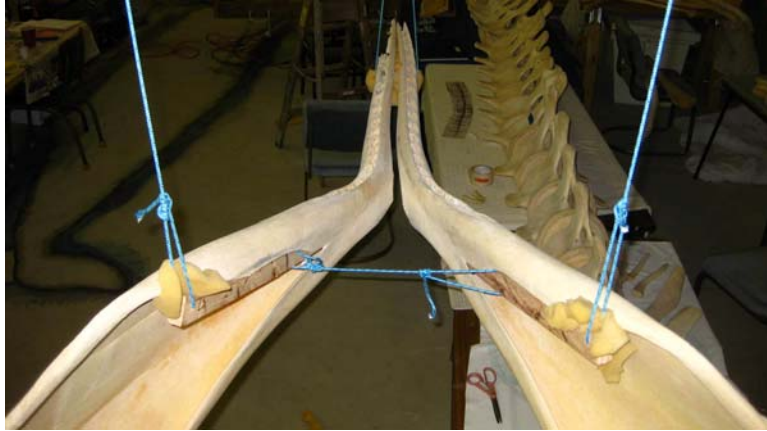


Bonehenge Update by Keith – 05Dec09

1) **Hollow mandibles:** To the right is an interesting posterior view (looking forward) of the mandibles (lower jaw bones) showing their hollowness. There is good evidence that much of the whales' hearing is channeled through the fatty tissues that fill the mandibles. At the far ends you can see the tooth sockets. The photos below show how the jaws articulate normally.



2) **Calculating the thickness of the intervertebral disks:** We are considering using closed cell foam with clear silicone caulk to simulate the intervertebral disks. Determining the thickness goes as follows:

$$\begin{array}{r} 402'' (33'6'') - \text{total length of dead whale (front of head to tail notch)} \\ - 101'' (8'5'') - \text{skull length (straight line)} \\ \hline 301'' \\ - 226'' (18'10'') - \text{total length of spine (all vertebrae pushed together)} \\ \hline 75'' \\ - 28'' - \text{estimated flesh fore and aft of bone (head } \approx 24'', \text{ tail } \approx 4'') \\ \hline 47'' \\ \div 39 \text{ (number of spaces)} \\ \hline \mathbf{1.2'' \text{ per disk}} \end{array}$$

3) **Skull jacuzzi:** Sperm whale skulls are extremely greasy and full of oil. This has survival value in the live animal, but it creates challenges when preparing an indoor public display. "Our" skull is way too large for treatment in the vapor degreaser at the NCSU College of Veterinary Medicine. So, we built a 5'x9' skull jacuzzi in which we will treat the skull in warm (up to 105° F), soapy, circulating water for 3-4 months with periodic exchanges of water. It features:

- a heavy pond liner
- rope handles
- a 40 gallon propane water heater
- 2 120v AC water heating elements floated on styrofoam
- a 12v DC bilge pump circulating water between the pond and the propane water heater
- a 12v DC trolling motor circulating the water
- a 12v battery and charger
- a 3-way Perko battery switch wired backwards to control the bilge pump and trolling motor
- an electric hoist

It seems to be working well so far. Stay tuned.

