

COCAHOE SALT FACT SHEET

Cocahoe minnows are an estuarine species. This means that they typically live in water that has varying amount of salt. How salty the water is, or the salinity, can be measured several different ways. The most common is parts per thousand (ppt or percent) or how many salt ions there are for every thousand water molecules. Salinity can also be measured in grams of salt per liter of solution (g/L). Cocahoe minnows can tolerate a wide range of salinities for at least short time periods. However, they do best in water between 5-15 ppt. When raising cocahoe minnows, or any other fish, it is important to take into consideration what kind of salt to use to maintain salinity. The most common forms of salt, such as road salt and rock salt contain only sodium chloride. Seawater, however, contains many other ions that are necessary for the survival of the fish. These ions include, but are not limited to, calcium, potassium, magnesium and sulfate in addition to sodium and chloride. All of these components play an important role in raising healthy fish.

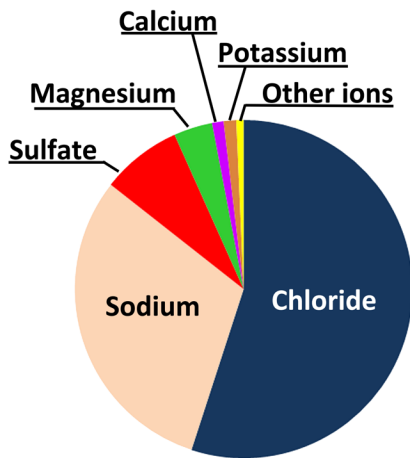


Figure 1. The elemental components of ocean salt.

Kinds of Salts

Salt comes with many names and in many forms; however much of it means the same thing. The following table will help navigate the wide world of salt.

Name of Salt	Components
Table Salt	Sodium, Chloride and in most cases Iodine, Potassium and other additives (NOTE: These additives can be harmful to fish and should therefor not be used)
Rock Salt, Halite, Solar Salt, Sea Salt, Kosher Salt, Road Salt	Sodium and Chloride only
Marine Salt	Chloride, Sodium, Sulfate, Magnesium, Calcium, Potassium, Bicarbonate, Bromide, Strontium, Floride
Aquarium Salt	Chloride, Sodium, Sulfate, Magnesium, Calcium, Potassium

Salt compositions are basic overviews for each category and will vary by brand.

What Kind of Salt to Use

The kind of salt to use depends on the source of the water. It is important to get the water tested for ionic content; Louisiana State University Department of Agricultural Chemistry charges about \$15 to test a water sample. There are also private companies that will test water samples usually for a fee. When using dechlorinated water from a tap or hose it will most likely require a marine salt. When using natural water from a bayou, estuary or pond, many of the additional ions may be present. If the water has most of the required ions, a cheaper salt, like rock salt, may be adequate or it may need to be supplemented with only a single missing ion like potassium. Rock salt is typically much less expensive than marine salt especially when using large quantities. For this reason it is best to use rock salt due to cost. However, it does



Figure 2. Several examples of commercially available salt. Photo by Jill Christoferson



Figure 3. A refractometer is a relatively inexpensive instrument for checking salinity. Digital salinity meters are more costly but can be more precise. Different models can also measure other water quality characteristics. Photo by Jill Christoferson

not contain potassium, magnesium, and calcium, which are very important ions that cocahoes need to survive. Never use table salt. The iodine and additives it contains can be harmful to fish and invertebrates.

How Much Salt to Use

The amount of salt needed depends on the salinity of the water source and the desired end salinity. Most marine salts will have directions to make full strength seawater, about 30 ppt. Cocahoe minnows can be raised at a lower salinity. As a rough guide, about 1 lb. of salt per 10 gallons of freshwater will yield about 12 ppt, an ideal salinity for raising cocahoes. However, this can vary depending on the water and type of salt used, and every culture situation should be assessed independently. A salinity-measuring instrument (Figure 3) will be needed to check salinity not just while mixing the water but also periodically after the system has been established as evaporation will raise the salinity. There are several different types of instruments to measure salinity that range from the fairly inexpensive

hydrometer, to a slightly more expensive refractometer, to the several thousand dollar electric water quality meters that can measure salinity, dissolved oxygen, pH, temperature, depth, etc. In most cases, a hydrometer or refractometer will be more than sufficient. Do not mix the startup water while the fish are in it as the rapid change in salinity can cause shock. Make sure salinity is at the right level before adding water to livestock.



Figure 4. Typically marine salt is finer and less coarse than rock salt or halite. Photo by Jill Christoferson

Contributors:

Dr. Julie Anderson

Dr. Christopher Green

Jill Christoferson

Joshua Patterson