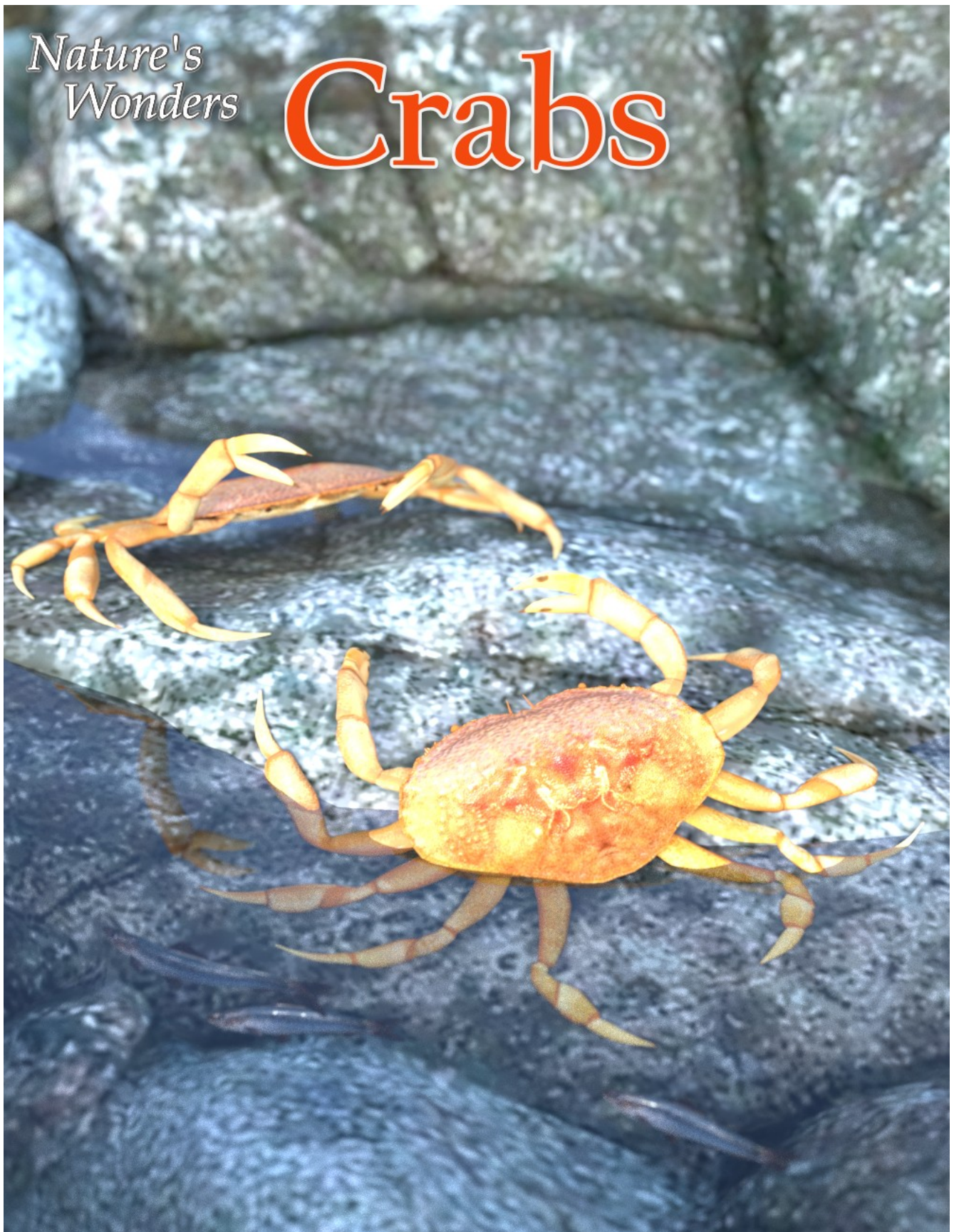




3D model set by Ken Gilliland

Nature's Wonders

Crabs

Manual

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Introduction

Crabs are a type of decapod crustacean and are part of the infraorder *Brachyura*. Their exoskeleton is often thickened and hard. They generally have five pairs of legs, and they have "pincers" or "claws" on the ends of the frontmost pair, scientifically termed the "chelae". They are present in all the world's oceans, in freshwater, and on land, often hiding themselves in small crevices or burrowing into sediment. They are found in all of the world's oceans, as well as in freshwater and on land, particularly in tropical regions. About 850 species are freshwater crabs.

This set includes the base model, a male and female version of the Dungeness Crab, and six poses. It also has a "cooked" material for the Dungeness crab (since most people are more familiar with the reddish version seen on the dinner plate). The Crab model is fully articulated with 5-6 body segments on each leg, as well as multipart eye stalks, antennae, and mouth. It has a wide variety of morphs that will alter the base model to resemble 8 different crab species, ranging from the iconic Dungeness Crab to the European Green Crab to the colorful and showy Blue Crab.

It comes in both Poser and DAZ Studio native versions and support Firefly, 3Delight, Superfly and Iray render engines.

Overview and Use

This set uses a common model to digitally recreate digitally the crab species included in this volume. Each species uses specific morphs from the generic model to single-out its unique features.

- **Models included in this volume:**
 - Nature's Wonders Crab (Base Set) Model

The set is located within the **Animals : Nature's Wonder** folder. Here is where you will find a number of folders, such as **Manuals**, **Resources** and **Fauna Libraries**. Let's look at what is contained in these folders:

- **Fauna Libraries:** This folder holds the actual species and poses for the "premade" fauna. The fauna for this set can be found in the following folder(s):
 - **Crustaceans / Crabs of the World**
- **Manuals:** Contains a link to the online manual for the set.

- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your fauna included in the set

Creating a Specific Crab using Poser

1. For this example, we'll create the Dungeness Crab.
2. Load Poser, select the FIGURES library and go to the "Animals", "Nature's Wonders" and then the Nature's Wonders Fauna Libraries Crustaceans folder.
3. Go to the Crabs of the World folder and select the Firefly or Superfly sub-folder.
4. Select the Dungeness Crab (or a Crab of your choice) and load it by clicking the mouse.

Creating a Specific Crab using DAZ Studio

1. For this example, we'll create the Dungeness Crab.
2. Load DAZ Studio and go to the "Animals", "Nature's Wonders" and then the Nature's Wonders Fauna Libraries Crustaceans folder.
3. Go to the Crabs of the World folder and select the Iray or 3Delight sub-folder.
4. Select the Dungeness Crab (or a Crab of your choice) and load it by clicking the mouse.

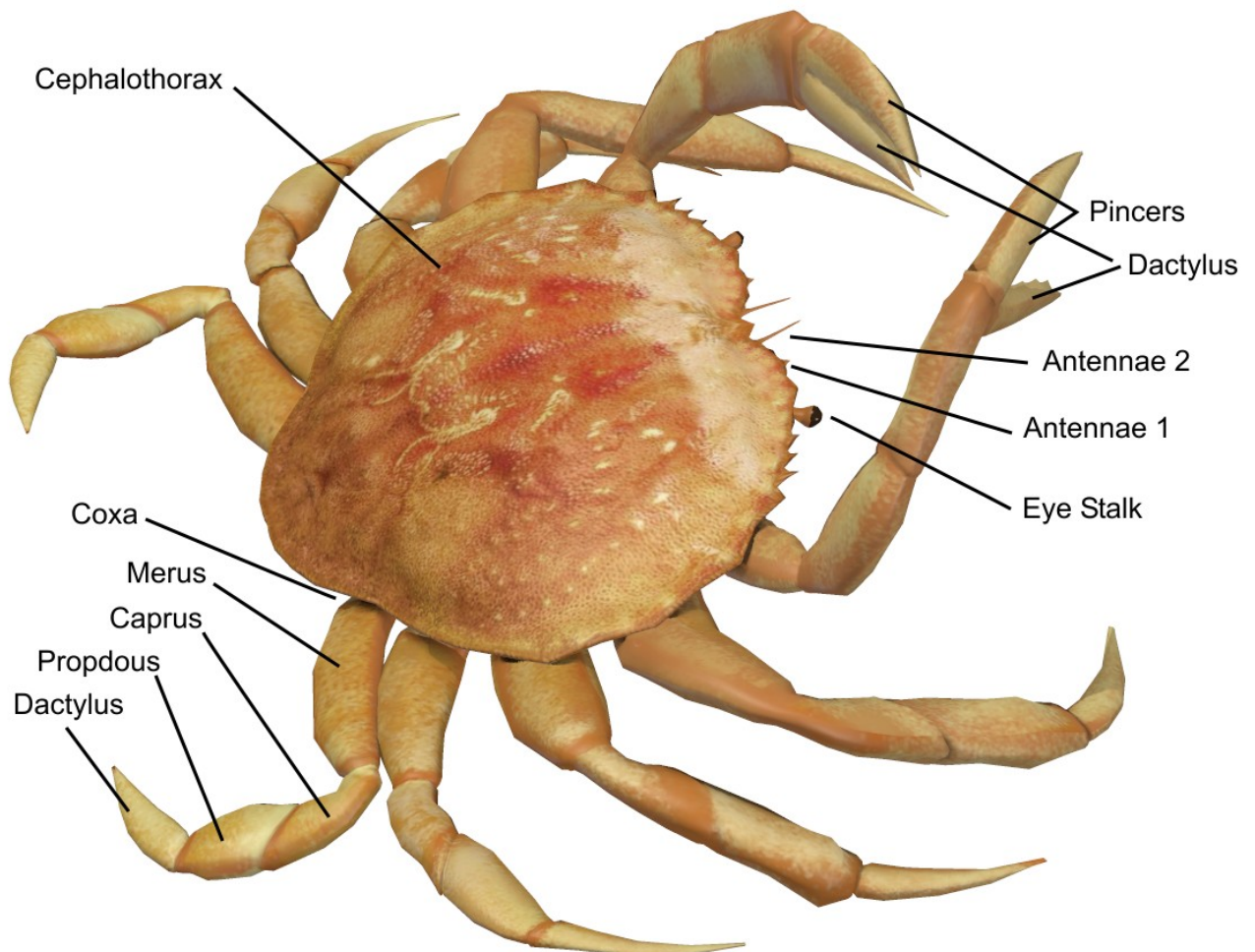
Using the Poses

The poses were designed for the default model. The base or "hip" section of the model is **Cephalothorax**. The poses were designed for the default base model. Since individual species may use different body and leg scaling, it may alter the expected ground level of the species model or its legs. Some adjusting may be necessary such as using the "ytran" dial to raise or lower the model or the Up-Down commands on the individual legs to raise or lower them to the desired heights.

Nature's Wonders

Crabs

FIELD GUIDE



About Crabs

Crabs are a type of decapod crustacean and are part of the infraorder, **Brachyura**. Their exoskeleton is often thickened and hard. They generally have five pairs of legs, and they have "pincers" or "claws" on the ends of the frontmost pair, scientifically termed the "chela". They are present in all the world's oceans, in freshwater, and on land, often hiding themselves in small crevices or burrowing into sediment. They are found in all of the world's oceans, as well as in freshwater and on land, particularly in tropical regions. About 850 species are freshwater crabs.

Crabs vary in size from the pea crab, a few millimeters wide, to the Japanese spider crab, with a leg span up to 4 m (13 ft). Several other groups of crustaceans with similar appearances – such as king crabs and porcelain crabs – are not true crabs, but have evolved features similar to true crabs through a process known as carcinisation.

Crabs are omnivores, feeding on a variety of food, including a significant proportion of algae, as well as detritus and other invertebrates. Crabs are also widely consumed by humans as food, with over 1.5 million tons caught annually.

Crabs often show marked sexual dimorphism. Males often have larger claws. Another conspicuous difference is the form of the pleon (abdomen); in most male crabs, this is narrow and triangular in form, while females have a broader, rounded abdomen. This is because female crabs brood fertilized eggs on their pleopods.

Crabs must periodically molt to grow and this process is called ecdysis. Molting has the ability to regenerate lost limbs, although they will be smaller the first molt after loss. During a molt, the shell will separate where the carapace and abdomen meet. This allows the crab to exit the old shell. Once outside the old shell the soft new shell will fill with water and the crab will become 15-25% bigger than its original size. During the first few weeks after molting, the crab is very vulnerable due to the softness of its shell; the shell will not fully harden for two months after molting. For the first two years of a crab's life, it will molt six times a year. In the third year, males molt twice and females molt once. After that, all crabs will molt once a year, with females molting in the spring and males molting in the summer.

Dungeness Crab

Metacarcinus magister

The Dungeness crab is one of the most important seafood items that industries market along the west coast of North America. Its typical range extends from Alaska's Aleutian Islands to Point Conception, near Santa Barbara, California. Dungeness crabs typically grow 6–7 in (150–180 mm) at their widest point and inhabit eelgrass beds and sandy bottoms. Its common name comes from the Dungeness Spit in the Strait of Juan de Fuca off the state of Washington, which shelters a shallow bay inhabited by this crab. The 2022-23 crab season brought revenue of about \$54.4 million to the California economy. The annual Dungeness Crab Festival is held in Port Angeles, Washington, each October.



They have four pairs of armored legs, two claws, and a wide, hard shell. A Dungeness's legs are shorter compared to many commercial crabs and their claws have a distinctive hook. The claws of the crab are used both as defense and to tear apart large food items. The crab uses its smaller appendages to pass the food particles into its mouth. Once inside the crab's stomach, food is further digested by the "gastric mill", a collection of tooth-like structures.

*In some areas adult Dungeness crabs can be found in or near estuaries. The hyposaline conditions of the estuaries are lethal to some of the crab's symbionts, such as Ribbon Worm (*Carcinonemertes errans*) which consumes a brooding female's live eggs. Larval crabs are being affected by ocean acidification and their is potential harm related to global warming is red tides. The Dungeness Crab is threatened by an invasive species called the European Green Crab (*Carcinus maenas*). The green crab out-competes the Dungeness Crab for food and habitat.*

Special Thanks to...

....my betatesters Alisa and FlintHawk

Species Accuracy and Reference Materials

The author-artist has tried to make these species as accurate to their real life counterparts as possible. Crabs of the same species vary considerably, as do all other animals in nature. These Crabs were created using the correct field markings and the most common similarities.

With the use of one generic model to create dozens of unique Crab species, some give and take is bound to occur. In addition, 3D-models have many technical challenges, which make exact representations difficult, if not impossible. It's best to think of these Crabs represented as resembling the particular species, and they may not, in some cases, be 100% scientifically accurate.

The model and morphs were created using Luxology's Modo. The texture maps were created in Corel's Painter. The model was rigged and materials were created in Smith-Micro's Poser and DAZ's DAZ Studio.

Internet Sources:

- **Wikipedia** (<http://www.wikipedia.com>)
- **Encyclopedia Britannica** (<https://www.britannica.com>)
- **California Department of Fish and Wildlife**
(<https://wildlife.ca.gov/Fishing/Ocean/Dungeness-Crab>)