DETECTING DODGY DOLPHINS: 
ASSESING PHYSICAL ANOMALIES IN SMALL CETACEANS 
OFF LA GOMERA (CANARY ISLANDS, SPAIN)

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INTRODUCTION

The prevalence of physical anomalies such as skin diseases in cetacean species has been of growing concern worldwide. The waters off La Gomera are home to a great diversity of cetacean species while the Canary Islands are a major tourist destination in Europe, suggesting direct and indirect impacts on the marine fauna through coastal development, shipping, tourism, etc.

METHODS

Photographic data was collected from platforms of opportunity during regular whale watching trips off the coast of La Gomera from 1995 through 2014. Only photographs of reasonable quality were selected for analysis.

Anomalies were categorized as A) injuries (slight, moderate or severe), e.g. cuts, scars and wounds; and missing fractions or whole body parts (see Figure 4); B) deformations, where the body shape showed a clear deviation from the norm (see Figure 5); and C) suspected skin diseases, i.e. irregular appearance and/or discolouration of parts of the skin (see Figure 3). Deformations were either apparently emaciated animals with symptoms like ribs visible and a bent behind the blowhole, or animals showing humps or swellings of some kind. Suspected skin diseases were divided into seven subcategories, such as tattoo lesions, fringed or pale spots, discolouration or vescularis as well as mottled lesions.

RESULTS

A total of 128 individual small cetaceans showed one or more anomalies. Apparent skin diseases were observed in various forms across all species in 69 individuals. 66 individuals showed visible injuries from moderate to high severity. Symptoms of emaciation were detected in 28 bottlenose dolphins (Tursiops truncatus) and humpback whales in two juvenile Atlantic spotted dolphins (Stenella frontalis, see Table 1).

![Image](image1.png)

**Table 1: No. of photographs used for categorization of anomalies in small cetaceans off La Gomera.**

<table>
<thead>
<tr>
<th>Photo ID</th>
<th>All species</th>
<th>ASD</th>
<th>BD</th>
<th>PW</th>
<th>RTD</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of ind. w/ anomalies</td>
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<td>15</td>
<td>72</td>
<td>74</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>No. of photographs used</td>
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<td>13</td>
<td>56</td>
<td>67</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injuries</th>
<th>Suspected skin disease</th>
<th>Emaciation</th>
<th>Humps</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>8</td>
<td>33</td>
<td>25</td>
</tr>
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<tr>
<td>2</td>
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</table>

Tattoo lesions (see Figure 3a) were the most common skin anomalies (n=33), followed by dark fringed spots (n=14). Slight and moderate injuries occurred more often than other anomalies except tattoo lesions (see Figures 1 & 2).

![Image](image2.png)

**Figure 3: Different types of skin anomalies found in small cetaceans off La Gomera.**

- Tattoo lesions on a small adult whale.
- Bottle nose dolphin with a square shaped scar.
- Bottle nose dolphin with a fringed spot.
- Dark fringed adult bottlenose dolphin.
- Emaciation in a juvenile bottlenose dolphin.
- Emaciation in an adult bottlenose dolphin.

![Image](image3.png)

**Figure 4: Different types of injuries found in small cetaceans off La Gomera.**

- Bottle nose dolphin with a wound, a pale spot, and a scar.
- Bottle nose dolphin with a large scar.
- Bottle nose dolphin with multiple injuries.
- Bottle nose dolphin with multiple injuries.

![Image](image4.png)

**Figure 5: Different types of deformations found in small cetaceans off La Gomera.**

- Emaciated bottlenose dolphin.
- Emaciated bottlenose dolphin.
- Emaciated bottlenose dolphin.
- Emaciated bottlenose dolphin.
- Emaciated bottlenose dolphin.
- Emaciated bottlenose dolphin.

Discussion

With this study, the occurrence and characteristics of physical anomalies in small cetaceans off of La Gomera are reported for the first time. Despite the study period covering more than a decade, the documented occurrence must be seen as a minimum estimation. Many cetaceans carried slight injuries some of which can be related to previous entanglements in fishing gear (e.g. see Figure 4e). A high number of individuals suffered from moderate or severe injuries, some of which represented lesions typical for boat propeller strikes (see Figure 4a). A problem well known for the Canary Islands (Ritter, 2010; Carrillo & Ritter, 2010). Skin diseases occurred in various types but most often in mild form. The occurrence of skin diseases can be an effect of anthropogenic stressors such as pollution and eutrophication (Mouton and Botta, 2012, Harzen & Bruntric, 1997). Sources of contaminants are shipping, runoff from urban areas and industrial activities as well as agriculture.

Infectious pathogenic such as pavoirus (Garas et al., 1973), herpes virus (Barr et al., 1985) or leprocynosis (Miklai et al., 1971; Van Bressem et al., 2000) can lead to skin lesions such as those observed during this study. Bacterial infections such as bronchitis occur in cetaceans worldwide and can also be associated with cutaneous lesions (Miller et al., 1999; Foster et al., 2002). Viral infection in the documented individuals can be assumed, as lesion appearance shows similarity to those described in previous studies.

The fact that bottlenose dolphins were most affected by skin diseases as well as emaciation, together with their near-shore distribution (Smith et al., 2010) can be seen as indicative. Garza-Avarez et al. (2014) found high levels of contaminants like POPs in Canary Island bottlenose dolphin tissues. Emission suggests lower blubber thickness caused by diminishing food resources. Emission often was co-occurring with skin lesions, highlighting the potential for cumulative and synergistic effects.

![Image](image5.png)

**Figure 6: Skin lesions on a bottlenose dolphin.**

- Deformations in the dorsal area.
- Deformations in the tail area.
- Deformations in the pectoral area.
- Deformations in the abdominal area.
- Deformations in the head area.
- Deformations in the ventral area.

![Image](image6.png)

**Figure 7: Skin lesions on a bottlenose dolphin.**

- Deformations in the dorsal area.
- Deformations in the tail area.
- Deformations in the pectoral area.
- Deformations in the abdominal area.
- Deformations in the head area.
- Deformations in the ventral area.

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REFERENCES