The Family Labridae has approximately 600 Species; here we are looking at a few characteristics of only two.

Most Labridae have gapped and outward projecting teeth and can crush hard-shelled invertebrates to feed on. They are primarily carnivores. They are considered prey to large bony fish. These fish are sequential hermaphrodites, they can change from female to male if the need arises. There significance to humans is aesthetics, particularly to divers, and often in the aquarium trade. A few wrasses are minor commercial food fishes.

**Female Mexican Hog Fish**

**Male Mexican Hog Fish**

**Dominant Male**

**Adult Male showing Fleshy Bump on his head**

Species: Bodianus diploataenis  Family: Labridae

**Mexican Hogfish - Harlequin Wrasse**

Mexican Hogfish are diurnal and inactive during the night. Some secrete a mucous cocoon that envelopes the fish as it sleeps. They tend to be solitary or in small groups. This species of hogfish defends temporary reproductive territories. They feed on crustaceans, mollusks, sea urchins and small fish. The juveniles are bright yellow with two dark stripes along their sides. Females are usually reddish in color and tinged with yellow with two dark stripes. Dominant males have a yellow bar near the mid-section and often a fleshy lump on their head.

A study was done to see if foraging behavior in sequentially hermaphroditic hogfishes was sex related. It appears that the study found that the females spent more time foraging and less time socializing and mating. Males spent more time socializing and mating and less on foraging. When a terminal male was removed from the experimental group the dominant female would take over the once she was a functional male, she would forage less and socialize more. Fertilization is external and no parenting is performed.

**Species: Thalassoma lucasanum  Family: Labridae**

**Rainbow Wrasse - Senorita Arco Iris**

The rainbow wrasse lives on shallow reefs to depths of 160 feet, from the Gulf of California to the Galapagos Islands. They grow up to 6 inches long and they swim mainly using their pectoral fins, which gives them an up and down swimming motion.
They feed on crustaceans, algae, other fishes’ egg masses and broken sea urchins. Juveniles of this group can provide cleaning service for other fish. This is where the juvenile wrasse removes dead skin, parasites and other detritus from the fins, body and even the mouth of the client fish. Both the client and the wrasse benefit from the arrangement. The wrasse has three-phases, juvenile, adult initial phase and finally the terminal phase. Each phase appears different from species to species. This species has distinctive yellow and red stripes in the most abundant color phase for females and the larger males have a blue head with a yellow marking on its back, described as a saddle.

Rainbow Wrasse – male

But the most interesting characteristic of both the Mexican Hogfish and the Rainbow Wrasse is that it is a sequential hermaphrodite. The initial-phase adults are almost all females. Primary males often look like females. A primary-phase male can become a terminal-phase male, but this usually occurs in a non-harem group. These males sometimes will mate by indiscriminately depositing their sperm in a group of females or “sneak” mating by entering an area with a harem that has eggs being fertilized by the terminal male. Because they look like females, they may not get caught. The females often live in small groups or harems with one terminal-phase male that mate with the adult females. The females have a hierarchy in the harem. If something happens to the male, the dominant female will take his place, socially and physiologically. She becomes the terminal-phase male or a secondary male. This is a wrasse that started life as a female and later developed into a fully functional male. When the original male is no longer, the dominant female will start acting socially like the dominant male. She will start to court the second-ranking female, now the dominant female, even though there are no functional testes. The physiological changes may take a few weeks to complete.

Definitions:

- Sequential Hermaphrodites; change from one sex to another
- Simultaneous Hermaphrodites; possess both female and male organs and can fertilize their own eggs.
- Protogynous sex change; female to male, generally males are larger than females
- Protandrous sex change; male to female, females are larger than males.
- Primary phase; genetically determined male and female
- Terminal phase; female goes through protogynous sex change and becomes male.

References:

http://fish.mongabay.com/data/ecosystems/Saltwater_Peru-Galapagos.htm
Grzimek’s Animal Life Encyclopedia, Vol 5: Fishes II