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Outline of Report for Talk on Exhibit of Seahorses

This report discusses what is on display in the sea horse exhibit. It gives descriptions which apply generally to the type of living creatures on display as well as descriptions applicable to the specific type of living creature on display.

The exhibit includes five types of seahorses, four of their relatives, one type of their zooplankton prey, recreations of natural habitat conditions, and descriptions of current threats to world seahorse populations.

On Display:

Five kinds of *sea horses* on display are: Dwarf, Longsnout, Northern, Pot-Belly and Yellow

Two kinds of *pipefish*: Upsidedown & _____

Two kinds of *seadragons* are: Leafy, and Weedy.

One type of *zooplankton* prey type are: Mysids

Description of current status, i.e. *threats to species*: Chemical pollution (human generated), Curio Collectors, Corals silted, Dredging sea grass beds, Estuaries canalised, Fish Collecting Enthusiasts (hobbyists), Mangrove logging, Mangrove waters desalinized, Shrimping to excess and environmentally unaware shrimping techniques, Traditional Asian Medicine, Overfishing

SEAHORSES general information-

Kingdom: Animalia

Class: Fishes (*Pisces*, [Osteichthes])

Member of the Bony Fish Group, or the Teleosts. [{syngnathus}]

Genus: *hippocampus*

Habitat in the Wild: marine; shallow, calm areas of slow moving current, high salinity and floating vegetation ; coral reefs; sea grass meadows, eelgrass beds; sponge communities; inside holothurians; some are estuarine; some live among mangrove roots; few are pelagic

Range: Global Sub tropical, tropical and temperate, though mediterranean variety is known to reach colder waters of east Atlantic as far north as Norway. Majority of species live in the IndoPacific and West Atlantic.

Appearance: Seahorses do not have scales like most fish. Instead, they are armored (defense mechanism) with a series of connecting plates which are arranged in rings. The joints of the spokes are marked by spike-like or knob-like protrusions. Sometimes there is a crown or coronet of spikes on the head. Thread like 'hairs' or 'filaments' are present on the young of some types. Some adults grow these filament threads as a camouflage aid. As another protective adaptation, seahorses change colour

in response to the sea weeds, coral branches or sea cucumbers they are living in. They also change colour in response to other sea horses. Colours variations include a broad spectrum from greys, black, browns, muted blues and greens to fluorescent oranges, reds, purples yellow and whites. Markings include stripes, spots and speckles. Seahorses may pale under intense light.

Sea horses are characterized by a horselike head, arched neck, prehensile or grasping tail (functioning like a monkey's), and long snout, (some kinds have longer snouts than others) with a toothless mouth at the end. The mouth siphons or vacuums food in. The sea horse is also known to snap its jaws open and shut in a rapid motion when feeding.

Sea horses have stereoscopic vision much like a chameleon. The eyes function independently of each other. It is believed by some that one eye searches for the zooplankton while the other is on the look out for predators. Sea horse predators include human beings, sea turtles, birds, crabs and large fishes like tuna, red snapper and eldorado,

Diet in the wild includes: carnivorous feeders on zooplankton; small crustaceans like mysids , brine shrimp, and tiny crabs; small fish larvae. Sea horse and their close relatives have no stomach for food storage so they need to eat often. They digest their food by means of alternate grinding organs and absorption by the intestine.

Locomotion: Sea horses are the slowest moving of the fishes having traveling at .01 mph. They propel themselves forward through the water , or horizontally, by means of a practically transparent dorsal, or back, fin marked by spiny rays, which oscillates 20 -30 times a second. Sea horses move forward generally in an upright, or vertical, position (head up tail down).This is unlike most other fishes who travel horizontally, with their head leading forward and tail bringing up the rear.

Seahorses also have a set of pectoral fins, behind their head, which they use for balance and steering as well as to assist in their traversal of the vertical plane, up and down in the water. They also rise and descend in the water by means of an internal gas regulator similar to that present in sharks. Seahorses also have a small anal fin on their ventral side.

Reproduction: in Seahorses is characterized by an elaborate mating ritual. Males compete for females and the end result is a *monogamous* pairing. The pairs intertwine tails and synchronize their swimming and head movements. Rituals differ depending on the type of sea horse. Most often they occur at the time of the full moon. The female lays between 50 and 300 pinkish eggs. At this point an interesting gender role reversal becomes evident. She then places them in a specialized brood pouch of the male. Some

sources say the eggs are externally fertilized others say fertilization occurs in the pouch. Some sources say, the young are nourished in the pouch via individual yolk sacs which accompanied each egg, others say they are nourished by a vascular lining of the brood pouch of the male. In any event, the young stay in the pouch to hatch and form into miniature versions of the adult. The pouch swells and they are expelled or released from the male's brood pouch after a 8-10 day gestation (up to fifty days for some types) period. During the birth process, the male may anchor himself with his tail to a coral branch or sea grass stalk. He moves back and forth contracting the muscles of the walls of the pouch. alternately places his chin on his swelled pouch and then arches his neck and body backwards to eject each offspring individually. They are born head first.

Social Structures: Defined territories. Staying around same area. Individual often stays around a particular frond, sea grass strand or coral branch.

Adaptations for survival: include colour camouflage described, tail for anchoring, skuted exoskeleton, stereoscopic vision.

Life Span in a.) the wild: _____ b.) in captivity—about four (4) years

DWARF - (*hippocampus zosterae*):

Habitat: Shoreline to 15 miles out; floating sargassum; attached to gorgonions(sea anemones) . **Range:** West Atlantic, Gulf of Mexico, Carribean and Florida. **Appearance:** variable colours generally green, yellow, black and white with black spots. Full grown adults reach a size 1 inch (3 cm) with a Lifespan of about 1 year **Breeding season:** Feb.- Oct. 50 eggs. Up to three broods per breeding season. 17 day gestation. Birth size: 7-9 mm. Intersting observaton: Young can form chain with eachother's tail until they find branch of sea grass to attach to.

POT BELLY - (*h. abdominalis*) also called big-belly **Habitat:** To a depth of 25 Metres; Sponge gardens, harbours, under wharves, protected bays. **Range:** SW Australia & New Zealand

Appearance: Permanently rounded belly or abdomen. Males of other seahorses have bellies which swell as the young inside grow and after birth belly is flattened again.

Adults may reach size of 7.9 inches (20 cm)

Lifespan in a.) the wild: _____ b.) in captivity: _____

YELLOW or Golden (*h. kuda*): **Habitat:** **Range:** IndoPacific **Appearance:** unusual five pointed crest on the head. Colour changes generally from various shades of white through shades of yellow ochres. Light and dark spot and stripe markings. **Size:** 10 inches maximum

NORTHERN or Longsnout (*h. reidi*) **Habitat:** **Range:** Western Atlantic South American

West Coast, Gulf of Mexico, Caribbean, Florida.

PIPEFISH- general information:

Habitat in the wild: algal weed beds ;benthic,

Range:

Appearance: Long, slender with a horsey face and long snout. Pectoral, Dorsal and Caudal fin present.

Locomotion: Adopting upside down or rightside up right angle to the ocean floor they can sway in the current with the algal weeds adopting the same directional orientation as the weed fronds. they have a dorsal fin like the sea horse and the addition of a tail or caudal, fin.

Reproduction: Double fold under tail

Diet in a.)the wild _____ b.) captivity _____

UPSIDE DOWN-

SEADRAGONS- general information:

Habitat in the Wild: marine, colder waters of 18 degrees centigrade; free floating algal weeds, coral reefs, under wharves, protected bays,

Range: Southern Australia

Appearance: Sea dragons have striking camouflage adaptations. They have developed trailers or projections on their heads and bodies resembling leaves, stems and other parts of sea weeds. They drift among sea weeds practically imperceptible to those seeking them out. Unlike sea horses, their tails do not coil.

Diet in a.) the wild is mysids and sea lice b.) in captivity _____

Locomotion: Sea dragons drift with the current among the sea weeds. They hang suspended practically motionless for long periods of time. Self locomotion involves the use of one dorsal fin for forward propulsion while two pectoral fins give balance and tail serves as a rudder. They also have a small anal fin.

Reproduction: Breeding season is early summer where they move to slower current waters. Gender role reversal also takes place with sea dragons as part of the reproductive process. as well. The main difference between sea dragons and seahorses, in this respect , is that the male, sea dragons have a brood 'patch' instead of the sea horse brood 'pouch'. The female lays about 250-300 eggs which she places in ducts on the brood patch of the male under his tail. There they are fertilized. Gestation is three to five weeks though some sources say up to 8 weeks. Offspring hatching may take up to four days.

Young sea dragons are thusly deposited over a broader range than if they hatched all in the same place. Predators of baby sea dragons include fish, gorgonians, crabs and hydroids. Predators of adults are mostly larger fish.

Sea dragons are very delicate and can not easily sustain rapid pressure changes in the depth of the water they are in. They have fragile flotation bladders.

Juvenile Diet: Yolk sac sustains them for a few days after birth. Then they begin to pursue rotifers and copepods.

Adult Diet in a.) the wild- mysids and sea lice _____ b.) captivity _____

Interesting Observation: Sea dragons are generally solitary. They are found together usually only in the breeding season.

LEAFY or Ornate-(*phycodurus eques*) Habitat: 6-9 meters depth **Range:**

Appearance: Appendages clearly resemble particular sea weed type branches and leaves. Several long spines are present on the body.

Size: Adults may reach a length of 30 cm

Breeding Season: August to March

Interesting Observation: Divers have reported leafies curling up like a hedgehog and presenting their spines to potential attackers

Weedy or Common-(*phyllopteryx taeniolatus*) Habitat: Between 3 & 50 metres down; Below the tideline; Covered Kelp Rocks **Range:** Temperate waters of Southern Australia, i.e. from Southern coastline of New South Wales to Rottnes Island off Western coast.

Appearance: Appendages bear closer resemblance to coral and sea fan branches.

Adults: reach 18 inches (46 cm)

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More Interesting information about this group: **evolution:** \_millions of years old. \_\_\_\_\_

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[[[[Scientific Classifications: Bony Fishes: Teleosts

Gasterosteiformes

Order: Solynichtheyes

Sub Order: Syngnathoeidei]]]]

Other relatives of sea horses include: pipeseahorses, moth fish, trumpet fish, coronet fish, moth fish, sticklebacks, sand eels, and snipe fishes.

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**Kingdom:** Animalia (Phyl: *arthropoda*) **Class:** Crustaceans (*crustacea*)

MYSIDS- Habitat: Appearance: shrimp-like, \_\_\_\_\_ Locomotion: \_\_\_\_\_ Reproduction: \_\_\_\_\_  
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Seascope

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