

# Care of Aquatic & Semi-Aquatic Turtles

Aquatic turtles are personable, popular pets, however their upkeep can be labor intensive.

- **Semi-aquatic turtles** split their time between land and water. Popular semi-aquatic turtles kept in the US include sliders (*Trachemys* spp.), painted turtles (*Chrysemys*), pond turtles (Emydidae), mud and musk turtles (Kinosternidae), and map turtles (*Graptemys* spp.).
- **Aquatic turtles**, like softshell turtles (*Apalone* spp.) and mata-matas (*Chelus fimbriata*), prefer to spend most, if not all, of their time in the water.

This handout is intended to provide only general guidelines. Aquatic and semi-aquatic turtles are a diverse group, and each species has its own specific husbandry requirements that must be met. Consult with your veterinarian as inadequate care often results in health problems.



## Diet

Many semi-aquatic turtles, like sliders and pond turtles, are **omnivores** that eat both animal protein and vegetables (Table 1). Many sliders and pond turtles eat more plant material as they age; juveniles require a higher proportion of animal protein. Feed your turtle a wide variety of foods.

**Table 1. Recommended diet for the adult, omnivorous semi-aquatic turtle**

Category	% of adult diet	Examples
Plant material	≥ 50%	<ul style="list-style-type: none"> <li>• Dark, leafy greens like kale, romaine, Swiss chard, watercress, endive, bok choy, escarole, spinach, duckweed, collard greens, mustard greens, dandelion greens, beet greens</li> <li>• Mix greens with coarsely chopped yellow or dark orange vegetables (e.g. shredded carrots, squash), green beans, or broccoli of appropriate size.</li> <li>• Fruit, like apples, melons, grapes, oranges, bananas, and berries, can also be offered occasionally.</li> </ul>
Commercial diet	≤ 25%	<ul style="list-style-type: none"> <li>• Aquatic Turtle Formula, Fluker Farms</li> <li>• Freshwater Turtle Diet, Mazuri</li> <li>• Reptimin Sticks, Tetra</li> <li>• Reptile Sticks, Wardley</li> </ul>
Animal protein	≤ 25%	<ul style="list-style-type: none"> <li>• Whole small fish (goldfish, guppies, bait minnows, smelt)</li> <li>• Snails in the shell</li> <li>• Small frogs</li> <li>• Insects (mealworms, waxworms, earthworms, bee moth larvae) as an occasional treat</li> <li>• Chopped mice or whole pinky mice as an occasional treat</li> </ul>

<u>Calcium supplementation</u>	Lightly sprinkle a calcium supplement (free of phosphorus and vitamin D) on the adult diet two to three times weekly.
<u>Aquatic turtles</u>	A number of aquatic turtles are considered true <b>carnivores</b> with fish making up the bulk of the diet in many species.
<u>Feeding frequency</u>	Prevent obesity in your turtle by feeding adults two to four times weekly. Large specimens can be fed weekly. Hatchlings should be fed daily or every other day.
<u>Aquatic turtles are messy eaters</u>	Food can make it more difficult to keep the tank clean. As a result, some owners feed their aquatic turtle in a separate tank in which water can be discarded after each meal. Although some individuals are hesitant to eat in this separate container at first, their reluctance generally fades over time.

## Housing

Provide your semi-aquatic turtle with a large pool of warm water and a warm, dry area for the turtle to crawl out and keep dry. To house your aquatic or semi-aquatic turtle, you will need...

### Leak-proof enclosure

- Glass aquaria are most commonly selected, but plastic containers and stock watering tanks can also be used.
- Cage size will vary with the turtle size and the number kept. At minimum, a single adult slider should be maintained in a 50-gallon (189 L) tank.
- Always strive to select the largest enclosure possible as turtles need ample space for exercise, an appropriate temperature gradient, and of course growth.
- Cage size should be large enough that the turtle can swim at least four to five body lengths before it has to turn around. Water depth should be at least 1.5 to 2 times total turtle total length. That way if the turtle is overturned, it will be able to right itself and avoid drowning.
- If multiple turtles are kept in the same tank, provide five times each turtle's surface area.

### Submersible aquarium heater

- Specific requirements will vary, but most species do well at water temperatures between 72-82°F (22.2-27.8°C).
- Provide barriers around heaters to prevent contact burns.

### Heat lamp

- Bulb wattage will vary with enclosure size, but 50 to 150-watt incandescent light bulbs, 250-watt infrared bulb, or porcelain heating elements can all be used. Arrange the bulb over the basking area (see "dry dock" below).
- The temperature of the basking area should range from 85-95°F (23.9-35°C).
- Maintain air temperature in the "turtle room" between 75-85°F (23.9-29.4°C). If air temperature falls below this range, then water temperature falls well below 70°F (21°C).
- Be sure to provide a 5-10°F decrease in temperature at night.

### ☑ **Ultraviolet light source**

Exposure to direct sunlight or a full-spectrum ultraviolet light is necessary for normal absorption of dietary calcium. The artificial UV light should be placed within 18-24 in (0.46-0.6 m) of the animal.

### ☑ **Thermometers**

Monitor all temperatures with the use of thermometers. Select at least two thermometers. Place one thermometer at the “cool” end of the pool and another beneath the basking spot.

### ☑ **Dry dock**

- Semi-aquatic turtles need a place to “haul out”, dry off, and bask.
- Place lamps above dry land to provide the turtle with heat and ultraviolet light exposure.
- Build an area on one side of the tank, that projects out of the water like an island, using flat, smooth rocks or non-toxic wood resting on submerged bricks or cinder block. Floating pieces of cork, driftwood, or plastic platforms can also be used, however the material must be secure enough that it won't topple and trap the turtle underneath water. More elaborate platforms can also be built.
- The area should be large enough that ALL turtles in the enclosure can completely emerge.
- Make sure there are no sharp corners that can cut your turtle.
- Create enough of an incline so that the turtle can easily climb out of the water.

### ☑ **Screen top**

Some species are agile climbers. Prevent escape by providing a screen top as well as several inches of air space between the water's surface and the top of the tank.

### ☑ **Substrate**

- Substrate is optional in semi-aquatic turtles: It is not absolutely necessary to line the bottom of the pool and this makes cleaning more difficult, however some owners find substrate more visually appealing. Your turtle will eat small stones, so select larger pieces of gravel.
- Substrate is recommended for aquatic turtles, to minimize the risk of pressure sores on the bottoms of their feet.

Clean water is crucial for the good health of your turtle. Even if the water appears to be clean, there can still be a lot of nitrogenous waste from feces in the water. Frequent **full water changes** ensure clean water.

- The smaller the volume of water, the more frequent the water changes. For example, a 10-gallon (38 L) aquarium used to house a 4-inch (10 cm) turtle should be changed 2-3 times per week. A 50-gallon aquarium is typically changed once weekly.
- The more turtles in the cage, the more frequent the water changes.
- If turtles are fed in the cage, water should be changed within 12 hours of feeding.
- When performing a full water change, be sure to **scrub and rinse** the cage well to remove residual bacterial growth from all sides.
- Abrupt changes in water temperature can be fatal so make sure water temperature after cleaning is similar to what it was prior to cleaning

### ☑ **Optional: Submersible pump**

For smaller setups (10 gallon or less), it's easy to carry the entire setup to a sink or tub for rinsing, however larger setups must be drained. Portable, electric submersible pumps can quickly drain large volumes quickly, making the cleaning process much easier.

## ☑ Optional: **Water filter**

- Water filters decrease the frequency of water changes but do not eliminate them.
- Most aquarium supply stores sell filters designed for fish waste. Turtles produce considerably more solid fecal waste, so be sure to select a filter designed for large fish or high stocking densities.
- Recommended options include gravity or rapid sand filters, propeller-washed bead filters, and external canister filters.
- Live plants can also be added to the tank and will help to remove some nitrogenous wastes, however select the plants carefully as turtles will frequently eat the plants.

*Caution:* Never place an aquarium in direct sunlight as this can dangerously overheat the tank.

## **Handling**

Give your new pet at least a few days to acclimate to its new environment before attempting to handle it. Use two hands, supporting the turtle—including its legs—from underneath. Most aquatic turtles are more resistant to being handled than their land-dwelling turtles. Some individuals will bite. Take care not to drop your turtle or allow them to wander off a table. Although turtle shells are strong, they can easily crack if the animal falls from even a short height.

## **Common health problems**

Common problems in aquatic turtles are often the result of poor husbandry and include ear abscess, eye infection, metabolic bone disease, and intestinal parasites.

## **Disease transmissible from turtles**

Reptiles are often asymptomatic carriers of **Salmonella**. Thoroughly wash your hands after contact with your turtle or your turtle's enclosure, and never clean turtle caging in the kitchen or bathtub.

As a general rule of thumb, turtles should not be owned by young children, especially individuals likely to put items in their mouths OR unlikely to wash their hands.

## **References**

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