165 in Abstracts from the 79th Annual Meeting of the American Society of Mammalogists, Seattle, Washington, 20-24 June 1999.

Frohoff, T.G., Kinsman, C., Rose, N.A., and Sheppard, K. 2000. Preliminary study of the behavior and management of solitary, sociable white whales (*Delphinapterus leucas*) in Eastern Canada. International Whaling Commission Scientific Committee, SC/52/WW3.

Frohoff, T.G., Kinsman, C., Rose, N.A., and Sheppard, K. 2000. Three occurrences of solitary, sociable white whales (*Delphinapterus leucas*) in Eastern Canada. Page 36 *in* Proceedings from the 7th International Conference of the American Cetacean Society, Monterey, California, 17-19 November 2000.

Kinsman, C. 2003. Luminary. Pages 127-137 in T. Frohoff and B. Peterson (Eds.), Between Species: Celebrating the Dolphin-Human Bond. Sierra Club Books/UC Press, San Francisco. 361 pages.

Kinsman, C.K. and Frohoff, T.G. 2004. Solitary Sociable Beluga Management Options. Unpublished working paper prepared at the request of the U.S. National Marine Fisheries Service.

Kinsman, C. and Frohoff, T.G. 2003. Solitary, sociable monodontidae in Eastern Canada. Page 32 in Proceedings from the Workshop on Viewing Marine Mammals in the Wild: Emerging Issues, Research and Management Needs. 15th Biennial Conference on the biology of Marine Mammals, Greensboro, North Carolina, 14 December, 2003.

Kinsman, C. and Frohoff, T.G. 2001. Whale Stewardship Project: Overview of research and management programs. Pages 92-95 in Viewing Marine Mammals in the Wild: A Workshop to Discuss Responsible Guidelines and Regulations for Minimizing Disturbance, 14th Biennial Conference on the Biology of Marine Mammals, Vancouver, B.C., 28 November, 2001.

Kinsman, C., Frohoff, T.G., Rose, N.A., Sheppard, K. 2001. Behavior and occurrence of solitary beluga whales (Delphinapterus leucas) in Eastern Canada. Page 115 in Abstracts from the 14th Biennial Conference on the Biology of Marine Mammals, Vancouver, B.C, 28 November – 3 December 2001.

-KK: Luna: See www.reuniteluna.com

-TF: See www.TerraMarResearch.org for many references/tv/documentary segments as well as bibliography in this document.

-MS:
i) A WDCS internal report (2005) is available, entitled "Management and welfare considerations relating to 'Georges', a solitary male bottlenose dolphin, during his residency off the English coast (March-September 2002)." (unpub)

ii)'Behaviour and management of a solitary sociable bottlenose dolphin in Dorset' (August 2002) by Cathryn Owens and Amanda Knowles, Durlston Marine Project, Swanage, Dorset, UK. (unpub)

-MW: Mike & Suzanne's upcoming documentary, although that's a ways off.

SECTION V

OTHER WRITTEN CONTRIBUTIONS

1. Monika Wilke: *Pets or wild creatures? – What do people in France want to learn about "their" seven solitary dolphins?*

2. Monika Wilke and Sandra Guyomard: Towards the cohabitation of two male solitary dolphins and the human inhabitants off the coast of Brittany/France

3. Keith Wood: *Luna, Stewardship, & the LunaLive Project*

4. Hugh Colin Finn: *Conservation Biology of Bottlenose Dolphins (Tursiops sp.) in Perth Metropolitan Waters*

Pets or wild creatures? – What do people in France want to learn about "their" seven solitary dolphins?

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The first report of a solitary dolphin in French waters dates from 1976 with Jean-Louis at the French Atlantic coast, a female bottlenose dolphin who stayed twelve years at Cap Sizun/Finistère in Brittany. Jean-Louis did not normally allow physical contact with humans but still attracted an increasing number of visitors. From 1983 on she was a French celebrity and very often in the media until 1987, when she disappeared suddenly and has not been observed again.

Between 1987 and 1995 along the coast between Marseille and the French/Spanish border, three solitary female bottlenose dolphins had interactions with humans at different sociability levels.

Fanny, a sub-adult, stayed from 1987 to 1994 in close proximity of the big city Marseille, accompanied from 1988 to 1989 by an adult female, Marine. Fanny became a favourite subject for many journalists who were much excited by the very close relationship between Fanny and Sylvia, a twelve years old girl. Marine moved up the coast in 1989 to the French-Spanish border, where she stayed for several months at an aquaculture farm close to Banyuls-sur-Mer. While there, she probably met the third female, Dolphy, who was a sub-adult at this time. When Marine disappeared late 1989, Dolphy became soon a national celebrity. She was the only female that allowed intensive physical contact with huge numbers of people.

Only one of the five "French" solitary female dolphins has not been so much in the media: the sub-adult Françoise, in the Bassin d'Arcachon at the Atlantic coast. Being only semi-solitary, she spent part of her time with her group of five other bottlenose dolphins, residents of this lagoon. From 1989 on she interacted with boats and swimmers without allowing close approaches. Françoise died in 2001 entangled in a fishing net.

Fanny, Marine, Dolphy and Françoise have been followed by rganized groups of local people and scientists who had been in charge to assure the protection of the dolphins and to inform journalists and the public about the needs of the animals. There have been no serious incidents or accidents for humans during the encounters of huge numbers of people with these friendly dolphins, nor was there with Jean-Louis from 1983 to 1987 in Brittany. Was this the outcome of a very intelligent, well rganized and sophisticated management of the dolphins – or was it by chance?

My studies of the human encounters with Fanny, Dolphy and Françoise suggest the lack of problems was due to the "distant" behaviour of these females. There were some fishermen who could not fish because the dolphins played around their boat, or who have been disturbed in their activities because of too many visitors, but at most places the local fishermen loved the dolphins and used to take their children out to see them. Only in the Arcachon lagoon fishermen were hostile towards the presence of the dolphins, considering them partly as rivals for the lagoon fish. None of the five females exhibited

aggressive, dominant or sexual behaviour with people who swam with them, nor harmed or injured people during their regular encounters.

Although scientists and local guardians distributed many pamphlets and informed journalists that these dolphins were wild animals with the same essential needs as other wild animals (in particular undisturbed hunting and resting) this message did not seem to be heard by the public. As these dolphins did not show aggressiveness, people thought that everything is permitted, for example to spring on the back of Dolphy when she was resting next to a boat or to insist to approach her during her hunts. This lack of success with our information campaigns was mainly due to the fact that neither the public nor the media were interested in this message. No one of all the journalists that I met during the last 13 years agreed to write an article about the wild nature of friendly solitary dolphins, about their needs, the importance to approach them with attention and respect and to accept that they may react not as domestic animals but as wild creatures.

From 1976 until 2001, the French coast was frequented only by female solitary dolphins. The French history of solitary dolphins changed in an important way in 2001 when Dony (or Georges), the first solitary male dolphin, began to visit the French Atlantic coast. Since then he has rganize widely, including becoming resident in the same area at Cap Sizun/Finistère in Brittany, where Jean-Louis stayed 25 years earlier.

From first observed north of the town La Rochelle in August 2001 it became evident that this male dolphin exhibited very different behaviour patterns from the solitary females. His travels have taken along the French Atlantic coast to Belgium, the British Channel Islands and Ireland. At every place visited he displayed dominant, sexual and often aggressive behaviour. This is not new, many other known male dolphins performed similar behaviours during their encounters with humans in the past. But for the French, it was the first time that they experienced this kind of dolphin behaviour. Dony regular bites and pushes people who disturb his interactions with his preferred swimming partners, regardless of whether they are men, women or children. The injured people are often upset and do not understand what is happening. It appears obvious that for the great majority of people, a “friendly” dolphin should not act in an aggressive way, or even worse, show sexual behaviour towards humans.

The French association Réseau-Cétacés, together with me and some other solo-dolphin experienced people, have tried to manage this situation and distribute information that Dony’s behaviour is typical for wild male dolphins. Local people and harbour institutions are informed with pamphlets, posters, during conferences, and also throughout regular contacts with journalists. The message that encounters with Dony can be dangerous does not reach the general public, although local people begin to learn more about “their” dolphins. But this does not affect the general attitude of French people who had learnt since 1976 with Jean-Louis that dolphins are very friendly and harmless animals.

From 2003 on, a second male dolphin, surnamed Jean-Floc’h took his residency also at the Cap Sizun/Finistère and is since this time frequently observed with Dony. This second male has increased the difficulties of local people concerning the presence of

friendly dolphins in their marine area because he has caused damage to boat propellers and oars. He also pushes boats occupied by non swimmers around, causing them to fear for their lives. The members of Réseau-Cétacés have undertaken campaigns to explain the dolphin's behaviour and to teach people not to play with the dolphin around propellers and boats in general. We also succeeded to get the cooperation of the coast guard.

The problem here is the same as elsewhere: the public hears and understands what it wants to hear. The conflicts with fishermen, boat owners and local people in general are the same as at the other places where solitary dolphins have took residency in French waters. Only that this time, people and material are at risk because of the fact that the two male dolphins do not react in the same way as the calmer and not aggressive female solitaries before. When people are bitten by Dony they have great difficulties to accept that this dolphin is not the ever friendly and helping dolphin. That Jean-Floc'h destroys material in the marine area that local boat owners used to consider as their territory is not easier accepted by the inhabitants of the Finistère.

Successes and failures, needs and recommendations

It seems clear that in the 29 years continuous history of wild solo dolphins in France, the information politics have not been sufficient to change the beliefs and attitudes of people towards sociable solo dolphins.

The actual situation with Jean-Floc'h and Dony shows that conflicts are much bigger with the two males than with the five female solo dolphins. With the females most conflicts occurred between humans due to jealousy and conflicts with fishermen. The most effective way of dealing with such situations in the past was to charge a group of local passionate people, often assisted and supervised by scientists to assure the protection and scientific study of the dolphins, with sometimes one particular dolphin guardian being appointed. (for details of protection measures, see Wilke *et al*. 2005).

In the high risk conflict situation with the male solos in Brittany, Réseau-Cétacés tries, without having any official guardian appointed, to assume the difficult task of dealing with fishermen and informing passionate people of the risks concerning the dolphins, and the ensuring of the security of humans and of the two dolphins. There is a definite risk the dolphins will be killed if no intelligent and diplomatic solutions are found to make locals and dolphins cohabitate in a peaceful way.

From my experiences with the different solo dolphin situations in France, I believe that only the official appointment of a very competent person living at the Cap Sizun to adopt the role of mediator between all concerned groups and individuals could efficiently calm down the situation and help the two male dolphins to survive. This person should have extensive knowledge of solitary dolphins and human nature, as well as good communication skills and high sense of diplomacy. They would also need the official assistance of the environmental police and of the local media. In our actual situation in France no financial support exists to employ somebody in Brittany to assume this role,

nor to support any scientific research on the very interesting behaviour of the dolphins and the humans. Meanwhile, the good-will and high motivation of all involved honorary local people, protection groups and scientists will hopefully be sufficient to keep our two male dolphins alive.

Wilke M., Bossley M. & Doak W. (2005) Managing human interactions with solitary dolphins. – Journal of Aquatic Mammals 31(5), 427-433.

Towards the cohabitation of two male solitary dolphins and the human inhabitants off the coast of Brittany/France

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Since 2001 and 2003 two male solitary dolphins have taken residency off the coast of southern Brittany in France and interact with boats, swimmers and divers. Different behaviours of both animals make cohabitation of local humans and dolphins difficult. This increases the risk that the dolphins may be killed if no effective management of the situation is found to resolve the serious conflicts.

Dony/Randy, *Tursiops truncatus*
Dony is an adult male bottlenose dolphin who is highly mobile and is most unusual because of his many and long distance travels! The first report of this dolphin came from Co. Kerry in Ireland where he appeared in April 2001 at the Dingle Peninsula (where another solitary dolphin, Fungie has been a sedentary resident since the mid-'80's). He was first named Dony there. In August 2001, he appeared on the French Atlantic coast north of La Rochelle where he stayed until September before being spotted for the first time on the coast of southern Brittany (Finistère). During the winter of 2001/2002 he moved between the Cherbourg and the Channel Islands off the north Normandy coast where he became known as Randy or Georges. In March 2002 he was observed along the coast near Weymouth, Dorset in England, where he was named Flipper, but also called Georges and Randy. In May 2002 Dony began to wander around a lot, up and down the English south coast before crossing over to Normandy again, then moving up to Belgium and Holland and back south until he became resident in the Finistère region on the north-west of Brittany apparently without stopping to visit other places along the Atlantic coastline.

Identification: He is probably an older adult animal because of his size, well-worn teeth and his heavily scarred body with many tooth rakes, marks of parasites and pock-marks. His peduncle and the edge of his dorsal fin are white with scarring and the trailing edge tattered. He can be easily identified by a deep scar of 2 cm on the leading edge of his dorsal fin that he received (after) from a serious propeller injury in 2001. Compared to other Atlantic solitary bottlenose dolphins like Fungie and Freddy he appears small, perhaps 2.5 m long.

Specific behaviour patterns: He is very curious and interested in close contact with humans, showing his belly often to swimmers regularly with an erect penis. He likes very much to be scratched and rubbed by swimmers in the water and from people in boats and he can move very slowly and calmly during a long time next to them. When people do not react quickly enough to his "demands", he may also push them with his beak. Sometimes, he prevents swimmers from getting out of the water. When he is interacting with one special person and other people try to approach, he sometimes chases the "intruders" out of the water too and may bite, push, and hit them. One special aspect of the behaviour of Dony is that he already has interacted with several other dolphins and

two other male solitary dolphins: with Fungie in Ireland, and from 2003 on frequently with Jean-Floc'h off Cap Sizun in Brittany. Jean-Floc'h and Dony encountered swimmers several times swimmers together, interacting either each with a different person by themselves or together with the same person for example accompanying a swimmer between them.

Jean-Floc'h, *Tursiops truncatus*
Jean-Floc'h is also an adult male bottlenose dolphin who was spotted for the first time in March 2003 at Finistère in Brittany, accompanied by Dony. Since that time, he has been resident at Cap Sizun where he is often observed alone, but also frequently together with Dony, sometimes for several consecutive weeks.

Identification: He appears small with a size of between 2.30 and 2.50 m and is probably a younger male than Dony. His skin is smoother and not marked by so many scars and tooth-marks as Dony. He has in particular one very visible scar on the left side of his beak from which he can be easily identified. Jean-Floc'h showed first clear site fidelity but later began slowly to travel around more.

Specific behaviour patterns: Jean Floc'h interacts often in a very energetic way with people and began recently to behave in a similar manner to Dony when a person he wants to remain with tries to leave the water. In such a situation, the dolphin may push the swimmer with his beak and show in a very vigorous way his "demands". The most important problem with Jean-Floc'h is his behaviour in relation to marine and boat material: he often entangles the ropes of boats and their moorings, and sometimes hits small boats with his tail making people inside fear for their life if they cannot swim. Like other solitary dolphins Jean Floc'h is much attracted to boat propellers. He also shows clearly to swimmers that he wants them to turn the propeller for him! This attitude of the dolphin has evolved in such a way that Jean-Floc'h has begun to hit boats, so that has already several times destroyed oars and other boat material. The local fishermen don't like this behaviour at all, nor accept easily the regular presence of huge numbers of dolphin loving visitors around their boats, moorings and landing docks.

Successes and failures
The protection group « Réseau-Cétacés », together with local enthusiasts and specialists on solitary dolphin situations, tries to facilitate relations between the locals and visitors to Brittany and to manage the high risk situation. For this, several important information campaigns have been rganized with posters and pamphlets being distributed. This information work is very important and helpful for the education of the people who want to visit the dolphins. It is however not successful enough to prevent some people from forgetting the dangers of the aquatic environment and especially when they are with a wild adult dolphin. E.g. people often are not alert enough when boats approach, or swim too far out into the open sea. The establishment of a wide information network also allows us to gather important information on the whereabouts and the travels of the two dolphins, as well as about the behaviour of humans which has an impact on the reaction of the dolphins. Many contact people regularly report by telephone or e-mail where and in which circumstances the dolphins have been spotted. This information network

appears to be the only tool for our protection group to remain informed of all important events and to be able to intervene quickly in conflict situation. One problem with this form of management is however that Réseau-Cétacés is not a local protection group but a national one which is situated in Paris. Therefore many conflicts have to be discussed on the phone and can not be resolved immediately in direct contact with local people who have a current problem with the behaviour of one of the two dolphins. Local partners of Réseau-Cétacés can however intervene directly, showing that all arising problems are considered and discussed to find rapid resolution.

Needs and recommendations

We believe that the best way to manage the actual situation of Dony and Jean-Floc'h in Brittany would be to have an official team of one or two official "guardians and mediators" appointed. These people should be well informed and have a very good knowledge of solitary dolphins and the human conflicts that may arise in lone-dolphin situations as well as good diplomatic and communication skills. At best they should have official authority to negotiate with local people the needs of the humans and dolphins, being clearly supported by all local authorities, the environmental and marine police, the mayors, harbour authorities and by scientific and other important local institutions.

It would be also very important to conduct scientific research on this particular and interesting case of two 'lone' males being together and the problems caused by their "natural" and learnt behaviour patterns. In reality, there is not any officially appointed mediator, guardian or team who assume this protective role, nor any formal research project on these extremely interesting dolphins. This is due on one side to the lack of interest from the official side to pay somebody to assume such responsibilities, from the scientific side (official national research programs) a lack of interest to support studies of this phenomenon, and on the other side, due to the lack of financial support for both management and research needs.

It is regrettable that no research is actually conducted on this interesting situation with two male dolphins who are often together at one place and who cause many problems for the management of both the humans' and the dolphins' side. Good eco-ethological research on the behaviour of the dolphins and humans with Dony and Jean Floc'h could help to better understand the needs and demands of male dolphins in close contact with humans. It could also help to find appropriate intelligent solutions with respect to the biological and ethological background of the dolphins by comparing their behaviour with the behaviour of other male dolphins who live in groups in the neighbourhood. There is a sedentary bottlenose dolphin population close by which has been intensively studied for many years in a systematic and continuous way by the scientists of Océanopolis (a local marine and educational institute in Brest). For example, it would be very interesting to know, why – as observed several times by the eco-ethologists of Océanopolis, that the local dolphin groups very clearly avoid Jean Floc'h and Dony and why they don't try and join that group.

Recommendations for the management of the solitary-dolphin situation

Concerning the management of the solitary dolphin situation, two points appear very important to us: 1. To coordinate with everybody concerned, so that the same information is presented to the public by all people, journalists through posters, guidelines-pamphlets, press articles, documentary films, publications, meetings and conferences. 2. To strictly prohibit all encounters in dangerous areas where high risks for the security of humans exist, but not to prohibit all contact with these animals in general. Encourage in all possible ways people to respect the rules of the guidelines, to be eventually also supported by regular controls by the Environmental police.

References/literature citations

Sandra Guyomard: Rapport Réseau-Cétacés about Jean-Floc'h, his history and behaviour, 50 pages.

Wilke M., Bossley M. & Doak W. (2005) Managing human interactions with solitary dolphins. – Journal of Aquatic Mammals 31(5), 427-433.

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Brief Description

Luna is the name of a solitary sociable killer whale, who for over 4 years has lived in the waters of Nootka Sound, BC. Stewardship efforts so far have relied upon close-range human interactions in the hopes of distracting him away from problematic situations. It is our hope that the LunaLive project described herein may provide a platform for an alternative and creative solution for stewardship in the coming 2006 boating season.

The idea behind the LunaLive research project for 2005 was simple: to allow researchers, located all around the globe, to listen 24x7 to the sounds of Luna's remote underwater territory in order to study Luna's vocal behavior.

The hardware to make it all happen, however, is far from simple. These sounds are captured on a hydrophone, and are transmitted via a VHF signal to a research station which includes more VHF equipment, computers and a satellite uplink. The signal is digitized into the computers, and is then sent via satellite to web servers in the US. The web servers then replicate the sounds and make them available to the researchers, who use a web-based logging system to document Luna's vocalizations and other acoustic events.

Success and Failures

The system so far has proven to be quite reliable and scientifically valuable. We have excellent baseline data which shows how much time Luna spends vocalizing near our hydrophone, and which calls he is making. Of greatest interest is the fact that over the past 18 months, Luna has significantly changed his vocalization patterns – having reduced significantly the use of his 3 previously common Southern Resident calls (S1, S16 and S19) in favor of one which is not cataloged, and may well be unique to him. This, by itself, is quite exciting.

But in the early morning hours of November 16, 2005, Luna (a resident/fish-eating orca) was heard by a LunaLive researcher in Scotland vocalizing at the same time as a pod of transient (mammal-eating) orcas. This is a very rare event to overhear (on the order of once a decade), but what makes this most exciting is that Luna immediately and repeatedly used S19, his most common L-Pod matrilineal announcement call. This has huge and immediate implications for reunification, and offers a promise of unforeseen future discoveries.

To fully leverage this research opportunity, additional hydrophone/satellite stations are needed. Luna's territory consists of 3 separate inlets, stretching 25 nautical miles, and he doesn't spend all of his time near our one hydrophone. This summer, the sailing vessel

ANON attempted to overcome this limitation by spending 6 weeks in Nootka Sound, anchored in areas which allowed onboard hydrophones to capture more of Luna's vocalizations while he was in other parts of his territory. The findings were consistent with those derived from the main LunaLive hydrophone, but having additional stations will eliminate gaps in our coverage and will enable us to more definitively analyze his call usage patterns.

Needs & Recommendations

The expansion of the LunaLive project for 2006 will directly benefit the Luna stewardship effort as well. By covering more of his territory, stewardship personnel will be able to track Luna's location acoustically, including during the night and during inclement weather, and can therefore be in a better position to offer assistance should it be required.

We are also investigating the possibility of adding sound playback technology to LunaLive in 2006. This would allow us to experiment with acoustic stimulation and to evaluate it's efficacy within the domain of stewardship.

Historically, stewardship techniques have consisted almost entirely of close-range physical human interactions, designed to draw Luna's attention away from problematic situations. Hands in the water, pieces of wood or boat fenders have been used to engage Luna, and all of these techniques reinforce Luna's attraction to interacting with vessels on the water. This outcome is problematic if/when he should ever reunite with this matrilineal pod and return with them to Puget Sound.

With sound playback added to the LunaLive research stations, we hope to investigate the degree to which acoustical stimulation can augment or supplant the close-range human interactions. By decreasing his exposure to human interactions, and by providing an acoustical stimulation which won't likely be present in Puget Sound, we hope to increase his chances for a successful re-integration into his family pod.

For more information, contact Keith Wood, LunaLive project director, at keith@ANON.org or 817.267.9663.

CONSERVATION BIOLOGY OF BOTTLENOSE DOLPHINS (*TURSIOPS* SP.) IN PERTH METROPOLITAN WATERS

Hugh Colin Finn

ABSTRACT

This thesis examines two potential conservation problems for a residential sub-population of ~75 bottlenose dolphins (*Tursiops* sp.) in Cockburn Sound, a small embayment within the southern metropolitan waters of Perth, Western Australia: (1) human-induced habitat change and (2) illegal feeding (i.e. unregulated provisioning) of dolphins. The work is important because Cockburn Sound is the most intensively utilised marine environment in Western Australia and industrial, commercial, and recreational uses of the area will intensify in coming decades. These considerations, coupled with the demographic and ecological vulnerability of residential populations of small cetaceans, suggested a risk of population decline without a more informed scientific basis for management. This study (2000 – 2003) complemented an earlier study of the Cockburn Sound dolphins (1993 – 1997) to provide a decade-long longitudinal study of the population. The original contributions of this study relate to: (a) the foraging ecology of dolphins; (b) the effects and mechanisms of human-dolphin interaction, particularly interactions based on unregulated provisioning; and (c) an integration of previous research and other information. Studies of the foraging ecology of dolphins within Cockburn Sound were undertaken between 2000-2 to determine the areas used by dolphins and their feeding behaviors so that the implications of human-induced habitat change could be assessed. These studies used belt transect sampling and event-specific sampling of foraging aggregations of dolphins to quantify the foraging habitat use of dolphins within the Sound and to characterize spatial and temporal patterns in aggregations of foraging dolphins. The results showed that the density of foraging dolphins varied significantly across habitats and that foraging aggregations consistently occur in an area known as the Kwinana Shelf during the austral autumn-spring period. The studies also suggested that the foraging ecology of dolphins in Cockburn Sound reflects the consistent utilization of both: (a) low-density prey species (i.e. individual or weakly-schooling prey) and (b) high-density prey species (i.e. schooling species such as forage fish). These findings indicate that ecosystem-based conservations of the population should consider the conservation requirements of dolphin prey species and the ecological integrity of key foraging habitats like the Kwinana Shelf.

Human-dolphin interactions based on the illegal feeding of dolphins in Cockburn Sound escalated between 1993 and 2003. By 2003, a total of 14 individuals exhibited behaviors indicative of conditioning to human interaction by food reinforcement, including some individuals that engaged in provisioning interactions on a chronic (i.e. long-term) basis. Observations of the effects of unregulated provisioning indicated that: (a) provisioned dolphins sustained increased higher rates of human-induced injury than non-provisioned dolphins and (b) provisioning was associated with substantial and enduring behavioural changes including changes in ranging and association patterns. Other observations of human-induced injury in Cockburn Sound included seven instances of calf entanglement. These findings indicate that the effects of illegal feeding and other forms of direct human-dolphin interaction (e.g. entanglement) could achieve biological significance for the population. The possible contribution of (a) human influences, (b) social learning, and (c) behavioral propensities (e.g. age and sex) on the acquisition of an attraction response

to human provisioning was examined through logistic regression analysis using age, sex, use of high-boat density areas, and the number of close associates that were previously provisioned as predictor variables and the acquisition of an attraction response as the dependent variable. This analysis was supplemented by behavioral observations of interactions between provisioned and naïve individuals during provisioning interactions.

The results supported three findings: (1) a relatively high level of exposure to human provisioners was a significant predictor for the acquisition of an attraction response by dolphins; (2) social learning contributed to the acquisition of an attraction response in those individuals that more frequently utilized high-boat density areas; and (3) the potential contribution of behavioral propensities relating to age and sex was uncertain. These conclusions suggest that the acquisition of an attraction response to human provisioning can best be understood as the outcome of a complex of interacting factors. The findings also indicate: (a) the management value of individual-specific and longitudinal data for the management of harmful human-wildlife interactions and (b) the potential for social learning to contribute to the development and persistence of these interactions.

The findings of this study indicate that population decline in Cockburn Sound could be induced by: (1) a reduction in the Sound's environmental carrying capacity or (2) mortality, injury, and behavioral changes resulting from interactions with humans. The potential for such a decline and evidence demonstrating the harmful effects of human activities on dolphins supports the application of preventative approach to the management of illegal feeding and entanglement and a precautionary approach to environmental impact assessments of proposed developments. Mitigation of direct human-dolphins like illegal feeding requires an enforcement and education program to encourage more responsible human attitudes towards interactions with dolphins. Research on the ecology and composition of finfish assemblages and the trophic structure of the Kwinana shelf would assist efforts to mitigate the impact of human-induced habitat change.

SECTION VI

TABLE AND DESCRIPTION OF 56 SOLITARY SOCIABLE DOLPHINS

Below is a compilation of 56 solitary, sociable dolphins that have been recorded all over the world throughout history. This list mentions the name, place, species and sex of the dolphins and is set up in alphabetical order by the names of the dolphins. Most dolphins have been given names, some even more than one. The first name is the most common name that is used for that dolphin. This information was compiled primarily through Internet research.

Name	Place	Species	Sex	Duration of event	Outcome
Bella	Long Island, New York City, USA	Beluga	F (?)	?	Disappeared
'Bottlenose Dolphin'	Santa Catarina State, Brazil	Bottlenose dolphin	?	-	-
BW	Long Island Sound, New York City, USA	Beluga	F (?)	4 months	Killed
Carolina Snowball / Peaches	Beaufort County, South Carolina, USA	Albino bottlenose dolphin	F	?	Captured, died in captivity
Ce'Sea	Newfoundland, Canada	Beluga	F	Ongoing ?	Last report August 2003
Chance	Newfoundland and Labrador, Canada	Beluga	?	Ongoing ?	Last report April 2005
Charlie	Eyemouth, Scotland	Bottlenose dolphin	F	?	?
Coulagh Bay-dolphin	Coulagh Bay, Ireland	Bottlenose dolphin	M	Ongoing	Ongoing
Crispy	Gulf of Aqaba, Israel/Jordan	Bottlenose dolphin	M	?	?
Dobbie	Eilat, Israel	Bottlenose dolphin	M	?	Killed
Dolphy/Dolly	Banyuls Sur Mer, France	Bottlenose dolphin	F	4 years	Killed
Dolphin 56	Indian River Lagoon, USA	Bottlenose dolphin	M	17 + years	?
Donald/ Beaky	Wales and Cornwall, UK	Bottlenose dolphin	M	6 years	Disappeared
Dusty/ Mara/ The Clare Dolphin	Doolin, Ireland	Bottlenose dolphin	F	Ongoing	Ongoing
Echo/ Casper	Newfoundland, Canada	Bottlenose dolphin	M	1,5 years	Disappeared
Elsa(1)	New Zealand	Common	F	?	?

		dolphin			
Elsa(2)	Provincetown Harbor, USA	Orca	F	1 month	Disappeared
Fanny/ Marine	Cap Couronne, France	Bottlenose dolphin	F	7 years	Disappeared
Filippo	Gulf of Manfredonia, Italy	Bottlenose dolphin	M	Ongoing ?	Ongoing ?
Flint/ Paquito	San Sebastian, Spain	Bottlenose dolphin	M	6,5 years	Died of pneumonia
Flipper	North of Stavanger/ Sandvesanden/ Skudeneshavn harbour, Norway	Bottlenose dolphin	M	10 years	Disappeared
Françoise	Arcachon lagoon, France	Bottlenose dolphin	F	6 years	Died
Freddie	Amble harbour, England	Bottlenose dolphin	M	4 years	Disappeared
Fungie/Dorad	Dingle Bay, Ireland	Bottlenose dolphin	M	Ongoing	Ongoing
Georges/ Randy/ Dony	Dorset, England and in several other European countries	Bottlenose dolphin	M	Ongoing	Ongoing
Georgy Girl	Florida, USA	Bottlenose dolphin	F	?	?
Holly/ Olin/ Uleen	Nuweiba Mezeina, Sinai coast, Israel	Spotted dolphin	F	10 years	Died
Horace	Hawkes Bay, New Zealand	Bottlenose dolphin	M	?	?
Jean-Floch	Brittany, France	Bottlenose dolphin	M	Ongoing	Ongoing
Jean-Louis	Brittany, France	Bottlenose dolphin	F	10 years	Disappeared
Joca	Montenegro	Bottlenose dolphin (?)	F	?	?
Jock	Adelaide, Australia	Bottlenose dolphin (?)	M	Several years	Died (pollution?)
Jo-Jo	Turks and Caicos Islands	Bottlenose dolphin	M	20 + years, ongoing	Ongoing
Jotsa	Yugoslavia	Bottlenose dolphin	?	?	?
Kuus	Green Bay, Newfoundland	Beluga	M	Several months	Disappeared
Lenni	Green Bay, Newfoundland	Beluga	F	1,5 years	Disappeared
Luna (L98)	Nootka Sound,	Orca	M	Ongoing	Ongoing

	Vancouver Island, Canada				
Maui	Kaikoura, New Zealand	Bottlenose dolphin	F	?	?
Nina	Lorbe Cove, La Corogna, Spain	Bottlenose dolphin	F	?	Died (explosion?)
Opo/ Dorrie/ Goldie	Opononi, New Zealand	Bottlenose dolphin (?)	F	?	Died
Pelorus Jack	Cook Strait, New Zealand	Risso's dolphin	M	20 + years	Disappeared
Percy	Cornwall, UK	Bottlenose dolphin	M	2 years	Disappeared
Pita/ Sugar	Northern Two Cay/ Lighthouse Reef Atoll, Belize	Bottlenose dolphin	F	Several years	Disappeared
Poco	Bay of Fundy, USA	Beluga	?	1 year	Died
Sandy(1)	San Salvador Island, Bahamas	Spotted dolphin	M	2 years	Disappeared
Sandy(2)	Aran Islands, Ireland	Bottlenose dolphin	F	2 years ?	Ongoing ?
Scar	Doubtful Sound, New Zealand	?	?		Euthanized after being seriously injured
Simo (described 109 AD) (1)	Hippo, Tunisia	?	?	?	Killed
Simo (2)	Solva, Wales, UK	Bottlenose dolphin	M	11 years	Disappeared
Springer (A73)	Seattle, Vashon Island, USA/ Vancouver Island, Canada	Orca	F	7 months	Rejoined family pod
Tammy	Tamaki Estuary, Auckland, New Zealand	Dusky dolphin	M	Several months	Returned to open sea ?
The Costa Rican	Chira Island, Costa Rico	Bottlenose dolphin	M	?	Killed
Tiao	San Sebastiao, Brazil	Bottlenose dolphin	M	6 months	Disappeared
Venus	Blasket Islands, Ireland	Bottlenose dolphin	F	5 months	May have left the area, ongoing?
Viola	Sao Vicente County, Brazil	Tucuxi	M	1,5 years	Disappeared
Wilma	Chedabucto Bay, Nova Scotia	Beluga	F	6 years	Disappeared

DESCRIPTION OF 56 SOLITARY, SOCIABLE DOLPHINS

This is a description of each of the dolphins mentioned in the above table of 56 solitary, sociable dolphins and is in alphabetical order according to the nicknames given to the dolphins. This information was compiled primarily through Internet research.

Bella

'Bella', a "*friendly*" beluga, was observed visiting Long Island, USA in 1980. Reports suggest that Bella "*disappeared*" after "*attempts to capture it by aquarium owners*."[5]

'Bottlenose dolphin'

A "*bottlenose dolphin*" is reported as "*under investigation*" is Santa Catarina, Brazil.[6]

BW

'BW', a young beluga, was observed in the waters of Long Island Sound near New York City in February 1985, "*far from its usual home of artic waters*". BW was reported to swim around boats and visit "popular beaches", expanding his behaviour to "*pushing around inflatables with humans inside*". In May of 1985, a female juvenile beluga, thought to be BW, was found dead with three bullet wounds in its body. The discovery of the body led to a public outcry and worldwide media coverage, including an offer of a major reward to find those responsible for the killing.[7]

Carolina Snowball / Peaches

'Carolina Snowball' is described as "*a rare albino bottlenose dolphin*", resident in the waters of Beaufort County in South Carolina in the 1960s. Snowball, also known by many Beaufort County residents as Peaches, had been familiar to many of the area's shrimpers and 'played with' people off the coasts of South Carolina and Georgia. A local shrimper recalled that she did not come near boats or beg for food. In 1962, she was captured by the Miami Seaquarium and taken to South Florida. Her capture angered many Beaufort County residents, especially as a law had been passed in the state General Assembly in 1961, preventing the capture of marine mammals in Beaufort County waters. The Miami Seaquarium spent two years defending the capture, saying the dolphin was safer at the aquarium where she would not be in danger of predators, fishing nets and hunters. On May 4, 1965, Snowball died at Miami Seaquarium after three years in captivity.[8]

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[5] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.
[6] http://www.terravista.pt/bilene/3586/resumo.htm Current June 2003.
[7] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.
[8] http://geocities.com/lowenstein1992/snow.html Current November 2005

Ce'Sea

One of the solitary belugas observed by the North American Whale Stewardship Project (WSP) was 'Ce'Sea', a lone juvenile beluga whale first reported to WSP in July, 2003 after being observed by boaters in a remote pristine region of Newfoundland. This initial report was followed by two weeks of sporadic sightings and then sightings occurring for three consecutive days in the same location. WSP project director Cathy Kinsman was able to confirm that this beluga was the "*newest of a string of solitary beluga whales to show up around Newfoundland annually for the past five years*".[9]

Ce'Sea's behaviour was reported as different from the other "*more sociable*" belugas in that she "*did not interact with boats or humans at or near the surface, did not make exceptionally close approaches, never made physical contact and often moved away from boats with motors on. She was also observed to swim rapidly away from a boat when humans on board moved abruptly or noisily*".[10]

Chance

'Chance' is another solitary beluga whale the Whale Stewardship Project has been monitoring. Chance, whose gender has not been determined, was first observed in Trinity Bay, Canada in February, 2005 and visited wharves in the area in early Spring. Initially described as "*shy*", at the so-called Bull Arm Fabrication Site, Chance was seen observing divers performing maintenance work and interacting with the divers over five days. WSP believes it is possible Chance was sighted by fishermen in Trinity Bay in the summer of 2004. The Whale Stewardship Project has been continuing in its efforts to track and monitor Chance's movements and behaviour throughout 2005.[11]

Charlie

Wade Doak records the presence off Eyemouth, Scotland, in 1976, of a large female bottlenose dolphin nicknamed 'Charlie', first witnessed by scuba divers. The same dolphin had lived off the Firth of Forth near Edinburgh in 1960. She would "*escort all the boats*" and always joined scuba divers when they were in the area. During the winter months Charlie disappeared, perhaps rejoining other dolphins.[12]

Coulagh Bay dolphin

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[9] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0030.htm Current November 2005

[10] Ibid.

[11] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0042.htm Current November 2005

[12] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005

The Irishdolphins.com website reported a "*new interactive dolphin in Coulagh Bay, County Cork*", Ireland at the end of August 2005, witnessed by scuba divers. Divers report that the dolphin "*hangs around*" a salmon farm on the south side of Inishfarnard, which is a small island in Coulagh Bay, part of the Kenmare River estuary. On one occasion divers interacted with the dolphin for about two hours, with the divers ending the encounter. During this encounter, the dolphin was identified as a male and as an older dolphin, with scars and worn teeth, some teeth missing all together. The divers were not able to touch the dolphin but when they left the water he pushed and rubbed against their boat.[13]

Crispy

'Crispy', a lone, sociable, adult male bottlenose dolphin, interacted with humans on a daily basis in 1992, in Eilat, Israel. Behaviour included 'escorting' divers working at the commercial fish farm, carrying and even hiding their maintenance equipment. Crispy only allowed direct contact by familiar divers and fishermen after a few months of observation and at that time would bite the person gently, as if asking for more. Crispy also interacted with a spear-gun diver, shocking or disorientating the fish user his sonar, thus helping the diver catch the fish. On at least one occasion, Crispy helped a diver in distress to the surface.[14]

Dobbie

Wade Doak reports a young male bottlenose dolphin, nicknamed 'Dobbie', who interacted with humans around Eilat, Israel, in 1979. He would "*bite at scuba exhaust bubbles and imitate diver's movements, but he always stayed out of reach of touching*". He was found dead some months later, killed by gunshot wounds.[15]

Dolphy/Dolly

'Dolphy' or 'Dolly', a female bottlenose dolphin, was first observed near Baie de Paulilles, France in the Spring of 1990. It wasn't until late 1990 and 1991 that she allowed close interactions with divers and swimmers. Behaviour included regularly swimming with a dog in the open sea and in the harbour of Banyuls-Sur-Mer, for many hours at a time. In 1994, teeth marks from other bottlenose dolphins were observed on Dolphy's skin. In July 1994, she travelled about 400 kilometres, swimming along the Spanish Costa Brava to the huge and very polluted harbour of Barcelona, where she stayed for one and a half months, interacting closely with swimmers and divers and following fishing and pleasure boats. In May 1995, Dolphy was observed together with two other bottlenose dolphins and they were seen travelling with her daily between the

[13] http://www.irishdolphins.com/webpilot/list/details.asp?l=5&contentid=256 Current November 2005

[14] Goffman, O. 2003. Miracle Dolphin in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p162-163.

[15] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.

harbours of Valencia and Gandia. During this time, Dolphy still entered harbours to follow boats and approach swimmers, but the other two bottlenose dolphins remained outside of the harbour entrances until Dolphy rejoined them. Dolphy disappeared in 1995.[16]

Dolphin 56

'Dolphin 56', a male bottlenose dolphin, was the subject of an experiment in 1979 which captured five bottlenose dolphins, weighing and measuring them, taking blood samples and branding them. Following release, there were regular sightings of the dolphin in the area of the capture site and he learned to approach boats and beg for fish, putting his rostrum right on the edge of a boat. Some time in 1996 or 1997 he moved out of the Florida area and over the next three years travelled as far north as New York. Dolphin 56 was reported as consistently approaching boats for 'handouts', but he has also been observed catching live fish.[17]

Donald / Beaky

'Donald' or 'Beaky' was an adult male bottlenose dolphin, primarily recorded by Horace Dobbs of International Dolphin Watch, who was witnessed as a solitary dolphin between 1972 – 1978, around the coast of the UK. Donald was reported becoming 'close friends' with people, with whom he interacted closely, including, on one occasion, when he "*swam underneath Horace's snorkelling son and lifted him upon his back, giving him a ride. Donald was always playing games, boisterously swimming with people and pulling at diver's flippers if they tried to exit the water. He also moved moored boats around by grabbing hold of the ropes and he played with a dog named Spratt. At one point Donald was stranded and he also nearly got entangled in wires connected to explosive charges. Later, he got a mooring rope tangled around his tail flukes and was stuck for two days. When he was located, he lifted his tail as to show his rescuers what was wrong*."[18] Donald liked to be "*petted*", sometimes becoming sexually aroused. He would also sometimes be aggressive, especially with lots of people around him in the water and he try to "*butt*" people with his rostrum or leap out of the water. He would take fish offered to him but he would never eat them. Donald would also allow swimmers to hold onto his dorsal fin and go for a ride. In 1976, Donald travelled 480 kilometres, from the Isle of Man through Pembrokeshire in Wales to Penzance in Cornwall. In 1977, he appeared at Falmouth in Cornwall, where he was observed spending hours around a particular boat. He was last seen in 1978 just prior to the worst storm on record.[19]

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[16] Lockyer, C. and Müller, M. 2003. Solitary, Yet Sociable in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p139-140.

[17] http://www.members.aol.com/adrcnet/1999/1999sp01.html Current November 2005.

[18] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005

[19] Ibid. and Lockyer, C. and Müller, M. 2003. Solitary, Yet Sociable in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p143-144.

Dusty / Mara / The Clare dolphin

Another dolphin described on the Irishdolphins.com website is 'Dusty', a young female bottlenose dolphin that was first reported interacting with people in Doolin, County Clare, Ireland in the summer of 2000. By Spring 2001 she had relocated north to Derreen, County Clare, where she was resident for four years. Dusty is reported to be very interested in objects such as cameras and surfboards and diver's fins. Dusty has interacted with people solidly for periods of over eight hours at a time, with no breaks longer than a minute, during which she headed a short way out to sea but soon returned at speed. At times she has tolerated the attention of over 20 excited people in the water at one time, generally swimming from one to another and letting everyone touch her briefly. At Derreen she has been witnessed swimming into extremely shallow water in order to interact with children and other non-swimmers standing in the surf, thus putting herself at great risk of stranding, being bashed against rocks or of being trapped in shallow water surrounded by people, but so far coming to no apparent harm. She has been seen towing people along holding onto her dorsal fin but will avoid people trying to grab her and on one occasion, in June 2003, following what could be described as repeated provocation, she "*rammed*" a swimmer in the chest, resulting in two cracked ribs.[20]

There were no sightings of Dusty from mid-December 2004 to mid-February 2005, when she was observed on a number of occasions in the Green Island area of County Clare. Since March 2005 she seems to have settled at Spanish Point.[21]

In August 2005, Dusty was seen with a porpoise calf. She brought the calf to one of the swimmers and the swimmer held the calf for a moment, before returning it to Dusty. Dusty has not been seen with the calf since then. The latest news on Dusty (7 September 2005) is that she attacked a German visitor who went swimming with her at Spanish Point. The man ended up in hospital with internal injuries.[22]

Echo / Casper

'Echo' or 'Casper' is another beluga monitored by the Whale Stewardship Project. A young male, he was discovered in April 2001, with two other juvenile belugas along the Quebec shore near the Strait of Belle Isle. During a journey undertaken by all three animals up St. Paul's River, his two pod-mates died and, in August 2001, Casper was rescued from the river and released into the Gulf of St. Lawrence. When, eight months later, a highly sociable, solitary juvenile beluga arrived in Codroy Harbour, Newfoundland, nicknamed 'Echo', WSP determined, through photo identification, that this was Casper, who had travelled about 600 kilometres south of where he had been released. Echo quickly became a tourist attraction and, in July 2002, he was struck by the

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[20] http://www.southwest.com.au/~kirbyhs/dolphins4.html and http://www.irishdolphins.com/dusty.asp Both current November 2005.

[21] http://www.irishdolphins.com/dusty.asp Current November 2005.

[22] Ibid.

propeller of a large vessel. Following this, an emergency response program was established for the beluga. Echo disappeared two weeks after his injury but was resighted 150 kilometres north of Codroy Harbour. He was last seen in October 2002.[23]

Elsa(1)

'Elsa' was a common dolphin who interacted with children in New Zealand in the 1970s.[24]

Elsa(2)

In September 1982, a young 14-foot orca named 'Elsa' entered Provincetown Harbour, Massachusetts, behind a large fishing boat that came in for repairs. She received a lot of media, tourist and official attention, ate food like hotdogs from people's hands, played with people in boats and displayed a spectrum of behaviour that caused concern for people monitoring her. Soon after Elsa's arrival, the New England Aquarium reportedly tried to capture her but failed in the attempt and the National Marine Fisheries Service ruled that no-one should physically restrain her unless she grounded or stranded. Elsa's unusually worn teeth and eager accommodation to humans, boats and feeding, suggested that she might have been an escaped captive. She left after about a month, reportedly with the same fishing boat and disappeared.[25]

Fanny and Marine

'Fanny', a female bottlenose dolphin, began residing at Cap Couronne east of Marseille, France in Spring 1987, where she was observed continuously circling a very large buoy. She was estimated to be about five or six years old at the time. She showed some interest in boats but not swimmers, not allowing anyone in the water closer than four or five metres. In September 1988, Fanny was joined by another female bottlenose dolphin, 'Marine' and the two became inseparable. Marine was pregnant and it seemed she had been looking for another female to assist her with pregnancy and birth. Fanny protected Marine from swimmers, divers and boats and prevented anyone approaching her. Following a heavy storm during the winter of 1988-1989, the two dolphins disappeared for several weeks. They were not observed again until March 1989 and had clearly suffered serious harassment. Fanny was wounded and Marine had aborted her calf. Their behaviour had also changed, with both dolphins appearing anxious and keeping their distance from boats and swimmers. In May 1989, Marine left Fanny and disappeared from the Marseille area. In September 1990, Fanny appeared again in the polluted harbour and channel of Port-Saint-Louis du Rhône and remained there until her

[23] http://www.cbc.ca/stories/2002/07/16/beluga020716 and http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0005.htm Both current November 2005.

[24] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[25] http://www.csiwhalesalive.org/csi02303.html Current November 2005.

disappearance in May 1994. Here she swam daily with a twelve-year-old girl, eventually accepted body contact and would allow the girl to ride on her dorsal fin.[26]

Filippo

'Filippo', a solitary male bottlenose dolphin, was first reported in the area of Manfredonia, Southern Italy, in 1996. By November 1997, he was reported interacting regularly with boats and swimmers. From Spring 1998 he resided in the port of Manfredonia. Filippo's behaviour has included spending hours resting near a boat moored in the port, occasional aggressive behaviour, including bites to arms or feet and, in one case, in August 2000, saving a boy from drowning, pushing him to the surface and helping him to a nearby boat. On one occasion Filippo was badly wounded by a boat's propeller.[27]

Flint / Paquito

A lone male bottlenose dolphin, known as 'Flint' or 'Paquito', took up residence in the waters of San Sebastian, Spain in November 1998, when people, young men in particular, started swimming with him. Flint would approach swimmers and divers to within 10 meters, sometimes to within 1 or 2 meters. He usually came over immediately to greet the people he knew, but did not allow himself to be touched. Towards the end of March 2005, Flint was found dead, and a necropsy showed possible symptoms of pneumonia. His presence in a shipping channel, close to the 2002 Prestige oil spillage may have contributed to his poor health.[28]

Flipper

'Flipper', a "*friendly*" adult male bottlenose dolphin, spent at least 8-9 years (since 1991/1992) off the beaches north of Stavanger, Norway, moving around from Akrasanden to a beach named Sandvesanden to Skudeneshavn harbour. Behaviour included interactions with people and 'hanging around' the "*seahouse*", where divers fill their airbottles. In August 2001, Flipper suffered several deep cuts on his head and back, one very near his dorsal fin. Following this, Flipper disappeared for a week, but was seen again in Sandness harbour. Continued sightings reported his wounds healing. He was last seen in June 2002.[29]

Françoise

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[26] Lockyer, C. and Müller, M. 2003. Solitary, Yet Sociable in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p140-141.

[27] http://www.tethys.org Current September 2005

[28] http://www.irishdolphins.com/webpilot/list/details.asp?l=5&contentid=239 Current November 2005

[29] http://rosmarus.com/nl_index.htm and http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005

"Françoise", a "*subadult*" "*semi-solitary*" female bottlenose dolphin, was resident in the Arcachon lagoon on the French Atlantic coast from 1989, where she followed boats and sometimes approached swimmers. During that year, she was frequently observed together with five other bottlenose dolphins; a group that probably included her mother. When apart from the group, Françoise's was often observed closely approaching swimmers and diving, swimming and bow-riding around boats and jet-skis. She would also rub her body against ropes and play with buoys and other floating objects. When with the other dolphins, however, Françoise was generally seen in the middle of the group, avoiding boats and swimmers, performing very long dives with them and sharing other group activities. Following the death of the oldest female in the group in August 1995, Françoise associated much more often with her conspecifics and showed much less interest in boats and no longer interacted with swimmers and divers. Françoise died in the summer of 2001.[30]

Freddie

'Freddie', a mature male bottlenose, was first sighted in 1988, in Amble harbour, England. Initially wary of boats and people, he gradually became bolder and when a local lady rescued him by untangling him from fishing line, he grew to trust and welcome attention from people. He would even offer dorsal tows and gently take a person's arm in his mouth. His behaviour varied from very boisterous to quiet and pensive. As he attracted the attention of greater numbers of people, he became increasingly under threat from a growing number of boats, jet skis etc. On one occasion he suffered a bad cut and it was not sure if he would survive, particularly as the water was polluted. Freddie was last seen in 1992 swimming near Tynemouth. He then disappeared into the North Sea.[31]

Gabriel

As early as 1814 there are reports of a male bottlenose dolphin nicknamed 'Gabriel' "*befriending*" people. He was reportedly captured and transported to London by wagon, but he sadly died en route.[32]

Fungie/Dorad

Fungie is a mature adult male bottlenose dolphin who has been resident in Dingle Bay, Ireland in since 1984. He is a major tourist attraction and thousands of people have visited him over the years, many swimming with him. Fungie also interacts with boats. He has been known to completely jump over small boats, or surprise people inside by bobbing up on either side, or drenching them with water from a large jump. He may play

[30] Lockyer, C. and Müller, M. 2003. Solitary, Yet Sociable in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p142-3.

[31] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005

[32] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current at 2nd November 2005.

tricks on those who swim with him as well by approaching them from behind, nudging them on the shoulder and surprising them. If ignored, he may tug on diver's flippers. He has also been known to gently peck at face masks to gain swimmers attention. Fungie has been seen 'playing' with birds, swimming up underneath one and flipping it into the air, then rushing over to the spot where it will land to begin again. He also plays with paddles from kayaks and escorts boats to and from the bay. People from all over Ireland and the world go to Dingle Bay to see him, so he is constantly surrounded with visitors and boats. Over the last couple of years, Fungie has become increasingly indifferent to swimmers, but still interacts with people.[33]

Fungie interacted with Georges / Dony in 2001 and with another lone dolphin in 1996, as well as with two visitors in 2002. In December 2003 a group of dolphins visited Dingle Harbour. It was observed that Fungie still interacted with swimmers at this time, but stayed away from the group of dolphins.[34]

Georges / Randy / Dony

'Georges', a small, heavily scarred male bottlenose dolphin was first reported off the Dingle Peninsula in County Kerry, Ireland in late April 2001, where he stayed until early July. In Ireland he was known as 'Dony' and in June 2001 was seen interacting with Fungie (see above). In August 2001, Georges re-appeared near La Rochelle on the French Atlantic coast where he "*entertained swimmers*" at several beaches and approached boats in harbours. He remained near La Rochelle throughout most of September and then moved north via southern Brittany. During the winter of 2001/2002 Dony was seen in the Cherbourg-Channel Islands area off the north Normandy coast and had by this time become known as 'Georges' or 'Randy'. Georges was next seen in March 2002 near Weymouth in Dorset, England. The dolphin's "*wanderings*" had already gained scientific interest, with little former evidence of a dolphin being able to travel so far from 'home'. Georges' travels continued, however, along the south coast of England during 2002 where he interacted with swimmers and other dolphins. He then travelled to Normandy again and north-east into Belgium and Holland at the end of 2002. In April 2003 he reappeared in Finistere, north-west Brittany, with regular sightings off the Brittany coast.[35]

IrishDolphins.com reports a pattern of behaviour witnessed in Georges during May 2001:

"*During the month of May 2001 a pattern emerged whereby 'Dony' would be seen most days, though not every day, following one of the boats - usually the island ferry. Typically he would pick up the boat at the island mooring, where the ferry starts from, at about 10:00 am. Sometimes he would check around the moorings earlier, maybe 8:00 to 8:30 am, to see if there was anything going on. If there were no people or boats around, he would often play with and rub himself against the mooring buoys, especially one large plastic barrel.*

[33] http://www.irishdolphins.com/fungie.asp Current November 2005
[34] Ibid.
[35] http://www.irishdolphins.com/dony.asp Current November 2005.

If swimmers got into the water while the dolphin was around, whether at the island mooring or in Dunquin Harbour, the dolphin would stay and interact, and would not leave when the boat did. Otherwise he would follow the boat across and back, sometimes several times, but sometimes disappearing half-way across the sound.

With swimmers, the dolphin was sometimes 'mellow' and would lie still to be stroked, while on other occasions he was described as 'frisky', 'snappy' or 'pushy'. Many people were unnerved by his habit of showing and snapping his teeth and on a couple of occasions he mouthed peoples' arms as well as their fins and slightly scratched them. When opening his mouth towards snorkellers he would often emit a sort of screeching sound. Sometimes he would flick his tail while diving and on at least one occasion he caught a swimmer a blow to the head in this way, but there were no injuries and no-one interpreted his behaviour as aggressive. 'Dony' continued to extend his penis frequently, often unnoticed by swimmers not wearing masks, and was thought to prefer female company to male, however no-one who got into the water with him was ignored and he spent long periods in the company of many swimmers of both sexes. It was always the swimmers who retired cold or exhausted rather than the dolphin getting bored and swimming away, and on at least two occasions the dolphin interacted continuously with swimmers for over 4 hours at a stretch… He showed little interest in other objects or potential toys such as footballs, seaweed or boogie boards, and even an underwater camera housing only held his attention briefly on its first outings."[36]

Georges was frequently sighted in the Atlantic waters of France throughout 2003 and 2004. Between November 2004 and July 2005 he was frequently observed with another dolphin, 'Jean-Floch'. Georges spent most of Spring 2005 with Jean Floch in Cap-Sizun, Brittany. The last reported sighting of Georges was on the 26th August 2005 in Banc d'Arguin, Gironde, Aquitaine, France.[37]

Georgy Girl

'Georgy Girl' was a female bottlenose dolphin resident in Florida in the 1960s. Behaviour included interacting with people, including carrying them on her back.[38]

Holly / Olin

Holly was a solitary sociable female spotted dolphin who took up residence off the Bedouin fishing village in Nuweiba M'zeina, in Sinai, Egypt from 1994. Holly, who had several scars on her body, initially swam wide circles around fishermen entering the water with her and later allowed certain people she appeared to recognize to touch her. Holly's behaviour changed when the number of swimmers around her exceeded 20,

[36] http://www.irishdolphins.com/webpilot/list/details.asp?l=2&contentid=58 Current November 2005.

[37] http://www.irishdolphins.com/webpilot/list/details.asp?l=2&contentid=81 Current November 2005.

[38] http://www.savethewhales.org/gendescrip2.html Current September 2005

exhibiting signs of agitation and stress. Over time she developed a friendship with two local men, one congenitally deaf and the other deaf in one ear. When either of them entered the water, Holly would immediately abandon any other activities and play near them. Holly preferred contact with men over women or children. Holly was observed with bottlenose and common dolphins as well as with other spotted dolphins. Holly had three calves during her time of social interaction with people, which may have been hybrids. The first, 'Jimmy' died at the age of seven months. The second 'Ramadan', was extrovert and displayed sexual behaviour toward swimmers but also died aged seven months. Holly's last calf, a female named 'Mabsutta' was born in 2000. Holly demonstrated increasingly aggressive behaviour during lactation, which mostly involved her biting outstretched hands. A local education campaign involving multilingual posters and pamphlets described rules for behaviour with the dolphins.[39]

Holly was found dead on a beach north of Nuweiba in December 2004, the cause of death unknown. Mabsutta is still alive and living in the Gulf of Aqaba.[40]

Horace

'Horace', a bottlenose dolphin, was resident in Hawkes Bay, New Zealand in the 1970s and was observed "*nudging*" the rudders of boats and "*coming to the rescue of people struggling in the water*".[41] Other reports say he became "*extremely rough and forceful in his interactions with swimmers*."[42]

Jean-Floch

'Jean-Floch', a young male bottlenose dolphin, was first observed in the waters of Brittany, France, in September 2002, following boats. His first reported interactions with swimmers were in March 2003 in two small ports, one of which, l'Anse de Vorlène, was where another solitary dolphin, 'Jean-Louis' had been seen (see below). He showed interest in following fishing boats, interacting with snorkellers, including biting their fins, imitating human sounds and defecating and rubbing on mooring ropes. In June 2003, Jean-Floch was beaten violently with a wooden oar but in spite of this attack he continued to follow boats.[43] He was frequently sighted with another solitary dolphin, Georges, in 2004 and 2005 (see above).[44]

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[39] http://www.idw.org/html/olin.html and http://www.eretz.com/archive/feb1300.htm Current November 2005.

[40] http://www.irishdolphins.com/webpilot/list/details.asp?l=5&contentid=240 Current November 2005.

[41] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[42] http://www.dcpongo.com/ecoen.htm Current November 2005.

[43] http://www.irishdolphins.com/webpilot/list/details.asp?l=5&contentid=206 Current November 2005.

[44] http://irishdolphins.com/webpilot/list/details.asp?l=2&contentid=81 Current November 2005

Jean-Louis

'Jean-Louis', a female bottlenose dolphin, was first observed in 1978 and lived in the waters off Brittany for at least 10 years. She "*played*" with canoeists and swimmers, often remaining at a distance of several metres. She also liked to overtake boats and leap in front of them. In 1983, when crowds of interested swimmers visited her she reduced her interest in them but did engage in interactions with some "*special*" people, rubbing her body against their legs or bodies. In December 1988, she suddenly disappeared and was never seen again.[45]

Joca

'Joca' was a female dolphin resident off Montenegro. Behaviour included physical assaults of women swimmers who "*intervened when she was interacting with special male human friends*", even smashing a mask and breaking a nose.[46]

Jock

'Jock', a very young bottlenose dolphin, lived alone in an isolated inshore area and interacted with humans in Adelaide, South Australia. Jock spent several years very closely interacting with humans only, living alone in an isolated inshore area. Jock was later led out to the ocean to join other dolphins and his interactions with humans reduced significantly. Sadly, Jock was found dead only weeks after his integration into the dolphin population, high levels of toxins in his body.[47]

Jo-Jo

'Jo-Jo', a male bottlenose dolphin, has been seen in the waters of Providentiales, Turks and Caicos Islands, since 1980, where he has forged a particularly close relationship with one human friend, Dean Bernal. Although preferring Bernal, Jo-Jo will interact with other people has also been observed swimming with a dog. Interactions between Jo-Jo and Bernal include Jo-Jo presenting him with objects from the sea bed including sunglasses**,** money, and seashells and even a manta ray. If chased or grabbed at, Jo-Jo has been known to "*give someone a sharp flick of his powerful tail or a strong butt with his snout*". He has been recorded "*roaming*" great distances, expanding his initial 26-mile home range to 260 miles. He has also mated and travelled with other dolphins. His interest in powerboats has led to him receiving serious injuries and in June 1990 he became trapped for two days in a turtle seine net. The Jo-Jo Dolphin Project has been set up for his protection.[48]

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[45] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005 and Lockyer, C. and Müller, M. 2003. Solitary, Yet Sociable in Frohoff, T.G. and Peterson, B., Between species: celebrating the dolphin-human bond, Sierra Club Books, California 2003, p139-140.

[46] http://www.terravista.pt/bilene/3586/resumo.htm Current June 2003

[47] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.

[48] http://www.southwest.com.au/~kirbyhs/dolphins3.html and http://www.marinewildlife.org Current November 2005.

Jotsa

'Jotsa' was a friendly solitary bottlenose dolphin who appeared in Yugoslavian waters around 1991.[49]

Kuus

'Kuus', a male beluga, was first seen in Green Bay, Newfoundland in the spring of 1999 when he was about two years old. Throughout the summer of 1999 he appeared in the three communities of Nippers Harbour, Middle Arm and King's Point-Rattling Brook where he came in close contact with residents and tourists. Kuus has two small notches cut out of the ridge on his back caused by a boat propeller. Kuus departed the area at the end of September 1999 and has not been sighted since.[50]

Lenni

'Lenni', a female beluga, was first since in Green Bay, Newfoundland in June 2000, when she was about two years old. Lenni became entangled in a fishing net and, as a result of this and further entanglement in chains and ropes of a boat mooring, was heavily scarred. Initially showing some avoidance of people, over a three year period she increasingly sought out interaction with people. Lenni was observed each Spring in different locations in Newfoundland, inhabiting several harbours until autumn or winter ice conditions would force her departure. Lenni was last sighted in October 2002.[51]

Luna

A juvenile male orca, nicknamed 'Luna', has been frequenting the waters around Vancouver Island, British Columbia for more than four years.

A member of the Southern resident community of orcas, Luna's presence in the area is noteworthy since he has been separated from his natal pod for those three years, during which time he has lived solitary from others of his kind but has increasingly come into contact - and sometimes conflict - with humans in the area. Seeking companionship and interaction, Luna has 'played' with boats, overturning a few and nipping off the fish-finders on others. Such behaviour has raised the ire and concern of more than a few individuals in the area, and Luna's presence is unfortunately now considered not only a 'nuisance' by some, but also a danger to the humans that seek to interact with Luna, or

[49] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[50] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0003.htm Current November 2005.

[51] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0004.htm Current November 2005.

merely travel through shared waters. Luna himself risks injury from the public through both intentional and unintentional contact.[52]

Maui

'Maui', a female solitary dolphin, frequented the waters of South Island, New Zealand.[53]

Nina

'Nina', a female bottlenose dolphin, resided near the beach at La Coruna, Spain in 1972, where she followed a fishermen and allowed people to pet her and hold her tail. On one occasion she came to the aid of a swimmer, holding herself next to him so he could hold onto her until rescued. Popular with visitors and later considered a national heroine, Nina freely divided her time between everyone but never accepted food, disappearing only for about 1 hour each day to feed or rest. Nina was found dead some five weeks after she was reportedly witnessed as 'distressed', thought to be the result of a grenade explosion, even though fish netting and fishing by using explosives had been banned for her protection.[54]

Opo / Dorrie / Goldie

'Opo', a female bottlenose dolphin, was first observed, alone, in Opononi, New Zealand in 1955, when she was not much over a year old. Her sighting followed reports that a dolphin had been shot in the local area, thought to be Opo's mother. Opo was observed 'escorting' boats and liked being 'scratched' with an oar or mop. Appearing almost daily, Opo became very popular with visitors, drawing huge crowds. Initially shy of contact she eventually allowed contact and appeared to love children, especially a 13 year old girl. Opo also enjoyed playing with balls. In spite of a law established to protect her, Opo was found dead, jammed between two rocks, cause of death unknown.[55]

Pelorus Jack

'Pelorus Jack', a Risso's dolphin, was first observed in 1888. For more than twenty years, he 'accompanied' ships back and forth between Wellington and Nelson in New Zealand's Cook Strait, appearing to guide them to safety. Quickly becoming famous and seen by thousands of people, a law was passed to protect him after he was shot at with a rifle. Missing the occasional ship as he became older, he was finally not seen again.[56]

Percy

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[52] http://www.wdcs.org/dan/publishing.nsf/allweb/7DF8F2777D66BB7F80256EFA0058EF33 Current November 2005

[53] http://www.wadedoak.com/emailsprojectinterlock.htm Current November 2005.

[54] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[55] Ibid.

[56] Ibid.

'Percy', an adult male bottlenose dolphin, was first observed off Cornwall, England, in 1982 and remained in the area for three summers. Initially shy, he began to allow contact in 1983 and was observed moving boats, lifting anchors and tangling up and untangling the ropes of lobster pots. In 1983 he was injured by a fish-hook close to his eye. His behaviour alternated between gentle and boisterous, in one incident landing across the board of a windsurfer. He would also sometimes prevent swimmers leaving the water, pushing divers or snorkellers down against the seabed. He often became aggressive if many people entered the water at once, even occasionally biting people. He seemed particularly attracted to menstruating women. Prior to his last sighting in 1984, Percy had become very interactive and more aggressive toward people, perhaps as a result of continuous harassment by people and boats.[57]

Pita

'Pita' was the name given to a juvenile solitary female bottlenose dolphin observed in the waters of Northern Two Cay, Lighthouse Reef Atoll, in Belize in the early 1990s. It was after about four years of her being observed that she began to participate in interactions with humans, "*playing with*" divers. Reports also suggest she was occasionally mistreated and in response would "*butt people*".[58] As a juvenile she was fed by humans but as an adult reportedly refused such handouts. Pita eventually left the area, it was assumed with other dolphins. [59]

Poco

'Poco', a young male beluga, was first reported to the Whale Stewardship Program in late September 2003 near an aquaculture site in the Bay of Fundy. He was seen circling a moored barge and compensator buoys at Pocologan, New Brunswick. Up until the beginning of December of that same year Poco was sighted around several aquaculture sites along the coast. Described as "*very inquisitive*", he showed "*particular interest in commercial divers while they worked on the salmon pens*," following them and "*studying their every move as they worked on the inside of the nets… peering into their face masks and rolling in the bubbles that rise from the regulators*."[60]

Following no reports of Poco during the Winter of 2003/4, in February 2004, two divers reported an encounter with a beluga that was thought likely to be Poco, around Deer Island, New Brunswick. Poco then travelled south to Massachusetts, first to Gloucester in early March 2004 and to Boston Harbor in April. By the end of June, Poco had traveled northward along the Maine coast. He had sustained two significant injuries that left permanent scars. Following reports of a sighting at the end of October, in November

[57] Ibid.
[58] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current at 2 November 2005
[59] http://www.mmc.gov/reports/contract/pdf/samuelsreport.pdf
[60] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0031.htm Current November 2005

2004, Poco was found stranded and dead on a mud flat in South Portland Maine, cause of death unknown, his injuries reportedly healed.[61]

Sandy(1)

'Sandy', a solitary juvenile spotted dolphin was first recorded interacting with divers off San Salvador Island, the Bahamas, in 1976. He first allowed contact in 1977 and, during a 10 month period when he was most "*friendly*", his fame rose and around 2500 divers are reported to have "*met*" him. Interactions with people included 'nudging' and "*holding*" people by the snorkel or facemask for attention. He would also remove face masks, pull hair or "*tap*" people's heads with his rostrum. On one occasion he found a cross lost from a broken chain, indicating its presence to its owner on the reef. Sandy showed prominent scars and was caught in a propeller. He was last seen in 1978, his fate unknown.[62]

Sandy(2)

'Sandy' a young female, heavily scarred dolphin, has been observed around Ireland's Aran Islands since May 2001. She was first observed by divers and local people and visitors swam with her near the beach and pier almost daily throughout that summer. Reports of aggressive behaviour include "*butting*" and "*prodding*" with her beak and "*coming between swimmers and the shore as if to prevent them from returning to dry land*". This has resulted in people receiving bruising and being following into shallow water as they tried to get away from her. Sandy was also reported bow-riding boats.[63]

Scar

'Scar', a solitary dolphin observed in Doubtful Sound, New Zealand was reported as "*badly scarred*". Behaviour includes 'abducting' a swimmer by "*carrying him out to sea over his beak*" and interest in propellors, which the dolphin would demonstrate by placing his beak a few centimetres from spinning propeller, which it preferred to bow-riding. Scar was reportedly fed by fishermen. Scar was euthanized after he was very badly injured after being reversed over by a fishing boat.[64]

Simo(1)

A report exists from the year 109 of a "*friendship*" between a young boy and a dolphin named 'Simo' in a town called Hippo, in present day Tunisia. The "*games and tricks*" the

[61] Ibid.
[62] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.
[63] http://www.irishdolphins.com/webpilot/list/details.asp?l=10&contentid=67 Current November 2005.
[64] http://www.wadedoak.com/emailsprojectinterlock.htm Current November 2005

boy and the dolphin carried out together created a major tourist attraction to the point that the town experienced food and water shortages. As a result, Simo was killed.[65]

Simo(2)

'Simo' was a male bottlenose dolphin who was first observed off Solva, Wales, in 1984. His "*playful*" behaviour included "*following around divers underwater, pushing over canoes and airbeds, upturning the people in them, and... leaping around the fishing boats*". He would also "*nip*" people and hit them on the head with his rostrum and on other occasions give pectoral and dorsal tows. He would also act very gently with people, putting his head carefully on people's shoulders. His behaviour altered in 1985 when he appeared sluggish and quiet and was one day observed surfacing next to a boat and then sinking back into the water, after which he was never seen again.[66]

Springer

'Springer', a juvenile female orca, was first observed alone in January 2002 in Puget Sound, USA and thought to be 18-24 months old at the time. She was identified as A73, a member of the Northern Resident orca population. During her time in the Sound she demonstrated increased interested in people and boats. As a result of concerns for her safety, a 'rescue' plan was put in place to try to return Springer to her family. In June 2002, Springer was moved to a floating net pen for medical assessment. On July 14, 2002, Springer was released to join a pod of orcas that swam by the mouth of the forested bay where she was penned and demonstrated the same dialect as her. Springer has since been sighted with her family pod in British Colombia, Canada.[67]

Tammy

'Tammy', a young male dusky dolphin, was first observed in the Tamaki Estuary, Auckland, New Zealand, in 1984, at a location much further north than the usual range for dusky dolphins. Tammy's behaviour included leaping for the attention of locals, playing with floating logs, seaweed and boxes. Local acts of protection for the dolphin included a cancellation of boat races. He resided in the estuary for several months and was thought to have returned to the open sea.[68]

The Costa Rican

'The Costa Rican', a male bottlenose dolphin, initially observed with a "*companion*" dolphin and alone after his companion was shot, began interacting with humans at Chira Island, Costa Rico.

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[65] http://www.dcpongo.com/ecoen.htm Current November 2005.

[66] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[67] http://www.nwr.noaa.gov/mmammals/whales/history.htm and http://www.orcanetwork.org/news/springer.html Current November 2005

[68] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.

Behaviour included playing with a dog, a variety of objects and pushing a canoe around. In 1983 he was found entangled in a fishing net by a fisherman who killed him.[69]

Tiao

'Tiao', a male bottlenose dolphin, was first observed in the waters off San Sebastiao, Brazil in 1994. He would come in close to shore to interact with swimmers and, over time, huge crowds would visit the area to swim with him. He was abused by people grabbing at him, climbing on his back, hitting him with sticks, dragging him onto the beach for photos and trying to tie things to his flippers. On one occasion Tiao "*butted*" two men who were putting an object in his blowhole, causing one to suffer a broken rib and the other to later die as a result of internal injuries. Press coverage of the incident led to calls for him to be removed or killed and Taio was further abused until an education programme was established against his further mistreatment or harm.[70]

Venus

'Venus', a solitary female bottlenose dolphin, was first observed Ventry Bay, Dingle Peninsula, Ireland, in May 2005, when she also began swimming with people. Reports suggest Venus initiated interactions with people early on and by July 2005 was approaching swimmers off the beach and near the ferry pier. Reports suggest she became more and more playful and friendly. On one occasion, interaction occurred for five continuous hours. Venus has attracted increasing amounts of attention, including from boats. Wild dolphins passing through the area were ignored by Venus, who preferred to hang around very close to a buoy off the main beach. The latest report of Venus was from September 2005, suggesting she may have left the area.[71]

Viola

'Viola', a lone Tucuxi dolphin, has been observed in the São Vicente estuarine, Brazil, since November 1997. Reports suggest the dolphin's mother was killed, leaving the Tucuxi alone. Behaviour includes approaching fishing boats and handfeeding since June 1998. This is the first reported account of a lone sociable marine tucuxi dolphin and its presence led to the creation of guidelines by local authorities.[72]

Wilma

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[69] http://www.southwest.com.au/~kirbyhs/dolphins4.html Current November 2005.

[70] http://www.southwest.com.au/~kirbyhs/dolphins3.html Current November 2005.

[71] http://www.irishdolphins.com/venus.asp Current November 2005

[72] http://www.terravista.pt/bilene/3586/resumo.htm Current June 2003 and Cirilo, P. C. P., M. C. d. O. Santos, E. Zampirolli, A. F. C. Vicente, F. S. Alvarenga, and T. M. A. Pereira. 1998. Report on a lone sociable marine tucuxi dolphin, *Sotalia fluviatilis*, at Sao Vicente, southeastern Brazil. Conference abstract, 8º Reuniao de trabalho de especialistas em mamíferos aquáticos da América do Sul, Brazil, Recife, Brazil and Santos, M.C.de O.; Rosso, S.; Siliciano, S.; Zerbini, A.N.; Zampirolli, E.; Vicente, A. and Alvarenga, F. 2000. Behavioural observations of the marine tucuxi (*Sotalia fluviatilis*) in S_o Paulo estuarine waters, Southeastern Brazil. Aquatic Animals, 26.3, 260-267.

'Wilma', a solitary young female beluga, was first observed in Chedabucto Bay, Nova Scotia, in 1993, when she was about two years old. She remained in the area for six years and drew a great deal of attention from visitors from around the world. Her behaviour included habituation to humans, boats and other objects and she suffered severe injuries as a result. She disappeared from Chedabucto Bay in Spring 1999.[73]

[73] http://www.whalestewardship.org/Whalestewardship%20Project%20Files_files/page0002.htm Current November 2005

SECTION VII

RELEVANT WEBSITES

(The websites indicated in red no longer worked when the review was updated. The websites indicated in green still worked in September 2005.)

1 http://www.adairmag.com/scuba/belize/index.html – September 2005

2 http://www.captandy.com/dolphin.htm – 26 June 2003

3 http://www.cbc.ca/stories/2002/07/16/beluga020716 – August 2005

4 http://www.csiwhalesalive.org/csi02303.html – September 2005

5 http://www.dcpongo.com/ecoen.htm – September 2005

6 http://www.delfinofilippo.it – September 2005

7 http://www.eaam.org/abstracts/am_26_3.htm – August 2005

8 http://www.eretz.com/archive/feb1300.htm – September 2005

9 http://geocities.com/lowenstein1992/snow.html – 26 June 2003

10 http://www.harmlesslion.com/dolphins – September 2005

11 www.irishdolphins.com – September 2005

12 http://www.ildelfinofilippo.org – September 2005

13 http://www.idw.org – September 2005

14 http://www.jojo.tc / http://www.marinewildlife.org – September 2005

15 http://www.maritime.haifa.ac.il/cms/newslett/cms26/cms26_03.htm – August 2005

16 http://www.members.aol.com/adrcnet/1999/1999sp01.html– September 2005

17 http://members.surfeu.fi/whale/eilat/articles/inter.html – September 2005

18 http://www.monkeymia.com.au/resort/dolphins.html – 7 July 2003

19 http://www.nwr.noaa.gov/mmammals/whales/history.htm – September 2005

20 http://www.orcanetwork.org – September 2005

[21] http://perso.wanadoo.fr/gecc/France/georges/georges_poster.html – 4 July 2003

[22] http://rosmarus.com/nl_index.htm – September 2005

[23] http://www.salishsea.bc.ca/m3/luna/luna_news.html – 3 july 2003

[24] http://www.savethewhales.org/gendescrip2.html – September 2005

[25] http://www.seaworld.org/zoo-research/indian-river-project/56history.html – 26 June 2003

[26] http://www.southwest.com.au/~kirbyhs/dolphins2.html – September 2005

[27] http://www.southwest.com.au/~kirbyhs/dolphins3.html – September 2005

[28] http://www.southwest.com.au/~kirbyhs/dolphins4.html – September 2005

[29] http://www.terravista.pt/bilene/3586/resumo.htm – 27 June 2003

[30] http://www.tethys.org – September 2005

[31] http://www.tangalooma.com/dolphinweb/ – September 2005

[32] http://www.wadedoak.com/emailsprojectinterlock.htm – September 2005

[33] http://www.wdcs.org – September 2005

[34] http://www.wdcs.org.au/adoption/adopt_a_dolphin.php – September 2005

[35] http://whales7.tripod.com/policies/garbett/ – September 2005

[36] http://www.whalestewardship.org – September 2005

[37] http://www.reuniteluna.com – September 2005

[38] http://www.mmc.gov/reports/contract/pdf/samuelsreport.pdf - September 2005

[39] http://www.dolphinecotours.com - October 2005

[40] http://www.mmc.gov/reports/contract/pdf/samuelsreport.pdf

[41] *http://dauphin.interaction.free.fr* and *http://le.dauphin.free.fr*

SECTION VIII

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SECTION IX

SAMPLE GUIDELINES/CODES OF CONDUCT

PUBLIC NOTICE
ILLEGAL DISTURBANCE OR INTERACTIONS WITH L98 (LUNA)

Fisheries and Oceans Canada (DFO) is extremely concerned about recent reports of inappropriate interactions with L98 (LUNA) the lone juvenile killer whale.

Due to this animal's separation from its pod, it is inappropriately seeking human contact. It is critical that its present habituation to people and boats is broken immediately. All interactions with L98 compromise this animal's opportunity for living a natural and wild existence. Killer whales are extremely intelligent and even a minimum amount of contact will reinforce its current life-threatening behaviours.

Everyone must comply with the following:

. Don't attempt to attract or interact with this whale under any circumstance.
. Don't touch, feed or throw objects at the whale.
. Don't use the lower dock when the whale is present, except when loading or unloading your vessel. If you must use the lower dock, do so quickly and without stopping.
. Don't slow down or stop if approached when you are in a boat or aircraft. If approached, motor away or dock as quickly as possible.
Do stand back and remain quiet when the whale is present.
Do report incidents involving inappropriate behaviour immediately.
Do be part of the solution, not part of the problem.

DFO reminds the public that it is illegal to disturb any marine mammal in Canada (Section 7, Marine Mammal Regulations). Violators face potential fines of up to $100,000.

Report any contravention of these guidelines to DFO's Observe, Record, and Report (ORR) hotline at 1-800-465-4336 or the RCMP 911

Weymouth Dolphin Coalition
DOLPHIN INTERACTION
IMPORTANT NOTICE TO BOAT OWNERS

A male bottlenose dolphin, known as Georges, has been in the Portland area since 28 March 2002. It has proven to be a very sociable animal but, due to the public response, it has been necessary to form boat patrols to protect the interests of the animal as well as the public.

Prolonged interaction with the animal will compromise its normal feeding and resting behaviours as well as limiting its potential communication with other wild dolphins in the area, so reducing its chances of re-integration back into the dolphin community. If interacting with the dolphin, please limit the time to 15 minutes and behave responsibly by following the guidelines below. For your own safety, be aware that dolphins are fast and powerful animals. If they feel threatened, they may become aggressive. There is a possible risk of disease transmission through skin contact and via the blow-hole. Also be aware that, when in the water, you are at risk of hypothermia, muscle cramps and exhaustion.

IN THE BOAT

- Let the dolphin come to you.
- Do not chase or drive head on to it.
- This dolphin is attracted to boat propellers and has already been injured, and risks further injury unless boat contact is sympathetic. If the dolphin is close to your craft, stop your engine / take it out of gear. When moving off, keep the revs low until the animal is visibly clear of the vessel. The dolphin can be drawn away from the propeller by holding out an oar, or by lowering a fender buoy, letting it out on a rope and tugging it. Do NOT bounce or splash any object in the water around the dolphin, as you may injure him).
- If interacting near one or more vessels, please do not 'compete' for the attention of the dolphin.
- Never rev your engine to attract the dolphin!
- Be careful to prevent any rubbish falling overboard, including lengths of rope and especially fishing net.
- Keep any fishing tackle safely packed away. Fishing hooks, baited or not, could prove very dangerous.

IN THE WATER

- **For your own safety and that of the dolphin, do NOT attempt to swim with him.**
- Please do not attempt to touch, grab or ride upon the dolphin or try to feed it!
- **Divers:** if closely approached by the dolphin, be aware of jewellery, wet/dry suit fittings and kit scratching the dolphin's skin, which is very delicate and prone to damage and infection.

IT IS AN OFFENCE TO DISTURB, HARASS OR HARM ANY DOLPHIN. ANY PERSON(S) IN BREACH OF THE LAW IS (ARE) LIABLE TO PROSECUTION. ALSO ANY INTIMIDATION, PHYSICAL HARM TO PATROLLERS, OR WILFUL DAMAGE TO PATROL VESSELS WILL BE REPORTED AND THE POLICE AUTOMATICALLY CALLED.

Weymouth dolphin coalition

A solitary male bottlenose dolphin, known as Georges, and previously seen off the French and Guernsey coasts, has been in the Portland area since 28th March 2002. Dolphins are powerful wild animals and are legally protected. They are sensitive to disturbance from boats, people and dogs, and may become aggressive if they feel threatened. For your own safety and the dolphin's, please follow these simple guidelines.

· Please confine watching to the shoreline. Viewing from the shore allows the best views of the dolphin without disturbing its natural behaviour.

· It is strongly recommended that you do not attempt to closely approach or swim with this animal. There is a chance of disease transmission, and serious risk of injury to yourself or the dolphin.

· If you are already in the water and the dolphin approaches, please do not under any circumstances try to touch or grab the dolphin, ride upon it or feed it.

· Encourage your dog to stay out of the water.

· This dolphin is attracted to boat propellers. He has already been injured and risks further injury unless boat contact is markedly reduced. If it approaches your boat try to draw it away from the propeller by holding out an oar or fender.

It is an offence to disturb, harass or harm this dolphin under the Countryside and Rights of Way Act, 2000, and the Wild Mammals Protection Act, 1996. Regular beach patrols are in place to ensure the responsible behaviour of visitors and any breaches of the law will be prosecuted.

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