IN THIS CHAPTER

- Experiencing the joy of having an aquarium
- Understanding aquarium pets and what they need
- Choosing the right equipment
- Maintaining a healthy aquarium
- Keeping your fish happy and healthy

Chapter 1
Taking Your First Salty Steps

You can find a variety of reasons to purchase, set up, and maintain a healthy aquarium in your home. Perhaps your child wants a saltwater aquarium, and you're wrestling with the decision. In this chapter, I help you make that decision with a broad overview of what saltwater aquarium keeping entails.

Perhaps the best way to describe the experience of having an aquarium is to tell you why I started keeping an aquarium when I was young. Prompted by the early television shows of underwater explorer Jacques Cousteau, I was in awe of the ocean and its inhabitants, particularly tropical coral reefs and all the beautiful creatures that inhabit them. During those same years, I was fortunate to travel to the coral reefs of the Caribbean and swim among those very creatures. Swimming about the reef with a mask and a snorkel, I explored all the nooks, watched the fish, and admired the beauty for hours and hours. Soon I learned to scuba dive and take underwater photos, but that wasn't enough, especially when I had to return to cold Connecticut waters. I had to have these animals in my home all the time. So I set up an aquarium and was able to experience much of what I enjoyed while swimming with the fish. Later, inspired by these childhood experiences, I became a marine biologist.

Knowing about Wet Pets and Where to Buy Them

Most of the ornamental fishes sold in pet stores are freshwater fish, many of which are spawned and raised in captivity. Although they represent only a fraction of the number of fishes sold, saltwater species have been traditionally harvested from the wild. More and more saltwater species are bred in captivity every year, and many countries are starting to ban the collection of fish and invertebrates in their waters. As a result, you should make every effort to choose captive-bred animals for your aquarium. Nonetheless, you will still encounter fish or invertebrates for your saltwater aquarium that have been captured and taken from their native habitat.

Here I discuss the basics about buying your saltwater pets and locating a reliable fish dealer to help you get started.

Focusing on saltwater critters

The most popular of these saltwater fish come primarily from coral reefs. Of course, natural reef systems can be hurt if great care isn't taken to protect them and harvest fish wisely. If managed properly, the coral reefs around the world can be harvested without harm because they are extremely productive. Take care, however, not to purchase fish that may have been harvested in areas that don't adhere to the sound conservation of natural reefs. If you can, try to purchase *captive-bred* fish.

TIP

To make sure that your fish are harvested without harm to the environment, check with the Marine Aquarium Council (`www.marineaquariumcouncil.org`).

Saltwater aquarium pets typically include both fish and invertebrates. In Chapter 2, I go into great detail about fish and not only tell you about their scales, fins, and gills, but I also give you an overview of the fish families that you're most likely to encounter in the pet store. Knowing all about fish families is one thing, but which fishes are right for you? Well, Chapter 3 helps you choose those fish species that are best for the beginner and tells you about fish that school, fish that are active at night, and even those species best avoided.

Invertebrates, however, are different from fish. They belong to many kinds of groups, such as insects, clams, corals, and worms. The basic feature that unites invertebrates is the fact that they lack a backbone. In Chapter 4, you find out all about invertebrate groups, how they are classified, who's who, and which ones would make nice additions to your aquarium. After reading Chapter 4, you will know that invertebrates for the aquarium include shrimp, coral, and anemones, to name a few.

WHAT'S IN A NAME?

As you know, humans have a tendency to name living things, which is called *taxonomy,* and it can be a problem because humans speak many different languages. So, for example, what you call a *shark* in English is called a *tiburón* in Spanish. To get around the confusion associated with language differences, a scientific naming scheme was set up many years ago. The language that was chosen for scientific naming is Latin. But don't worry, you don't need to learn the entire language!

At the ultimate level, all fish and other living creatures are classified into species. So, when I say that there are more than 20,000 kinds of marine fishes, I mean that there are that many species. A bluefish is one species, and a grouper is another. When a species is scientifically classified, it's given a scientific name that is composed of two parts: the *genus* and the species. For example, the scientific name of the threadfin butterflyfish is *Chaetodon auriga*, and that of the spotfin butterflyfish is *Chaetodon ocellatus*. The first (capitalized) name refers to the genus to which both species belong. A genus is a scientific grouping of similar species. If you look at these two fish, you can see that they're extremely similar. The second name refers only to that species and no other.

This classification scheme continues as you group similar *genera* (plural for genus) into *families*. Then you group similar families into *orders,* similar orders into *classes,* and similar classes into *phyla* (singular is phylum). All the different phyla make up the kingdom *Animalia,* for the animals. There are also subdivisions of these categories, like *suborder* and *infraclass.* It gets pretty complicated.

So, at the risk of boring you to tears, I'll give you an example: The Great White Shark has the genus and species name of *Carcharodon carcharias*. It belongs to the family Lamnidae, the order Lamniformes, the superorder Selachimorpha, the subclass Elasmobranchii, the class Chondrichthyes, the superclass Gnathostomata, the subphylum Vertebrata, and the phylum Chordata. Whew!

For the purposes of this book, I stick with the most common names and the genus, species, and family, so don't worry about all this classification stuff right now.

Finding a really fishy dealer

Establishing a rapport with the right dealer is important to the entire aquarium process, from the initial purchase to treating diseases to troubleshooting. This book gets you started and helps you keep a healthy aquarium, but no book can anticipate all the new developments in the aquarium trade that your dealer will have immediate access to.

WHY A FOR DUMMIES BOOK?

As I developed my skills as a young aquarist back in the dark ages (the 1970s), I made every attempt to read the saltwater aquarium books that were published in those days. A limited number of references was out there, and I tried to read them as my aquarium buddies and I moved from freshwater to saltwater systems. I recently unearthed one of those books from that box in the far corner of my attic and I looked it over. Whoa! Even after taking and teaching advanced college courses in biology, I found this antiquated relic a bit too hard to digest. In fact, it would have been easier to eat than to understand. Pages of equations on water chemistry, filtration, and aquarium maintenance aren't my idea of a hobby. And that's why I wrote this book. Saltwater aquarium keeping doesn't need to be complicated. All fish lovers need a book to keep saltwater fishkeeping simple, and that's exactly what this is.

However, I don't want you to think that you won't encounter problems on your journey through the aquarium hobby. The most advanced aquarists in the world stumble from time to time on this road. But this book is your map and companion, and if you follow its advice, you will not only minimize these problems, but you'll also know how to deal with them. And if this book doesn't answer your questions, then it will at the very least point you in the direction of the answer, because no matter what other books may tell you, no single book comprehensively covers it all. Now the world is full of literally hundreds of aquarium books and online resources, both technical and practical. To boil all this information down into one book is impossible, but to condense the most basic and important information into one book is practical. Consider it done.

I explain working with a dealer and getting your new pets home in Chapter 5. Although this is a pretty straightforward process, you discover that minimizing the stress of travel is as important as the way you place the fish into your tank.

Understanding Your Responsibilities

Fish and invertebrates kept in an aquarium live in an artificial environment and are faced with several challenges for survival. Unfortunately, most of these challenges can't be met by the fish and must be provided by you, the *aquarist.* When you take it upon yourself to set up an aquarium, you're accepting the responsibility of meeting all the needs of its inhabitants. Without you, your aquarium and all its occupants are doomed.

REMEMBER

Your responsibilities include ensuring high water quality, proper feeding, correct water temperature, a balanced fish community of the proper density, appropriate habitat and shelter, and sufficient lighting — to name a few.

Your fish are no longer in the wild; they're your pets, and they need you. The fish are totally dependent on you to meet their everyday needs. If they get sick or diseased, you must treat them.

Table 1-1 lists the biological needs of your fish and invertebrates. I include the kinds of equipment that provide for these needs in order to introduce you to some common aquarium components, and I highlight the corresponding chapter in this book.

TABLE 1-1 What Exactly Do My Fish Need?

Biological Need	Equipment	Chapter
Water	Aquarium tank	6
Clean water	Filters, protein skimmer	7
Oxygen	Aerators, power heads	7
Correct water temperature	Aquarium heater	8
Adequate lighting	Aquarium light	8
Housing and protection	Aquarium ornamentation	9
Food	Aquarium foods	16
Disease treatment	Aquarium treatments	18

Getting Started with Your First Saltwater Aquarium

By taking the time to properly plan your aquarium now, you can save a lot of time and money down the road. After all, you want to set it up once and set it up right.

What equipment do I need?

In order to meet the needs of your fish that are highlighted in Table 1-1, you should buy much of your equipment right from the start. After all, you can't bring home any fish from your dealer unless you have something to put them into.

Part 2 of the book tells you about the equipment essential to a successful marine aquarium:

- Chapter 6 describes aquarium tanks and tells you where and on what to set up the new aquarium.

- Chapter 7 helps you understand filtration and describes the many kinds of filters. By reading this chapter, you'll also know what kind of filter to buy. Of course, Chapter 7 also explains that adding oxygen to the water is very important. Hence, you find out about powerheads and other equipment for doing so.
- Chapter 8 offers valuable information about heating and lighting your aquarium. Because most species of fish and invertebrates come from tropical waters, heating your aquarium is very important; this chapter tells you how to do so. Tropical regions are also known for bright sunshine, and lighting your aquarium is equally important. Many kinds of lights are available, and the one you choose much depends on whether you plan to house invertebrates; Chapter 8 helps you make the right choice.
- Chapter 9 brings together all the odds and ends necessary to round out your aquarium. These items include aquarium gravel, rocks and coral, and, of course, salt. Other equipment, such as cleaning tools, nets, and water quality test kits are needed to maintain a healthy aquarium. These items are also discussed in Chapter 9 because you may as well buy them now.

What about brackish water aquariums?

Although most folks reading this book are interested in aquariums that are strictly saltwater, some are interested in aquariums that are not quite fresh and not quite salt. Chapter 10 is a special chapter dedicated to *brackish* water aquariums. This kind of aquarium is for those who would like to keep critters and plants that live in areas where freshwater and saltwater meet. These aquariums have less salt in them than the average marine aquarium. Chapter 10 explains brackish water systems and their inhabitants and tells you what you need to set one up.

How do I set up the aquarium?

Chapter 11 puts all the pieces of the saltwater aquarium puzzle together and tells you how to set up the system from start to finish. However, unlike the typical freshwater aquarium, the marine system needs to mature as your filtration starts to work. Therefore, you really can't add fish until your aquarium has had a chance to establish itself over a couple of weeks. How will you know? That depends on water chemistry.

Understanding Water Chemistry and Algae

Before you can add fish to your new saltwater aquarium, you need to establish and maintain excellent, well-balanced water quality through filtration. This means that you need to understand a little bit about water chemistry. But don't panic. It may sound complex, but it's actually pretty simple.

In Part 3, you discover these important new concepts:

- Chapter 12 tells you about the importance of nitrogen in your aquarium and shows you the simple way to monitor nitrogen levels.
- Chapter 13 offers you greater detail about some of the other water components that you already know about, like salt, oxygen, and pH. Monitoring these aspects of water quality is simple and important for maintaining a healthy system.
- Chapter 14 gives you more than you ever wanted to know about algae, the marine plant-like inhabitant of your aquarium. Algae, in general, are good for your system, but can be a nuisance if the wrong kinds explode in your tank.

Knowing all this water chemistry is important only if you put it to good use. Chapter 15 outlines the important daily, weekly, and monthly steps that you need to take to keep your aquarium clean and, therefore, your new pets happy. These simple activities, which may take only a minute or two, provide the preventive upkeep so that you can avoid future problems.

Keeping Your Fish and Invertebrates Healthy

With good choices for your first aquarium pets (Part 1), the right equipment (Part 2), and well-balanced water chemistry (Part 3), you're well prepared to keep your fish and invertebrates alive and happy. Adding them to the new system is pretty straightforward (Chapter 5), but keeping them healthy involves good food, the prevention of stress, and the right treatments for disease (Part 4).

What do I feed my fish and invertebrates?

Chapter 16 explains that some fish eat other fish and invertebrates, some eat strictly algae and plants, and some eat both. You need to meet the dietary needs of your new pets, and that chapter also tells how, when, and how much to feed your fish and invertebrates.

What if my wet pets get sick?

REMEMBER

The best way to treat disease in your saltwater aquarium is to prevent it.

Fish and invertebrates that are stressed by poor water quality, other tank inhabitants, or poor feeding may ultimately get sick. Chapter 17 explains the concept of stress and how to prevent it and, thereby, avoid disease altogether.

If, however, one of your aquarium inhabitants does get sick, Chapter 18 tells you how to diagnose the disease and treat it. Of course, you won't be able to tell if your fish are sick unless you pay attention to them. Therefore, Chapter 19 offers some great information about how to observe and enjoy your aquarium inhabitants. This chapter tells you how to watch your pets, keep an aquarium log, and even take pictures.

Avoiding the Wrong Aquarium Pets

As collection and captive breeding techniques improve, you will find more and more species of fish and invertebrates offered at your pet store. However, not all these critters are compatible, well suited for the beginner, or prove easy to keep in captivity.

Chapters 20 and 21 provide two simple lists of ten kinds of fish and invertebrates to avoid for a variety of reasons. This doesn't mean that you can't eventually keep some of these critters in your tank, but, in some cases, you may simply need a little more experience before doing so.

Recognizing Why Aquariums Are So Great

Not everybody has had the opportunity to explore the coral reefs of the Caribbean, but most have seen the beauty of these areas on television and the internet. Yet why watch them on a screen when you can see the creatures live in your home and at a fraction of the cost of traveling to the tropics? The following lists some reasons why I love aquariums.

Fish watching

I can watch fish for hours, but, admittedly, I'm a bit strange. Still, the more you watch your aquarium, the better off your aquarium will be. You'll get to know all the subtleties of your fish; you'll name them; you'll know about their individual personalities (oh, they have them); you'll watch as they interact; and, most importantly, you'll know immediately if something isn't quite right. Each animal in your aquarium is your pet, and, like any pet, by watching it daily, you'll know when it acts normally and when something is wrong. You can diagnose problems as they arise and not after it's too late.

Relaxation

Fish and invertebrates are entertaining creatures, and just sitting and watching them can be very relaxing. As far as I'm concerned, relaxation is one of the very best reasons to have an aquarium. Studies show that spending time in front of the aquarium reduces stress. Also, if you have insomnia, try fish watching — count fins, not sheep.

A fishy family affair

It may sound a bit corny, but fishkeeping is fun for the whole family. By bringing the kids into the process, you help them learn the responsibility involved in taking care of pets. Every child will want to feed the fish, and you can show them how to do it properly. Daily, weekly, and monthly maintenance duties become easier if they're shared by all. Also, if everybody has a vested interest in the aquarium, the aquarium will be better off. In fact, family pets often get more attention than those owned by a single person.

REMEMBER

Your child may want an aquarium and promise to take care of it. Please realize, however, that with any pet, he or she has to commit to *maintaining* the aquarium. The responsibilities are similar to those associated with keeping a dog or cat. The child may not always have the high level of interest he or she expresses early on — just look at my kids. You have to be prepared to not only emphasize the importance of aquarium maintenance to your child but also be willing to pick up the slack for him or her.

Fishy friends

You aren't the only one who will enjoy your aquarium. How many times have you been to a friend's house who has an aquarium, and you couldn't help but check it out? So, too, will your friends when they visit. Think of your aquarium as a pet and a piece of furniture combined. Don't hide it away in a back room. People appreciate a house that's nicely decorated, and people generally like pets. Your aquarium will offer both amenities at once, and you'll be the talk of the town.

It's a natural thing

Perhaps you too are an aspiring marine biologist. I can think of no better way of getting started than by owning an aquarium. Many studies on fish biology have been conducted on animals kept in aquaria. In fact, a lot what scientists know about marine life comes from studies on captive fish. Fish and invertebrates are living animals that eat, grow, exhibit unique behaviors, and act and react to their environment and to other animals. As an amateur biologist, you can discover a lot

about fish in your own home. The whole family will understand the importance of and gain a respect for nature by having a piece of it in your home.

TECHNICAL STUFF

The study of fish is known as *ichthyology.* Scientists who study the biology of fish are known as *ichthyologists.* That means that by owning an aquarium with fish in it, you become an amateur ichthyologist.

The ideal pet

Have you ever had to quiet a dog, clean up an unsightly pet mess, go find the cat, or hope that the mailman doesn't get bitten? If you answer yes to any of these, you know what owning a typical pet is like. Fish, on the other hand, never give you these problems. They don't bark or bite or scratch. If you're tired of dealing with the typical pet, try the tropical pet instead.

REMEMBER

Keeping an aquarium requires a commitment. If you can't commit to your tropical fish, either drop the idea or wait until you can make that commitment. You wouldn't get a dog if you didn't have time to feed it, so don't get an aquarium if you can't take care of it.

MY PASSION FOR FISH AND SALTWATER AQUARIUMS

I am a very avid fish enthusiast, but my passion doesn't only apply to fish. In general, all creatures of the ocean, including the ocean itself, are my playground and office. That's right, I not only study the ocean in my spare time, I do so when I go to work every day.

I have been fascinated by the ocean and its inhabitants since the days when Jacques Cousteau was entertaining us with beautiful images of Earth's inner space, the underwater world. I watched every episode as a kid, and this inspired me to set up an aquarium when I was less than a decade old. Oh, like most, I started with a small freshwater system, which turned into a large freshwater system, which turned into a large saltwater system, which turned into multiple saltwater systems, and so on. And believe it or not, most of what I know about aquariums was self-taught through a lot of trial and error with my buddies. As my aquariums became more elaborate, I learned slowly and often at the expense of my mother's pocketbook. Aquariums in those days were expensive and cumbersome to set up. Filtration was primitive, and few people made the bold move to saltwater.

My passion for the ocean motivated me to become a marine biologist, and I'm very fortunate to say that I am actually living my dream of traveling around the world studying fish both in the wild and in the aquarium.