CETACEAN TOOTH COUNTS

The accompanying chart will help you to identify beached specimens of the toothed whales or sun-bleached skulls which may be picked up on the beach. Even if the teeth are gone, a fairly good count can be made from the tooth sockets. It will be noticed that there is a good deal of variation in tooth numbers, unlike the situation in other mammals, where the number is usually fixed. Keep in mind, also, that the range may be greater than shown here; counts on several specimens obtained by me extended the range in two species, and as more specimens are obtained other extensions will undoubtedly be made. But, say you get a tooth count of 22. There are three definite possibilities here, with a good chance of at least two more. The size alone of the sperm whale would separate it from all the others. The bottlenose dolphin and the rough-toothed dolphin would be harder to separate, unless the teeth were present, in which case the fine vertical ridges of the teeth of the latter would distinguish it; also, the color pattern of the latter would be distinctive. The Dall and harbor porpoises would also have to be considered. These are both short-skulled, beakless forms, unlike the preceding two. The Dall porpoise has extremely distinctive markings; and the harbor porpoise has small, flattened, rounded teeth, sometimes described as spade-like, unlike those of any other kind. In some other cases, identification from skulls alone would be much more difficult.

All skulls should be saved and turned over to museums or other scientific institutions.

Top: Seal skull. Drawing by Phil Schuyler.
Bottom: Dolphin skull. Drawing by Phil Schuyler.
CETACEAN TOOTH COUNTS FOR EACH SIDE OF JAW

SPECIES
Cuvier’s beaked 1
Hubb’s beaked 1
Baird’s beaked 1
Risso’s 2
False killer 3
Pilot whale 4
Killer 5
Pygmy sperm 6
Sperm 7
Bottlenose 8
Rough-toothed 9
Dall 10
Harbor 11
White-sided 12
Right whale dolphin 12
Striped 12
Common 12

1 Also has vestigial teeth in upper and lower jaw.
2 Teeth clustered toward anterior end; if present in upper jaw, small and confined to anterior half of rostrum.
3 Teeth prominent, conical.
4 Teeth confined to anterior half of rostrum; sharp, peglike.
5 Roots of teeth flattened; teeth strong, conical, set close together.
6 Teeth sharp and curved.
7 Also has vestigious teeth in upper jaw; teeth heavy, slightly flattened in cross-section, with rounded blunt tip.
8 Teeth large, smooth.
9 Teeth large, crowns with fine vertical ridges; set far apart.
10 Teeth small, frequently not projecting beyond gums, which are formed into “gum teeth.”
11 Teeth small, compressed, rounded or spadelike on ends, some tricuspid.
   Teeth small, sharp-pointed.
| Cheek teeth with flat crown (for crushing) | 3 - 1 - 3 - 1 | Sea otter |
| Cheek teeth peg-like, with single conical crowns | 2 - 1 - 3 - 2 |
| Upper incisors pointed | 3 - 1 - 4 - 1 | Harbor seal |
| Cheek teeth (except first) large, double-rooted. 3-lobed | 2 - 1 - 4 - 1 |
| Cheek teeth small, single-rooted, not lobed | 2 - 1 - 4 - 1 | Elephant seal |
| First and second upper incisors transversely notched across the ends | 1 - 1 - 4 - 1 |
| Pre-molars and molar not separated by a space as wide as pre-molar width; occipital and sagittal crests very prominent, especially in males (30-50 mm high). | 3 - 1 - 4 - 1(2) | California sea lion |
| Pre-molars and molar separated by a space as wide as pre-molar; occipital and sagittal crests small (under 10 mm). | 2 - 1 - 4 - 1 |
| Pre-molars and molar not separated by a space as wide as a pre-molar; occipital and sagittal crests small (under 10 mm). | 3 - 1 - 4 - (1)2 | Steller sea lion |
| 2 - 1 - 4 - 1 |
| 3 - 1 - 4 - 2 | Northern fur seal |
| 2 - 1 - 4 - 1 |

The above counts are for the teeth in the upper jaw on one side. The first number is for the incisors, the flattened, sharp-edged cutting teeth in the front of the mouth; the second is the canine, a large, more rounded and pointed tearing tooth; the third and fourth are for the cheek teeth, the pre-molars and molars respectively, which are grinding or crushing teeth in many mammals. The last differ from one another in that the pre-molars usually appear as baby teeth and are replaced by a permanent set, the molars appear only as permanent teeth. Occasionally tooth numbers may vary slightly from those given above.
MEANINGS OF SCIENTIFIC NAMES

Beginning with the catalogs of the Swedish naturalist Linnaeus, the tenth edition of whose Systema Naturae (1758) was taken as the official starting point, all kinds of animals and plants have been known by binomial scientific names. Each name consists of two parts, the name of the genus followed by the name of the species, which is a subdivision of the genus. This is sometimes followed by a second subdivision, the subspecies. The generic names of animals are always capitalized, the specific names never. These names are mostly derived from Latin or Greek roots describing the organisms, but sometimes from names of people or places. Since Latin was the universal language of scholars for many centuries, these names are in Latinized form. They are usually italicized (indicated by underlining in typescript). Scientific names have the advantage that they are uniform throughout the world, a sperm whale, for example, being known by the same name in India as it is in the United States. Also, they have the advantage of showing relationship among species in the same genus. Such differences as occur represent differences of opinion among biologists. As an example, the Atlantic harbor porpoise is Phocoena phocoena, while our Pacific form has been called Phocoena vomerina. But some scientists who have studied these animals think there is no real difference between them, and that all should be considered one species and be called by the earlier name, which is Phocoena phocoena. Things such as these may explain the differences you sometimes find in scientific names in different publications. The name of a man which you may see following a scientific name, either in parentheses or not, is that of the original describer of the species.

Following are the meanings of the scientific names in this booklet.

**SCIENTIFIC NAMES**

- **acuto-** L. sharp, pointed
- **alba-** L. white
- **angusti-** L. narrow, small
- **arcto-** Gr. a bear
- **bairdi-** after S.F. Baird, American zoologist and founder of the U.S. National Museum, 1823-1887
- **balaena-** L. whale
- **berardius-** probably after a man’s name
- **borealis-** L. northern
- **brevi-** L. short
- **californianus-** California, L. belonging to
- **callo-** Gr. beautiful
- **carlhubbsi-** after Carl Hubbs, American zoologist, 1894-
- **cato-** lower
- **cavi-** a cave, hollow
- **cephalus-** Gr. a head
- **ceps-** L. head
- **cetus-** Gr. whale
- **coeruleo-** L. blue
- **crassi-** L. thick
- **dalli-** after W. H. Dall, American naturalist, 1845-1927
- **delphinus-** Gr. delphis = a dolphin + like
- **dens, dent-** L. tooth
- **enhydra-** Gr. an otter living in water
- **eschrichtius-** after a Danish cetologist
- **eu-** true; good, nice
- **eumetopias-eu** + with a broad or high forehead
- **euphrosyne-** after a Greek goddess (lit., mirth or joy)
- **fasciata-** L. banded
gibbosus- humped
gilli- after T.N. Gill, American zoologist, 1837-1914
glaucus- Gr. silvery, gray
globi- L. globe
graffmani- after a man's name
grampi, grampus- Ital. L. a large fish (gran. pes.)
histrio- L. actor
jubatus- L. having a mane
kogia- ? perhaps from an early observer of whales in the Mediterranean
lageno- L. Gr. flask
lissio- Gr. smooth
lutris- L. otter
mega- Gr. large
mirounga- from an Australian native name
musculus- L. muscular
novaeangliae- New England
obliqui- L. slanting
odont- Gr. tooth
orca- L. a kind of whale
philippii- after a South American zoologist
phoca- Gr. a seal
phocoena- Gr. porpoise
phocoenoides- Gr. porpoise + like
pseud- Gr. false
physalus- Gr. rorqual whale
physeter- Gr. a blower, blowhole of whale
pinna- L. wing (= fin)
ptera- Gr. wing (= fin)
recti- L. straight
rhac- Gr. spine
rostris- L. beak, snout
rostrata- L. beaked
rhinus- Gr. nose
rhynchus- Gr. beak, snout
sieboldi- from Karl T.E. von Siebold, a German zoologist
simus- L. with flat nose
sinus- L. bay
scammoni- after C.M. Scammon, whaling captain and author of a book on whales
stelnegeri- after Leonhard Stejneger, American zoologist, 1851-1943
steno- Gr. narrow, i.e. slender
stenella- narrow + L. little
townsendi- after Charles H. Townsend, American zoologist, 1859-?
truncatus- cut off
tursiops- L. a porpoise
ursinus- L. bear + like
virulina- L. calf, also seal + little
vomerina- L. plowshare + little
zalophus- Gr. very + crest
ziphius- Gr. sword
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**MARINE MAMMALS OF CALIFORNIA**

**ORDER CETACEA**

**Sub-order Mysticeti**

Balaenidae  Northern right whale-Eubalaena glacialis
Balaenopteridae  Minke whale-Balaenoptera acutorostrata

**Sub-order Odontoceti**

Delphinidae  Common dolphin-Delphinus delphis
Pilot whale or blackfish-Globicephala macrorhynus
Risso’s dolphin-Grampus griseus
Pacific white-sided dolphin-Lagenorhynchus obliquidens
Northern right whale dolphin-Lissodelphis borealis
Killer whale-Orcinus orca
Harbor porpoise-Phocoena phocoena
Dall porpoise-Phocoenoides dalli
False killer whale-Pseudorca crassidens
Striped dolphin-**Stenella coeruleoalba**
Rough-toothed dolphin-Steno bredanensis
Pacific bottlenose dolphin-Tursiops truncatus

**Physeteridae**

Pygmy sperm whale-Kogia breviceps
Dwarf sperm whale-Kogia simus
Sperm whale-Physeter catodon

**Ziphiidae**

Baird’s beaked whale-**Berardius bairdi**
Hubbs’s beaked whale-Mesoplodon carlhubbsi
Cuvier’s beaked whale-Ziphius cavirostris

**ORDER PINNIPEDIA**

**Otariidae**

Guadalupe fur seal-Arctocephalus townsendi
Northern (Alaska) fur seal-Callorhinus ursinus
Steller sea lion-Eumetopias jubatus
California sea lion-Zalophus californianus

**Phocidae**

Ribbon seal-**Phoca fasciata**
Northern elephant seal-Mirounga angustirostris
Harbor seal-Phoca vitulina

**ORDER CARNIVORA**

**Mustelidae**  Sea otter-Enhydra lutris
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