

**BIRDS CANADA  
OISEAUX CANADA**

# **British Columbia Beached Bird Survey Instructions Protocol**

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***Welcome to the British Columbia Beached Bird Survey!  
Thank you for your participation!***

**A. Introduction**

**1) Why do we Need a Beached Bird Survey in British Columbia?**

BC's coastal waters support some of the highest densities of seabirds, waterfowl and shorebirds in the eastern North Pacific. The BC coast also supports a large amount of marine shipping traffic which may result in major and minor spills of petroleum products on occasion, as well as low levels of chronic oiling caused by smaller spills of fuel and bilge-water. Oil pollution poses a serious threat to pelagic seabirds and coastal waterbirds because the physical properties of oil degrade the insulating and waterproofing properties of feathers, particularly in winter when air and water temperatures are colder and birds are more vulnerable to exposure. Ingestion or inhalation of oil can also poison birds internally.

The BC Beached Bird Survey aims to collect information on the causes and rates of beached bird mortality by monitoring birds on beaches and keeping track of whether or not they have been exposed to oil. In addition to oiling, there are many other threats to seabirds including entanglement from fishing gear, disease, loss of habitat, climate change and other factors such as food shortages. In collaboration with Canadian Wildlife Service, another study is underway to conduct lab analyses of fresh carcasses to determine cause of death and conduct DNA analysis. Volunteers who find fresh and intact carcasses (not scavenged) and who are able to collect these can help this study.

By participating in beached bird surveys, you are making a significant contribution to environmental stewardship by helping to collect information on the levels, timing and causes of marine bird mortality in British Columbia.

**2) What Birds are you Likely to Find?**

In BC the most commonly found species are Common Murres, Glaucous-winged Gulls, and Rhinoceros Auklets. Over 50 species of waterfowl, gulls and alcids have been recorded. Landbirds or forest birds (e.g. sparrows, finches, woodpeckers) are not part of this study and should not be included; however, raptors and other coastal species such as Kingfishers and corvids (crows, ravens) should be recorded. See Appendix 1 for a list of potential species.



### **3) When You Should Report an Environmental Emergency**

The following events should be reported not only to the Beached Bird Project Coordinator (on the appropriate data sheets) but also to Canada's Environmental Emergency hotline:

- Oil on the beach that appears to have washed ashore from sea
- Five or more oiled animal carcasses (bird, mammal, turtle) on the same survey
- Massive die-offs (large fish kill, beached marine mammals, turtles, birds)
- Live oiled birds or other animals in distress

**1-800-663-3456**

This number is available 24 hours a day. Please do not hesitate to call this number in any of the above situations. Be sure to report your findings on your Beached Bird Survey data sheets as well.

**If you find birds that are alive and injured or in distress, please contact your local wildlife rehabilitation centre or SPCA. Please do not handle them unless you have specific wildlife rescue training.**

If you find dead marine mammals especially cetaceans (dolphins, porpoises or Orcas) washed up on the beach, please contact Fisheries and Oceans on their 24 hour toll-free line to report it **1-800-465-4336**

***Cautionary Note***

Dead animals may contain parasites and other diseases that may be harmful if transmitted to you. If you must handle a carcass, use caution and wear gloves. Wash your hands with soapy water when you return home, or carry a bottle of gel-form alcohol with you on your survey.



## **B. Getting Set Up**

### **1) Finding a Survey Route**

Most observers conduct surveys on beaches they already walk on a regular basis. You could also survey a vacant route previously surveyed by another volunteer. The Project Coordinator will assist you in finding or establishing a survey route. The best beaches are those that are easy to walk, not too steep, composed of sand/gravel or small cobble and that naturally accumulate driftwood and seaweeds. If there are no established beach routes in your area, we are happy to set a new one up for you.

### **2) Completing the Beach Description Form**

Each route has a fixed Start and End point and should be surveyed consistently each month. Information about access, the Start and End point locations and details about the beach (e.g. substrate, slope) are recorded on a Beach Description Form.

If you establish a new route, please complete the Beach Description Form after your first survey. This form will only need to be filled out once. Please provide a detailed description of the Start and End points for your route (e.g. street names, park names, landmarks etc) and record GPS coordinates, if possible. Determine the length of the route (**one way**) using a street map with a scale bar or Google Maps/Earth. The Project Coordinator can assist you determine the length of the route if needed. A map or sketch of your beach route is also very helpful.

If you are surveying a previously surveyed route, the Project Coordinator will usually supply you with the Start and End points and we ask new volunteers to survey the same route for consistency. You may be asked to review and update the beach information we have on file.

### **3) Getting Set Up for Online Data Entry**

Volunteers are asked to enter their survey observations into an online database available through [www.naturecounts.ca](http://www.naturecounts.ca). Follow these steps to get set up for online data entry:

1. Visit [Nature Counts \(www.naturecounts.ca\)](http://www.naturecounts.ca)
2. On the Nature Counts Welcome Page, scroll down to the second last paragraph and click on the link "list of projects."
3. Click on "Beached Bird Surveys" from the list of Project Names.
4. If you don't already have an account with Nature Counts, click "Create New Login" at the bottom of the left-hand panel. If you have an existing account, then you can use the same Login and Password.
5. Click "Your Profile" in the upper right corner and complete your User Profile Page.
6. Check the box "I wish to register as a participant to Beached Bird Surveys" near the bottom of the page.
7. Click "Register". Your request will be approved by the Project Coordinator, which may take several days.



## 4) Receiving the Survey Kit

Once you have a designated BC Beached Bird Survey route we will send you a Survey kit with instructions and data forms. You are now ready to do the monthly survey!

### **We provide:**

COASST Field Guide  
Gloves  
Plastic ruler  
Instructions and data sheets  
Survey map (if available)  
Numbered metal tags  
Ties to attach tags

### **You provide (optional but important!):**

Camera  
Binoculars  
Warm clothing  
Sunglasses and Sunscreen  
Water  
First Aid Kit  
Hand sanitizer or Gel-form alcohol  
Old paint brush (to remove sand from carcass)

## 5) The COASST Field Guide

The U.S. based COASST program (Coastal Observation and Seabird Survey Team) has developed a great Field Guide that thoroughly describes the various species you might find on the west coast of Washington and Oregon. The Guide covers nearly all the seabirds likely to be found in BC although not all are included. Please make sure to bring your Guide with you on Surveys. If you decide to retire from the survey program, please return the Guide to us so we may re-use it and provide it to another volunteer.

## 6) Planning your Surveys

Surveys occur once every month year-round. If year-round is not possible, try to survey when beached birds are likely to be found: August to April. Surveys should be conducted **any day during the last week of each month** to be consistent with previous beached bird programs. Sometimes, bad weather or personal commitments may make it impossible to survey that week. In this case, please survey as close to that week as possible. More frequent surveys are welcome, but not necessary.

Surveys are best conducted **after a high tide or as the tide is going out**. Try to avoid surveying as the tide is coming in as you may get trapped by high water, or beached birds you may otherwise have found could be washed out to sea. It is important to follow the tide table to maintain your own safety. You can access tide information for locations throughout BC from the Canadian Hydrographic Services web site at:

<http://www.waterlevels.gc.ca/eng>.

## 7) Before your Survey

Coasts can be dangerous places and your safety comes first! Often in winter there can be large amounts of slippery seaweed deposited on the beach so please take great care or postpone your survey if necessary. Please inform someone when you are surveying and your expected return time. Wear appropriate clothing and go with a partner if possible. If for any reason you feel that conducting your survey is dangerous, do not attempt the survey at that time. **Please note that Birds Canada cannot accept responsibility or liability for accidents during a Beached Bird Survey.**

## C. In the Field: Conducting Beached Bird Surveys

### 1) Where to Walk

To compare data over time, it is important to keep the survey effort constant by walking the same length of beach with each survey. If you must shorten or lengthen the distance, please indicate why on the survey data sheet and record the modified distance. Please record only the distance you walk one way. **A record of the beach length surveyed is essential for us to be able to calculate Encounter Rates (birds found/km).**

The **wrack line** is the line of seaweed stranded at the water's edge during the most recent high tide. You may find two wrack lines present, and it is best to **walk along the most recently deposited wrack line**, as this is where fresh carcasses will be found. If you have time, try to scan the recent wrack line and older ones from previous high tides (these will often look drier and more decomposed). Fresh carcasses may also be found at the water line, and old carcasses may be found at the extreme high tide line, away from the water line and closer to the backshore.

If you must survey your beach as the tide is coming in, you should survey the water line on the first leg of your survey, and the wrack line and extreme high tide line on your return journey. Often wrack is loosely aligned or scattered in clumps so your survey path may have to meander somewhat.

### 2) Tips for Finding Carcasses

Fresh carcasses along the water line look like bumps on the flat beach. Along the wrack line though, carcasses are usually littered among denser clumps of debris, so try to inspect all such masses. Above the wrack line carcasses can be partially or fully buried, and sometimes only the wings remain. Searching for wing tips or long, stiff feathers sticking up from the sand is a good strategy.

Many scavengers (crows, gulls) or predators (falcons) linger near carcasses and often stand on carcasses along the beach or carry them off to logs. As you approach and flush these birds from their posts, watch where they flushed from to find the carcass. Dogs are also often attracted to carcasses.

### 3) Completing the Beached Bird Survey Form

Please fill out this two-sided form for each survey, **even if you don't find beached birds**. It is just as important to record "negative" data (i.e. no beached birds were found), as it is to record the presence of beached birds.

#### a) At the START of the Survey

Please include names, mailing addresses, contact numbers and e-mail addresses (if available) for both you and your assistant(s). Record the date, beach name and the beach identification number that was given to you, and the time that you began the survey under the heading 'Start Time'. Please use the 24-hour clock (i.e. 3 pm = 1500).

## b) At the MIDDLE of the Survey

Record physical data such as:

- Temperature in degrees Celsius.
- Prevailing wind direction and speed. Wind speed should be estimated using the Beaufort Wind Scale (Appendix I)
- Weather conditions. Check off the relevant category for:
  - % **cloud cover** (0-11, 0. 0% (Clear), 1. 10%, 2. 20%, 3. 30%, 4. 40%, 5. 50%, 6. 60%, 7. 70%, 8. 80%, 9. 90%, 10. 100% (overcasts), 11. Fog)
  - **precipitation** (none, rain, snow, rain and snow, thunderstorm, fog)
  - **sea state** (calm, rippled, choppy, wavy, rough, stormy)
  - **tide** (high, medium, low)
  - **tide movement** (falling, rising, slack, both rising and falling)

## c) At the END of the Survey

**Time and Distance:** When you reach the endpoint of your survey, please record the end time and the distance covered (one way) on the first page of your data sheet. In the comments, you can include other observations or mention any factors that may have affected your results (i.e. poor visibility, beached vegetation covering carcasses, schedule, etc.). ***It's very important to record the beach length surveyed each time so we can determine Encounter Rates (birds found/km).***

**Wrack line:** Record the approximate average thickness and overall continuity of the wrack line (line of seaweed deposited from the most recent high tide). If there are multiple wrack lines, measure only the one that appears to be most recently deposited (least decomposed/dry).

**Driftwood:** Estimate the extent, continuity, and position of recently deposited driftwood at the end of the survey. If there is no new driftwood deposited please check the box "There is no new driftwood." Be sure to make these estimates at the same point on the beach each time you conduct the survey.

Storms and water currents influence numbers of carcasses washing up on different beaches. These changing environmental conditions are correlated with the amount of wrack line and new driftwood on the beach. Thus, recording this information can help determine the likelihood of detecting carcasses at your beach on any given day.

**Observed Petroleum Pollution:** If you find oil on your survey beach, please record which of the following categories it falls into:

- **oil sheen:** iridescent layer of liquid;
- **sticky tarballs:** chunky, dense accumulations often tangled with vegetation;
- **goopy/emulsified oil:** thick liquid oil or oily mousse;
- **oil-covered jetsam:** objects/debris washed ashore with oil on them;
- **old hardened tarballs:** oil that is no longer likely to stick to birds; or
- **vegetable Oil:** may be clear but will appear as a shiny, viscous substance.



**Important:** do not touch any suspected oil products without protective gloves.

Note the density of each type of oil found. That is, how much oil you see over specific distances as you walked the beach.

- **no oil**
- **1-2 patches/km (Low levels of oil);**
- **1-2 patches/100 m;**
- **1-2 patches/10 m; or**
- **1-2 patches/1 m (High levels of oil).**

If oil is extensive, please be sure to call the environmental emergency 24-hr hotline (1-800-663-3456).

Be careful not to confuse sheens caused by microorganisms with those caused by oil. A quick sniff for a petroleum smell can help you detect the presence of oil. Natural oily substances will often show a distinctive blocky pattern when the sheen breaks up.

**Presence of Beached Birds:** If you found one or more beached birds, please check the box, "I found beached birds today" and enter the number of carcasses found. If none were found, check the box "No beached birds were found today."

## 4) What to do When you Find a Beached Bird Carcass

### a) Avoiding Contamination

Use the gloves provided while handling dead birds. If you are surveying with a partner, designate one note-taker and one "dead bird handler." Wash your hands with soap when the survey is complete. Heavy-duty rubber dishwashing gloves can be useful. If you decide to use dishwashing gloves, you can re-use them if you wash them with soap after each use.

### b) Beached Bird Data Form

Complete the "Beached Bird Data Form" when you find a carcass. For each carcass, fill in one line of the form. Using gloves, inspect the carcass to see if the bird is a **re-find** by searching for a tag (see below). If the bird has been tagged already, it is a re-find. Record the tag number on the form and continue your survey. There is no need to record additional information about a re-find carcass unless you wish to change your original identification or make additional notes about the bird.

### c) Tagging Beached Birds

To increase our understanding of the rate of decomposition and length of time a carcass is likely to remain on a beach, please tag each bird with one of the numbered aluminum tags found in your kit. Tags can be attached with the ties provided.

The best place to attach the tag is on the wing or humerus (i.e., upper arm or funny bone) as close to the body as possible. Make sure the tag is securely attached to the carcass. You can also attach the tag to the leg of the bird. If you run out of tags during your survey, remove

any untagged carcass from the beach to avoid re-counting it on a later survey. Throw it well above the high tide line, into bushes or above log piles.

### d) Recording Oil or Entanglements

For newly discovered birds, examine the carcass for the presence of oil or any entanglements. **The most important information from this survey is the presence or absence of oil on a bird.** If less than half of the plumage remains, or other factors make it difficult to determine if oil was ever present, code the bird as level “4” (unable to determine; see below). Please use one of the following numerical categories to describe the presence of oil on the carcass:

#### 0) No oil

**1) Slightly oiled:** smudges of oil that do not totally penetrate the breast feathers or coat the wings (check for petroleum smell if you are uncertain whether the smudges are oil)

**2) Moderately oiled:** oil penetrates to base of feathers or saturates wings; <25% of the body is affected

**3) Heavily oiled:** oil penetrates to base of feathers, >25% of body affected)

**4) Unable to determine:** as noted above, this code should be recorded if there is less than half of the plumage remaining or if the carcass is decomposed. Even if you code the carcass as “4”, please inspect what plumage remains to determine if there is any oil present. If oil is present, record “oil” in the comments. If there is no oil visible, record “no oil”.

Ensure that dark smudges on the plumage are in fact oil and not dirt or dried body fluids. Check for the distinctive petroleum oil odour. On dark-plumaged birds, oil may be difficult to see, so check these by smelling them. Note also that vegetable oil, which may be odourless, is a common form of oil pollution in Vancouver harbour. Use your best judgement in detecting vegetable oil; it may be quite viscous in texture or smelly if it has become rancid.

If you have a camera with you, please take photos to document the extent of oiling or any entanglements (e.g. fishing line).

### e) Degree of Emaciation

To assess whether a bird may have starved to death, you should feel the breast area with your fingers (still wearing gloves) to see how well-developed the breast muscles are. Check off which of the following descriptions best fits each carcass:

- 1) **Round:** in normal birds, the breast is rounded like a lifeboat and you can barely feel the keel of the breastbone
- 2) **Even:** in moderately starved birds, the breast slopes away from the keel evenly, like the roof of an A-frame house
- 3) **Concave:** in extremely starved birds, the sides of the breast bow inward, like the concave hull of a sailboat
- 4) **Unable to determine:** if the carcass is old, badly decomposed or scavenged or for other reasons the breast condition does not allow such a description

## f) Condition of Carcass

This provides some idea of when the bird died, and an estimate of approximate days since death. Check off which of the following descriptions best fits each carcass:

- 0) Barely alive
- 1) Very fresh (no rotten smell)
- 2) Slight decomposition but feathers still firmly attached
- 3) Very decomposed, rotten (feathers falling off)
- 4) Very old, mummified (likely many weeks dead)

**If you find birds that are alive and injured or in distress, please contact your local wildlife rehabilitation centre or SPCA. Please do not handle them unless you have specific wildlife rescue training.**

## g) Proportion of Carcass Remaining

This allows for a better estimate of the possible extent of oiling. Parts of the carcass flesh might be removed by scavenging birds or mammals, or by insects and beach fleas. Check off which of the following descriptions best fits each carcass:

- 0) Intact
- 1) 1-10% of flesh removed
- 2) 11-80% of flesh removed
- 3) Almost completely removed (>80%)
- 4) No information possible

## h) Taxon Identification and Further Description

Using the COASST Field Guide, the provided identification tips, and Appendix 1 as aids, identify the bird as well as you can. The COASST Field Guide is very detailed and helpful. If you find feet with the carcass, you should **use the Foot Key in the COASST Guide as a first step.**

The most important advice is: **DON'T GUESS.** If you are sure that a carcass represents a certain type of bird (loon, gull, etc.) but aren't sure of the species (e.g. Ring-billed Gull or Herring Gull), identify it to the level you are sure about (e.g. gull). **Don't assign it to a species unless you are positive of your identification.** If you cannot identify the carcass to family level record "**unidentified bird**" and provide a brief description on the back of your survey form. Be sure to photograph the remains if you have a camera.

Measurements of culmen, wing chord and tarsus are useful to help identify the species or group of bird (see diagram at end for measurement photos).

If the carcass is relatively intact, and if you are confident of your identification, you may wish to record further details about the carcass (age and sex). If you do not feel confident, or if the carcass is too weathered or decomposed to determine these details, simply leave them blank. Any additional information about the carcass can go in the comments section.

## i) Cause of Mortality

Every beached bird died from something; figuring out the cause can be challenging based on a visual examination only. In most cases, no cause of death will be evident and you should record **UNKNOWN**. Sometimes there are clues but it's quite easy to confuse evidence of scavenging with signs of predation. Don't feel frustrated if you seldom determine the likely cause of death for the beached birds you encounter. Report only the sources of mortality for which you are reasonably certain. Possibilities include:

- **entanglement in fishing gear** (nets, lines, or hooks) or **plastic** (six-pack holders, balloons, etc.). Note that a carcass may become entangled with free-floating monofilament lines after death as well. Such individuals won't get dragged by the line and so will not appear drowned (see below).
- **drowning** - hard to detect, but fresh carcasses show signs of entanglement and are usually soaked and feathers around the neck are damaged or worn off, revealing the skin.
- **choking** on food or other material - this does happen! Items like large crabs or fish become lodged in the rear of the mouth.
- **predation** - some predators, like falcons, will smash a hole in the head of their prey when they strike it. Soon after a kill, while the skin is pliable, many predators will pull the skin off the breast and neck and up over the skull to uncover the meat. This gives the carcass an inside-out appearance. Other clues include: fresh, red blood on the feathers; breastbone has been picked clean of meat and/or has scrapes or chunks cleaved out of it; liberal strewing of breast feathers around the carcass. Falcons often bring their prey to a perch or log that is above the tide line - be sure to note placements above the beach when they occur. On the other hand, most scavengers (crows, gulls, etc.) can only carry off small carcasses, don't tear out too many feathers, and leave no major scrapes in the breastbone.
- **oiling** - can be suggestive as a source of mortality.
- **starvation** - the fullness of the breast should be evaluated for every WHOLE, unscavenged carcass you find; the previous section describes how to record the degree of emaciation on data sheets.
- **shot** - blood oozing from shot holes; feathers damaged by shot.
- **broken wing, leg, or other obvious trauma** - only valid for freshly dead carcasses – those long dead often have bones broken by scavengers.

Any intact carcasses that are submitted as part of our collaborative Bycatch study (see below) will be sent to the Provincial lab for a detailed post-mortem examination. In these cases, the veterinarian can often determine the underlying cause or death.

## j) Photographing Beached Birds

If possible, please take photos of birds you find. Photos will be used in future training materials, newsletters and presentations and can greatly assist with identification. You will be properly acknowledged if your photographs are used in any publications or online.



1. Using gloves, brush off as much sand and debris from the carcass as possible. Alternatively, you can wash the bird in the surf.
2. Take a full view photo and "close-ups". Do not leave any part of the animal out of the view. Make sure to take close-ups of the head/bill and the feet.
3. "Pose" the carcass to emphasize crucial field marks. Stretch out the wing(s) in an "M" or "W" shape. Rest the head and beak in side-on profile for all species.
4. Place the black and yellow ruler provided in your kit beside the bird for scale.
5. Make note of the contrast between the carcass and the background; plumage details of dark-coloured birds can look indistinct against a sandy background, while those of light coloured birds usually contrast well.
6. For digital photos, use a macro setting for any close-ups if possible. Take a couple of photos from different angles.
7. Photograph both the dorsal (back) and ventral (belly) sides.
8. Make notes about each photograph you take that include the date, beach name and carcass tag number. When documenting unusual circumstances (oiling events, entanglements, discovered bands, etc.), please record any other details that seem to apply.

***When you are finished, leave the carcass where you found it, unless you are collecting it for the carcass collection study (see below).***

## *k) Collecting Carcasses*

We are collaborating with scientists at Environment Canada and others to study seabird bycatch and plastics ingestion. If you find any fresh intact carcasses (not scavenged or decomposed) and would like to collect them for lab analyses, record your beached bird observations as usual, put the bird in a bag and freeze it as soon as possible. Contact the Project Coordinator ([bcprograms@birdscanada.org](mailto:bcprograms@birdscanada.org)) or Laurie Wilson at Environment Canada ([Laurie.Wilson@ec.gc.ca](mailto:Laurie.Wilson@ec.gc.ca)) or call the 24 hr toll-free line at 1-866-431-2473 and we will arrange and pay for a courier to pick it up from you.

Only volunteers who are named on our Salvage Permit with the Beached Bird program are permitted to collect carcasses of dead waterbirds.

## **D. After your Survey**

### **1) Submitting Your Survey Data**

If you have internet access, **please enter your survey data online through Nature Counts ([www.naturecounts.ca](http://www.naturecounts.ca))**. The online forms match very closely with the paper forms you have been using in the field. Entering the data manually is quite challenging for us due to limited resources. As the BC Beached Bird program continues to expand, we hope that you'll help us by entering your data online. We are happy to provide more detailed instructions or walk you through it over the phone.

If you don't have internet access to submit data online, you can send your data to:



British Columbia Beached Bird Survey  
Birds Canada  
4841 Delta Street, #206  
Delta, BC V4K 2T9  
Email: [bcvolunteer@birdscanada.org](mailto:bcvolunteer@birdscanada.org)

## a) When to Submit Data

We recommend that you submit your data as soon after your survey as possible, while the survey is still fresh in your mind in case you forgot to record any details on your form. Please submit your data at least twice per season/year at a minimum.

## b) Submitting Survey Data Online

1. Log into Nature Counts at <http://www.birdscanada.org/birdmon/beachbird/>.
  2. Click on “Submit Data” on the left panel.
  3. Find your Site in the alphabetical list or on the map and click on the “Continue” icon. If your site is not on the list please let the Project Coordinator know.
  4. A new page opens with the blank Survey Form and the Bird Data Form combined.
  5. Complete the form by filling in all the blank fields.
  6. When you have completed the form click “Finish Form”.
  7. If you enter a partial survey click “Save” and you can complete it by editing it later.
- Note:** It is always better to enter a complete survey in one session.

Detailed step by step instructions with visuals can be found on the beached bird program website: <http://www.birdscanada.org/volunteer/bcbeachbird/index.jsp?lang=EN&targetpg=index>. Click “Online Data Instructions”.

## c) Notes on the Data Entry Form

- **Observers:** If you like, you can generate a list of observers if you have other people accompany you on your surveys. Click on Observers and add names. These names will be linked to your login and will be available for you to choose whenever you enter data.
- **Beach length surveyed:** Record the beach length surveyed in metres (1000m = 1km). This is equivalent to the distance you walked one way.
- **Wind Speed:** Estimates are fine, please use the Beaufort Wind Scale (Appendix I).
- **Oil:** Please indicate if you see any oil (Yes/No). Even if it's No, please enter “None” for each Category of Oil.
- **Bird Table:** If you find dead birds, the default species list includes the most probable water birds and corvids (click on the arrow beside the Species name field). If you find another type of dead bird, you can click the link above the Table to Show All Species in this Checklist. If you still don't find your species, you can do an Expanded Search. For example if you found a dead sparrow, enter 4 letters (“spar”) in the Search field above the Bird Table, and check the box beside Expanded Search. When you click on the down arrow, a list of sparrows should come up.

### d) Reviewing or Changing Data

You can check the forms you submit and make changes if they haven't been finalized yet (reviewed and approved by the Project Coordinator).

1. Log in to Nature Counts and find the survey you want to review/change.
2. If the form hasn't been finalized, click 'Edit' to make changes.
3. If the form has been finalized, click 'View' to view the form. If you need to make changes, please send a request to the Project Coordinator at [gsorenson@birdscanada.org](mailto:gsorenson@birdscanada.org).
4. If you start a form by mistake, you can delete it by clicking on the garbage can icon, provided it hasn't been finalized yet.

### e) Submitting your Photos

Please send photos in when you submit your data, either by mail or email. Please include date, your name, beach name, and tag number on the back of each photo or in the email. Note that photos cannot be submitted through Nature Counts at this time.

**Thank you for your help with this survey. Please don't hesitate to contact the Project Coordinator if you have any questions or comments, or if you require materials.**

Phone 1-877-349-2473  
Email: [gsorenson@birdscanada.org](mailto:gsorenson@birdscanada.org)

## E. Appendix I

Birds found in British Columbia waters likely to occur on beached bird surveys.  
(Please note that other, rare species may also occur. For a complete list, see \*Campbell et al.)

English Name	Scientific Name	Four-letter Code	Key Features
<b>LOONS – Family GAVIIDAE</b>			
Red-throated Loon	<i>Gavia stellata</i>	RTLO	Large birds. Long pointed bill. Wings narrow, pointed. Tail short and stiff. Legs at end of body. Four toes, three front toes fully webbed. Tarsi compressed. Sexes alike. Species differ in bill size and angle of tilt.
Pacific Loon	<i>Gavia pacifica</i>	PALO	
Common Loon	<i>Gavia immer</i>	COLO	
◆ Yellow-billed Loon	<i>Gavia adamsii</i>	YBLO	
<b>GREBES – Family PODICIPEDIDAE</b>			
Pied-billed Grebe	<i>Podilymbus podiceps</i>	PBGR	Medium birds, some small. Short, curved wings. Tail very short. Legs set far back on body; four toes lobed. Tarsi compressed. Sexes alike.
Horned Grebe	<i>Podiceps auritus</i>	HOGR	
Red-necked Grebe	<i>Podiceps grisegena</i>	RNGR	
Eared Grebe	<i>Podiceps nigricollis</i>	EAGR	
Western Grebe	<i>Aechmophorus occidentalis</i>	WEGR	
◆ Clark's Grebe	<i>Aechmophorus clarkii</i>	CLGR	
<b>ALBATROSSES – Family DIOMEDEIDAE</b>			
Black-footed Albatross	<i>Diomedea nigripes</i>	BFAL	Very large bird. Long bill with hook. Extremely long and narrow wings. Three webbed toes.
◆ Laysan Albatross	<i>Diomedea immutabilis</i>	LAAL	
<b>FULMARS AND SHEARWATERS – Family PROCELLARIIDAE</b>			
Northern Fulmar	<i>Fulmarus glacialis</i>	NOFU	Medium birds. Nasal tubes on top of hooked bill. Long, pointed wings; tail short. Fulmars have a terminal nail on their bill.
Pink-footed Shearwater	<i>Puffinus creatopus</i>	PFSH	
◆ Flesh-footed Shearwater	<i>Puffinus carneipes</i>	FFSH	
Buller's Shearwater	<i>Puffinus bulleri</i>	BLSH	
Sooty Shearwater	<i>Puffinus griseus</i>	SOSH	
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	STSH	
◆ Black-vented Shearwater	<i>Puffinus opisthomelas</i>	BVSH	
<b>STORM-PETRELS – Family HYDROBATIDAE</b>			
Fork-tailed Storm-petrel	<i>Oceanodroma furcata</i>	FTSP	Small birds. Nostrils united on top of hooked bill. Long wings. Tail often forked. Legs slender.
Leach's Storm-petrel	<i>Oceanodroma leucorhoa</i>	LSPE	
<b>PELICANS – Family PELICANIDAE</b>			
◆ American White Pelican	<i>Pelicanus erythrorhynchos</i>	AWPE	Large, heavy birds. Massive bills and large throat pouches. Broad wings. Four webbed toes.
◆ Brown Pelican	<i>Pelicanus occidentalis</i>	BRPE	
<b>CORMORANTS – Family PHALACROCORACIDAE</b>			
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	DCCO	Large birds. Body, neck, and tail long. Bill strongly hooked at tip; expandable throat pouch. Long wings. Short legs at end of body. Four webbed toes; tarsus not feathered.
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	BRCO	
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>	PECO	
<b>BITTERNS AND HERONS – Family ARDEIDAE</b>			
◆ American Bittern	<i>Botaurus lentigenosus</i>	AMBI	Large birds. Long legs, neck, and bill. Four free toes.
Great-blue Heron	<i>Ardea herodias</i>	GBHE	
◆ Great Egret	<i>Casmerodius albus</i>	GREG	
◆ Cattle Egret	<i>Bubulcus ibis</i>	CAEG	
◆ Green-backed Heron	<i>Butorides striatus</i>	GRHE	

English Name	Scientific Name	Four-letter code	Key Features
<b>SWANS, GEESE, DUCKS – Family ANATIDAE</b>			
Tundra Swan	<i>Cygnus columbianus</i>	TUSW	Medium to large birds. Bill with nail. Usually pointed wings. Short legs. Four toes; in geese, swans, and dabbling ducks – three webbed toes, fourth toe free. In diving ducks, three webbed toes, fourth toe lobed.
Trumpeter Swan	<i>Cygnus buccinator</i>	TRUS	
◆ Mute Swan	<i>Cygnus olor</i>	MUSW	
Greater White-fronted Goose	<i>Anser albifrons</i>	GWFG	
Snow Goose	<i>Chen caerulescens</i>	SNGO	
Brant	<i>Branta bernicla</i>	BRAN	
Canada Goose	<i>Branta canadensis</i>	CAGO	
Green-winged Teal	<i>Anas crecca</i>	GWTE	
Mallard	<i>Anas platyrhynchos</i>	MALL	
Northern Pintail	<i>Anas acuta</i>	NOPI	
◆ Blue-winged Teal	<i>Anas discors</i>	BWTE	
◆ Cinnamon Teal	<i>Anas cyanoptera</i>	CITE	
Northern Shoveler	<i>Anas clypeata</i>	NOSL	
Gadwall	<i>Anas strepera</i>	GADW	
◆ Eurasian Wigeon	<i>Anas penelope</i>	EUWI	
American Wigeon	<i>Anas americana</i>	AMWI	
Canvasback	<i>Aythya valisineria</i>	CANV	
◆ Redhead	<i>Aythya americana</i>	REDH	
◆ Ring-necked Duck	<i>Aythya collaris</i>	RNDU	
Greater Scaup	<i>Aythya marila</i>	GRSC	
Lesser Scaup	<i>Aythya affinis</i>	LESC	
Harlequin Duck	<i>Histrionicus histrionicus</i>	HADU	
Long-tailed Duck	<i>Clangula hyemalis</i>	LTDU	
Black Scoter	<i>Melanitta nigra</i>	BLSC	
Surf Scoter	<i>Melanitta perspicillata</i>	SUSC	
White-winged Scoter	<i>Melanitta fusca</i>	WWSC	
Common Goldeneye	<i>Bucephala clangula</i>	COGO	
Barrow's Goldeneye	<i>Bucephala islandica</i>	BAGO	
Bufflehead	<i>Bucephala albeola</i>	BUFF	
Hooded Merganser	<i>Lophodytes cucullatus</i>	HOME	
Common Merganser	<i>Mergus merganser</i>	COME	
Red-breasted Merganser	<i>Mergus serrator</i>	RBME	
◆ Ruddy Duck	<i>Oxyura jamaicensis</i>	RUDU	
<b>OSPREY, EAGLES, HAWKS, AND ALLIES – Family ACCIPITRIDAE</b>			
Osprey	<i>Pandion haliaetus</i>	OSPR	Large birds with hooked bills and talons.
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BAEA	
<b>RAILS, GALLINULES, COOTS – Family RALLIDAE</b>			
American Coot	<i>Fulica americana</i>	AMCO	Medium-small birds. Short rounded wings, short tail. Large feet with three multiple-lobed toes, fourth toe smaller.
<b>PLOVERS – Family CHARADRIIDAE</b>			
Black-bellied Plover	<i>Pluvialis squatarola</i>	BBPL	Small birds with short necks, large eyes, and short bills slightly swollen at tip. Feet with three free toes.
◆ Lesser Golden-plover	<i>Pluvialis dominica</i>	LGPL	
Semipalmated Plover	<i>Charadrius semipalmatus</i>	SEPL	
Killdeer	<i>Charadrius vociferus</i>	KILL	
<b>OYSTERCATCHERS – Family HAEMATOPODIDAE</b>			
Black Oystercatcher	<i>Haematopus bachmani</i>	BLOY	Chunky, black birds. Laterally flattened, heavy bill. Feet with three free toes.

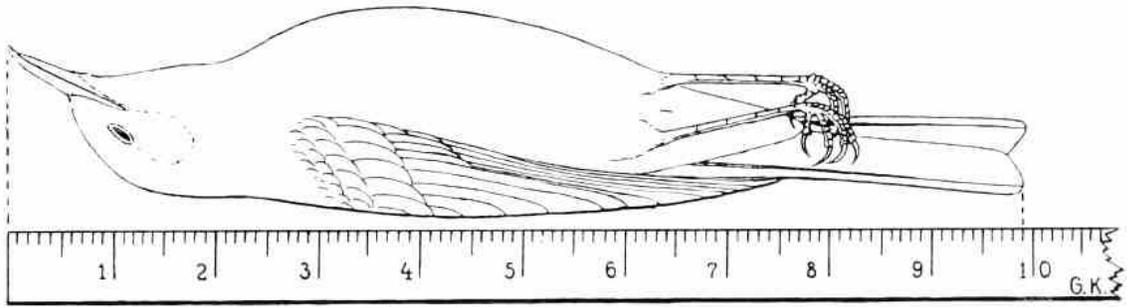
English Name	Scientific Name	Four-letter Code	Key Features
<b>SANDPIPERS, PHALAROPES, AND ALLIES – Family SCOLOPACIDAE</b>			
Greater Yellowlegs	<i>Tringa melanoleuca</i>	GRYE	Generally small birds with long, thin, legs and relatively long, thin bills. (Bill lengths vary with species.)
◆ Lesser Yellowlegs	<i>Tringa flavipes</i>	LEYE	
Wandering Tattler	<i>Heteroscelus incanus</i>	WATA	
Spotted Sandpiper	<i>Actitis macularia</i>	SDSA	
Dunlin	<i>Calidris alpina</i>	DUNL	
Whimbrel	<i>Numenius phaeopus</i>	WHIM	
◆ Ruddy Turnstone	<i>Arenaria interpres</i>	RUTU	
Black Turnstone	<i>Arenaria melanocephala</i>	BLTU	
Surfbird	<i>Aphriza virgata</i>	SURF	
◆ Red Knot	<i>Calidris canutus</i>	REKN	
Sanderling	<i>Calidris alba</i>	SAND	
◆ Semipalmated Sandpiper	<i>Calidris pusilla</i>	SESA	
Western Sandpiper	<i>Calidris mauri</i>	WESA	
Least Sandpiper	<i>Calidris minutilla</i>	LESA	
◆ Baird's Sandpiper	<i>Calidris bairdii</i>	BASA	
◆ Pectoral Sandpiper	<i>Calidris melanotos</i>	PESA	
◆ Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	SHSA	
◆ Rock Sandpiper	<i>Calidris ptilocnemis</i>	ROSA	
Short-billed Dowitcher	<i>Limnodromus griseus</i>	SBDO	
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	LBDO	
◆ Common Snipe	<i>Gallinago gallinago</i>	COSN	
◆ Wilson's Phalarope	<i>Phalaropus tricolor</i>	WIPH	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	RNPL	
Red Phalarope	<i>Phalaropus fulicaria</i>	REPH	
<b>JAEGERS, GULLS, TERNS – Family LARIDAE</b>			
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	POJA	Jaegers - Medium to large birds. Hooked bill with nail. Long pointed wings. Four toes
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	PAJA	
◆ Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	LTJA	
◆ Franklin's Gull	<i>Larus pipixcan</i>	FRGU	
Bonaparte's Gull	<i>Larus philadelphia</i>	BOGU	
Heermann's Gull	<i>Larus heermanni</i>	HEEG	
Mew Gull	<i>Larus canus</i>	MEGU	
Ring-billed Gull	<i>Larus delawarensis</i>	RBGU	
California Gull	<i>Larus californicus</i>	CAGU	
Herring Gull	<i>Larus argentatus</i>	HEGU	
Thayer's Gull	<i>Larus thayeri</i>	THGU	
Western Gull	<i>Larus occidentalis</i>	WEGU	
Glaucous-winged Gull	<i>Larus glaucescens</i>	GWGU	
◆ Glaucous Gull	<i>Larus hyperboreus</i>	GLGU	
Black-legged Kittiwake	<i>Rissa tridactyla</i>	BLKI	
Sabine's Gull	<i>Xema sabini</i>	SAGU	
Caspian Tern	<i>Sterna caspia</i>	CATE	Terns - Smaller than gulls with more slender bodies. Straight pointed bill; forked tail.
Common Tern	<i>Sterna hirundo</i>	COTE	
Arctic Tern	<i>Sterna paradisaea</i>	ARTE	
Black Tern	<i>Chlidonias niger</i>	BLTE	
<b>AUKS, MURRES, PUFFINS – Family ALCIDAE</b>			
Common Murre	<i>Uria aalge</i>	COMU	Small to medium birds, often with chunky bodies and short necks. Bills highly variable, some extremely colourful. Short, stubby wings. Short legs set far back on body. Three front toes, no hind toe.
◆ Thick-billed Murre	<i>Uria lomvia</i>	TBMU	
Pigeon Guillemot	<i>Cepphus columba</i>	PIGU	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	MAMU	
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	ANMU	
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	CAAU	
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	RHAU	
Tufted Puffin	<i>Fratercula cirrhata</i>	TUPU	
◆ Horned Puffin	<i>Fratercula corniculata</i>	HOPU	

\*Campbell, R. Wayne, Neil K. Dawe, Ian McTaggart-Cowan, John M. Cooper, Gary W. Kaiser, Michael C.E. McNall. 1990. The Birds of British Columbia, Volumes I and II. UBC Press. Vancouver, BC

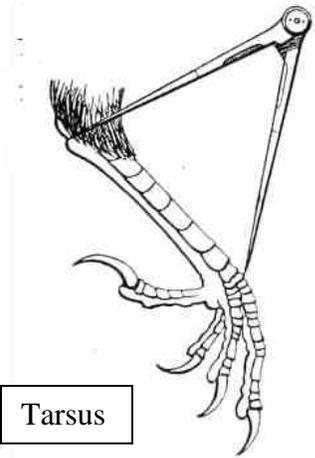
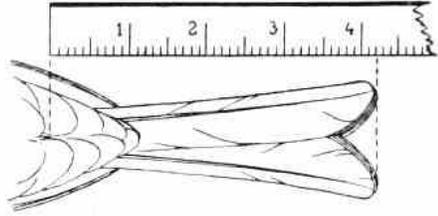
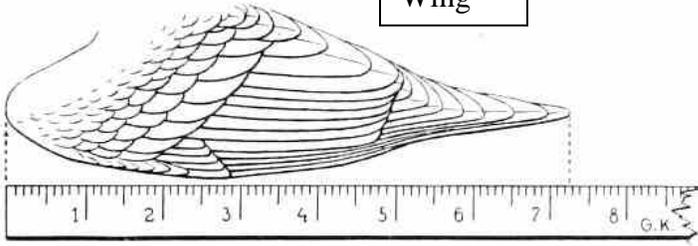
◆ Species unlikely to be found during beached bird survey

**Beaufort Wind Scale Table- Adapted from Environment and Climate Change Canada**

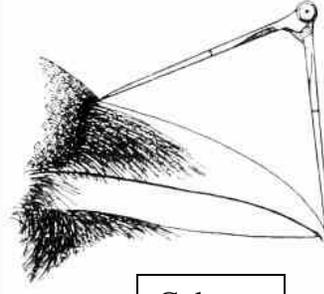
Force	Wind Speed (km/h)	Descriptive Term	Effects Observed at Sea	Effects Observed on Land
0	Less than 1	Calm	Sea surface like a mirror, but not necessarily flat.	Smoke rises vertically.
1	1-5	Light air	Ripples with the appearance of scales are formed, but without foam crests.	Direction of wind shown by smoke drift, but not wind vanes.
2	6-11	Light breeze	Small wavelets, still short but more pronounced. Crests do not break. When visibility good, horizon line always very clear.	Wind felt on face. Leaves rustle. Ordinary vane moved by wind.
3	12-19	Gentle breeze	Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered whitecaps	Leaves and small twigs in constant motion. Wind extends light flag.
4	20-28	Moderate	Small waves, becoming longer. Fairly frequent whitecaps.	Raises dust and loose paper. Small branches are moved.
5	29-38	Fresh breeze	Moderate waves, taking a more pronounced long form. Many whitecaps are formed. Chance of some spray.	Small trees with leaves begin to sway. Crested wavelets form on inland waters.
6	39-49	Strong breeze	Large waves begin to form. The white foam crests are more extensive everywhere. Probably some spray.	Small trees with leaves begin to sway. Crested wavelets form on inland waters.
7	50-61	Near gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	Whole trees in motion. Inconvenience felt in walking against wind.
8	62-74	Gale	Moderately high waves of greater length. Edges of crests begin to break into the spindrift. The foam is blown in well-marked streaks along the direction of the wind.	Breaks twigs off trees. Generally impedes progress. Walking into wind almost impossible.
9	75-88	Severe gale	High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.	Slight structural damage occurs, e.g. roofing shingles may become loose or blow off.
10	89-102	Storm	Very high waves with long overhanging crests. Dense white streaks of foam. Surface of the sea takes a white appearance. The tumbling of the sea becomes heavy and shock-like. Visibility affected.	Trees uprooted. Considerable structural damage occurs.
11	103-117	Strong Storm	Exceptionally high waves. Sea completely covered with long white patches of foam. Visibility affected.	Widespread damage.
12	118-133	Hurricane	Air filled with foam and spray. Sea entirely white with foam. Visibility seriously impaired.	Rare. Severe widespread damage to vegetation and significant structural damage possible.



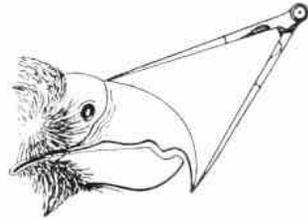
Wing



Tarsus



Culmen



Culmen