Unidentified Marine Animals in San Francisco Bay:

Implications for the Paleontology Record and Geologic Time

Clifford A. Paiva[*]
BSM Associates, California City, California

Harold S. Slusher[†]
University of Texas at El Paso, Physics Department, El Paso, Texas

Technical Monograph: 2:Vol: 1: 1 November 2004
(Revised: 30 April 2005)

Abstract

The observations of unidentified marine animals have been recorded through out the centuries[8] and although many sightings are fabricated, many are not. Excellent reports exist in both professional and academic institutions[17], which in fact do indicate some authenticity to the observations. To these reports is now added another very significant discovery by the William and Robert Clark of San Francisco, California. If the enclosed analysis is even approximately accurate, very large serpentine marine animals will be shown to exist in various areas of this planet. The resultant implications for geologic time and the evolution model will then indicate a required revision of these ideas concerning the origin of fauna and flora on this planet.

Technical Considerations

The primary challenge in the video forwarded to BSM Associates concerns the format of line-by-line integration of registration of pixel information. Present day analogue television systems such as the National Television Standards Committee (NTSC), used in North America and Japan and Phase Alternate Line (PAL), used in Western Europe, employ this *line interlacing* method of registration. Systems that use line-interlacing alternately scan odd and even lines of the video, which results in image *artifacts* when analogue video is digitized. This must be kept in mind when using the Clark Brothers video for image processing and interpretation. Digital camcorders eliminate the need for interlacing, and frame-to-frame integration.

This investigation stressed TIFF (Tagged Image File Format) format to retain accurate digitization of the video used in this selected frame-by-frame analysis. Only in general exploratory work was JPEG (Joint Photographic Experts Group) and Portable Network Graphics (PNG) used, since these utilize image compression techniques that alter image intensity information, the former more than the latter. TIFF is normally used in image analysis.

In conclusion: this analysis BSM Associates determines that the video submitted by the Clark Brothers reveals an unidentified group of marine animals appearing in the deepwater sections of San Francisco Bay on 26 January 2004.

The importance of the discovery in relationship to historical fauna of this planet has yet to be determined, however it will probably have immense etiologic ramifications for the assumed integrity of the evolution model. Creation science models, certainly those incorporating pre-diluvian fauna and flora existing in a post-diluvian environment, should utilize this discovery effectively. (Diluvian in this paper refers to a geologic evidence-driven model indicating a global hydraulic inundation occurring approximately 4,500 years from the current year.) When

[*] Director, BSM Associates (aanthony@as.net).
[†] Professor of Physics, Physics Dept., University of Texas at El Paso (hslusher@utep.edu)

integrated into the global observations matrix, concerning for example marine and lake serpentine-type animals (including plesiosaurus and elasmosaurs), the Clark Brothers video becomes pivotal.

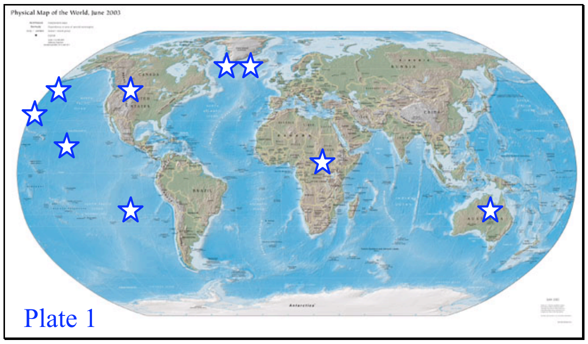


Plate 1

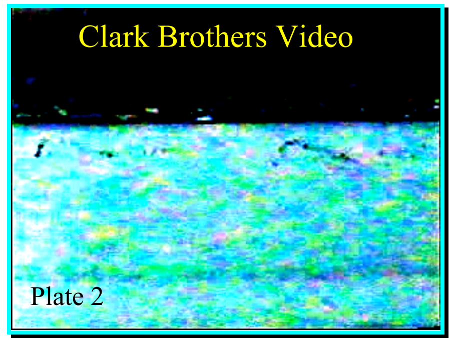


Plate 2

I. Global Observations (stars) of Unusual Marine and Lake Animals

Global observations include sightings in ocean, river and lake environments[16]. The general characteristics of these animals include variable length necks (15-50 vertebrae), and various types of propulsion flippers. The animals sighted in Loch Ness and at Pembroke are in the process of investigation at BSM Associates however the general pattern is consistent with Elasmosaur and plesiosaur type marine fauna. The results of an analysis to Dr. Robert Rines, director of the Academy of Applied Sciences addressing the animal in Plate 6 will be made soon. Further investigations are possible for the Global Underwater Search Team (GUST) of Sweden. In this context the authors preliminarily identify the animals observed in the lochs of Scotland as a variant of the genus Plesiosaurus[18].

A. Identification and Classification Options for San Francisco Bay (SF Bay) Observations:


Plate 3

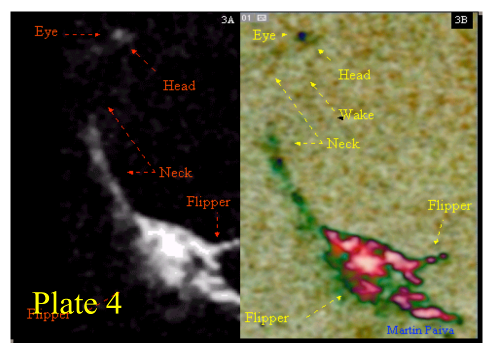


Plate 4

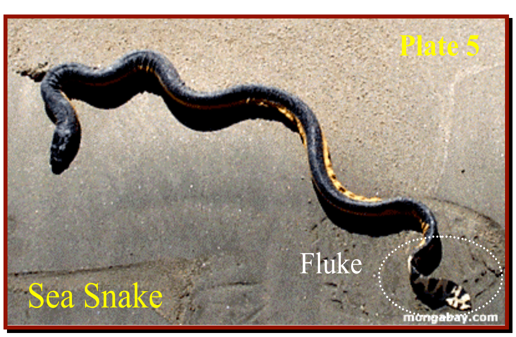


Plate 5
Sea Snake

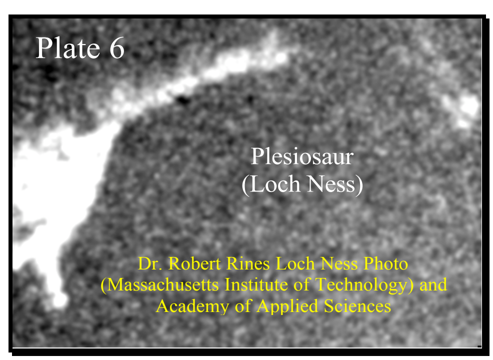
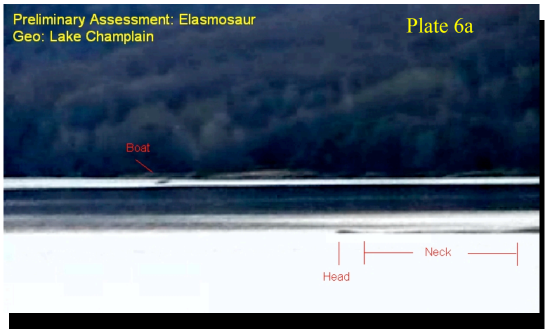
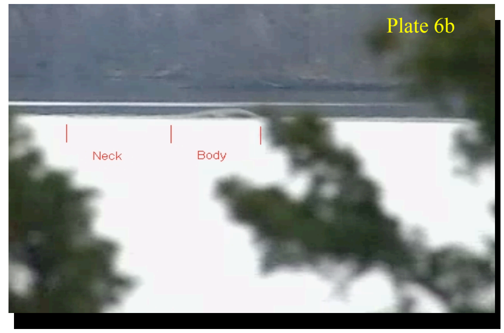


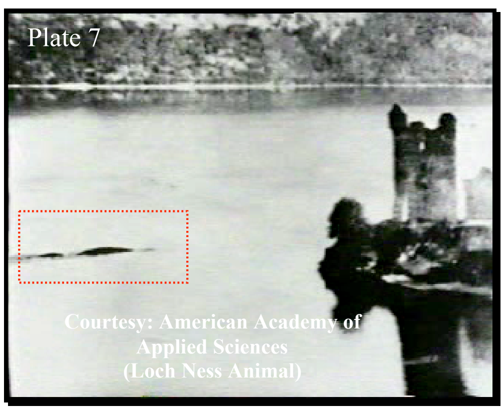
Plate 6





II. Global Observations: Connection to Clark Brothers Video

In every ocean and in many of the globally[19] distributed bays observations have occurred; many verified through eyewitnesses, of strange and unidentified marine, river and lake animals. The authors have used extensive background in target identification and classification[2] to extract target (SF Bay animals) from a very cluttered video file. Further, rastorization of a line-by-line scan, rather than digital video, exacerbated attempts to identify the SB Bay marine animals.



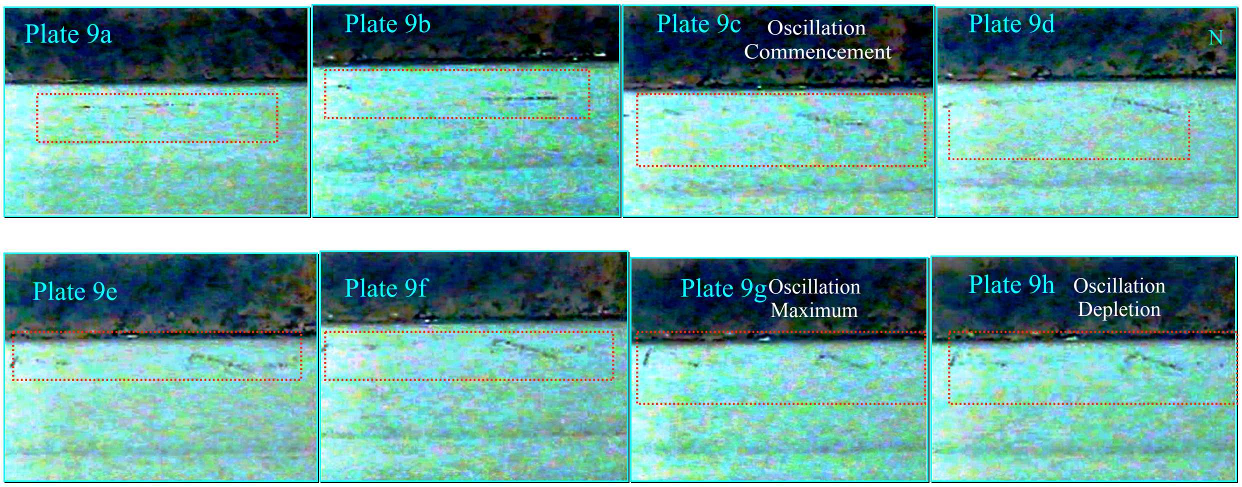
Loch Ness, Scotland: Plesiosaur

Pembroke Docks, Wales, UK: Plesiosaur

III. Image Processing of Clark Brothers' Video

A. Section I: Double-Loop Sequence (One Animal): Body-Wave Generation

Enclosed below is Clark video frames revealing the oscillation dynamics of one animal, the length of which extends from the left to the right of each frame. Vertical oscillation is common to sea snakes[17] and assumed applicable to plesiosaurs. Plates 9a-9d indicate *one animal is in motion for a body wave sequence*[1]; this has important length metric ramifications.



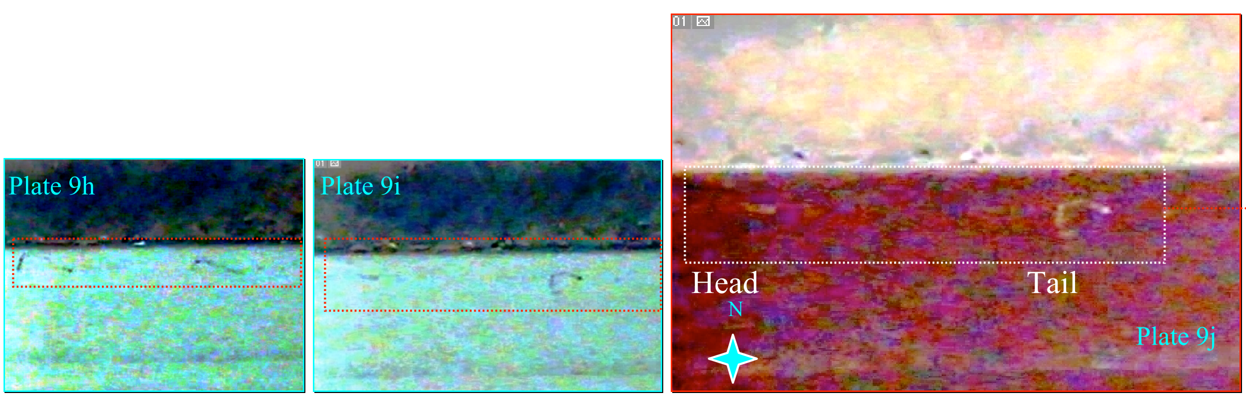
Oscillation motion (left-to-right) generates propulsion to the left, moving the animal(s) out toward the SF Bay Bridge. The general motion is a transverse oscillation generating amplitude in the body movement and transferring the potential energy to kinetic energy as the animal moves right-to-left. The simultaneity of the oscillation suggests a single animal in Plates 9a-9h, although in the plesiosaur case these may be separate. A single animal length is approximately **(54.86m) (.5Z) (.80PSF) = 21.94m or 71.98ft**, using the tour ship scale (Plates 14 and 15) and the empirically derived equation:

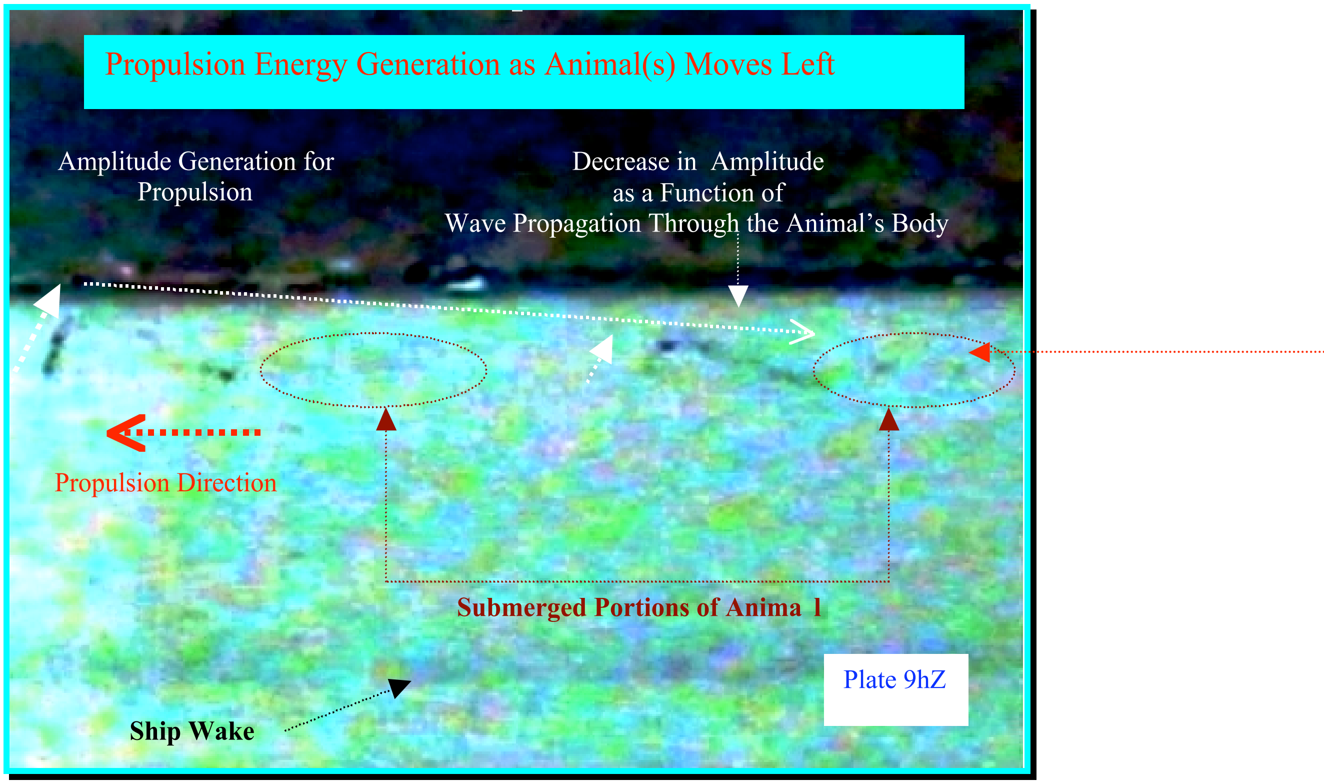
$$(169.1_{tourship}/pixels_{measured})\ (.5Z)\ (.80PSF)=L_{final}. \qquad (1.1)$$

(Note: .5Z and .80PSF are zoomed coefficients and point spread function dispersion, respectively.)

Deep-sea hyper-baric pressures are usually required for these types of marine animals. Propulsion is seen in Plates 9a through 9h as the motion vector is a result of body wave propulsion, the amplitude of which decreases as a function of distance from the initial body vertical transverse movement. This is shown in Plate 9i.

Also apparent is a "fluke-type"object at the anterior section of the animal above the surface. The whipping process is the final motion of the animal's wave-like oscillation. A PhotoShop processed negative is provided for contrast.



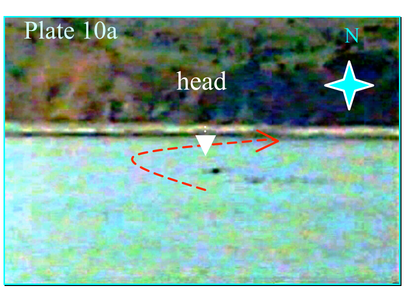


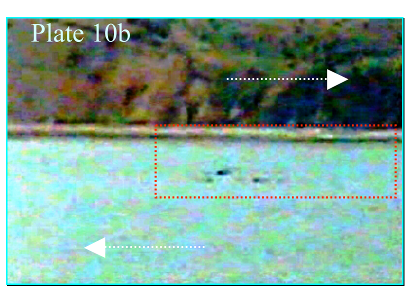
B. Large Animal Mass Associated with Pre-Deluvian Type Hyperbaric Environments:

It should be noted that a variety of deep-sea, hyperbaric type animals (i.e. cephalopods) attain exceedingly large size. The largest known octopus for example *Haliphron Atlanticus* attains estimated total lengths in excess of 5m (16.40 ft) and weights of approximately 1000 kg (2240.62 lbs-mass). Also large fauna and flora body sizes are common in the fossil record. Yet it is important to remember that they are only *apparently* large from a post-deluvian perspective. For within the paleontology record the animals are not large with respect to *each other*. Decreased life spans in the post-deluvian world are probably functions of the ongoing dissipation of the geomagnetic field and loss of the pre-deluvian water vapor canopy.

C. Section II: Reverse Direction Motion and Tracking One Animal

A single animal was observed to reverse its heading 180 degrees as is seen in Plates 10a through 10f. This motion yielded good approximations of the animal's observable length and head-to-body scaling ratio. This indicates a total length of at least (170 feet)(.5Z)(.80PSF) = 68.0 ft. based at 3.1 foot per pixel. (StarTop =North).





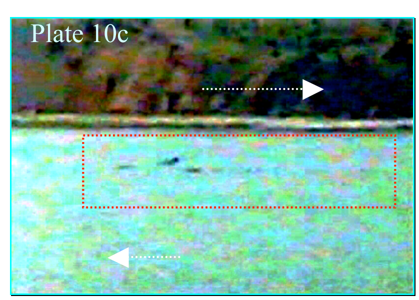


Plate 10d

Plate 10e

This section tracks the animal's drift after turning left-to-right (observers reference frame) and drifts left past the lighthouse and into the tossing sequence. Only a portion of the neck is observable in the tossing motion (Plate 11a-11c). Analogue line-by-line integration of the frames appears in the frames as sudden "speckle" of dark-to-light pixels.

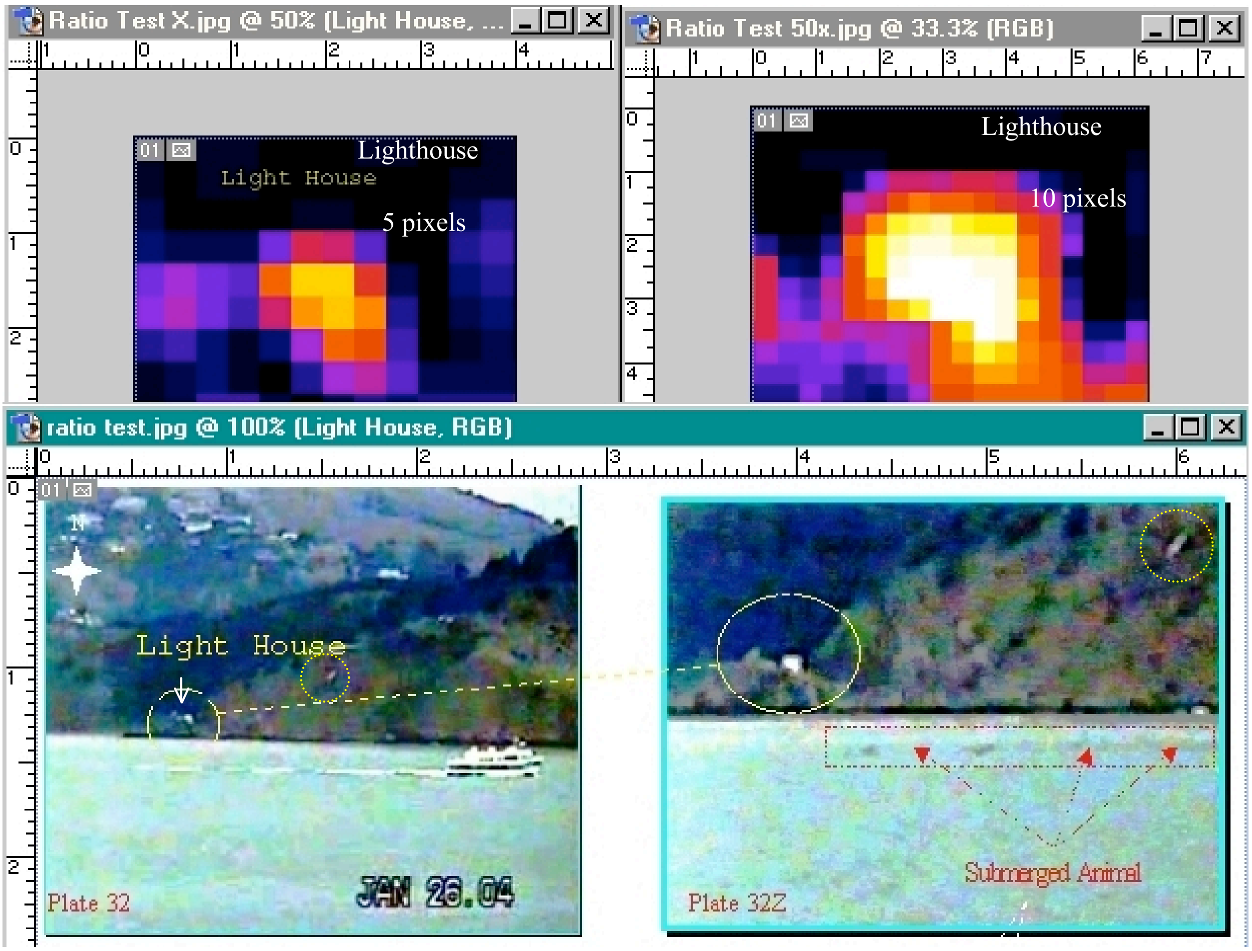
D. Section II: Head Toss Motion During Right-to-Left Drift In Current (Single Animal Track)

The Clark video reveals in temporal frames a tossing motion of the upper neck and head of the animal. Plates 11a through 11c shows the animal in a head tossing one second sequence, right-to-left. Dr. E.I. Bousefield, Curator at the Royal Ontario Museum, Toronto; and Associate Curator at the Royal British Columbia Museum in Victoria, Canada, has stated to the authors that such tossing motions are to be expected in observations of large sea serpent-type animals.[5] The Elasmosaur probably possesses similar neck motion capabilities.

From the head toss upper neck and head characteristics of a single animal is made. Assuming 3.1 ft/pixel (non-zoom) an approximate length above the water line is 23.5 feet with a neck diameter of 6.2 feet (no point-spread-function used). Of course this is the animal portion not submerged. This animal is large as the measurements reveal, and in fact may pose some significant danger to human activity in the area. The authors believe winter's relatively warm waters of SF Bay may provide some haven for these animals.

Golden Gate Bridge

Pixel Scale: Light House

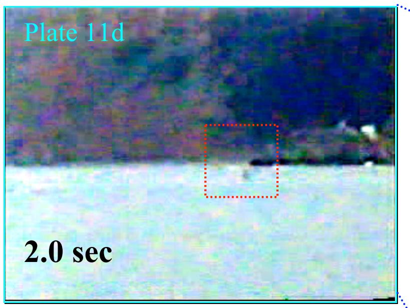


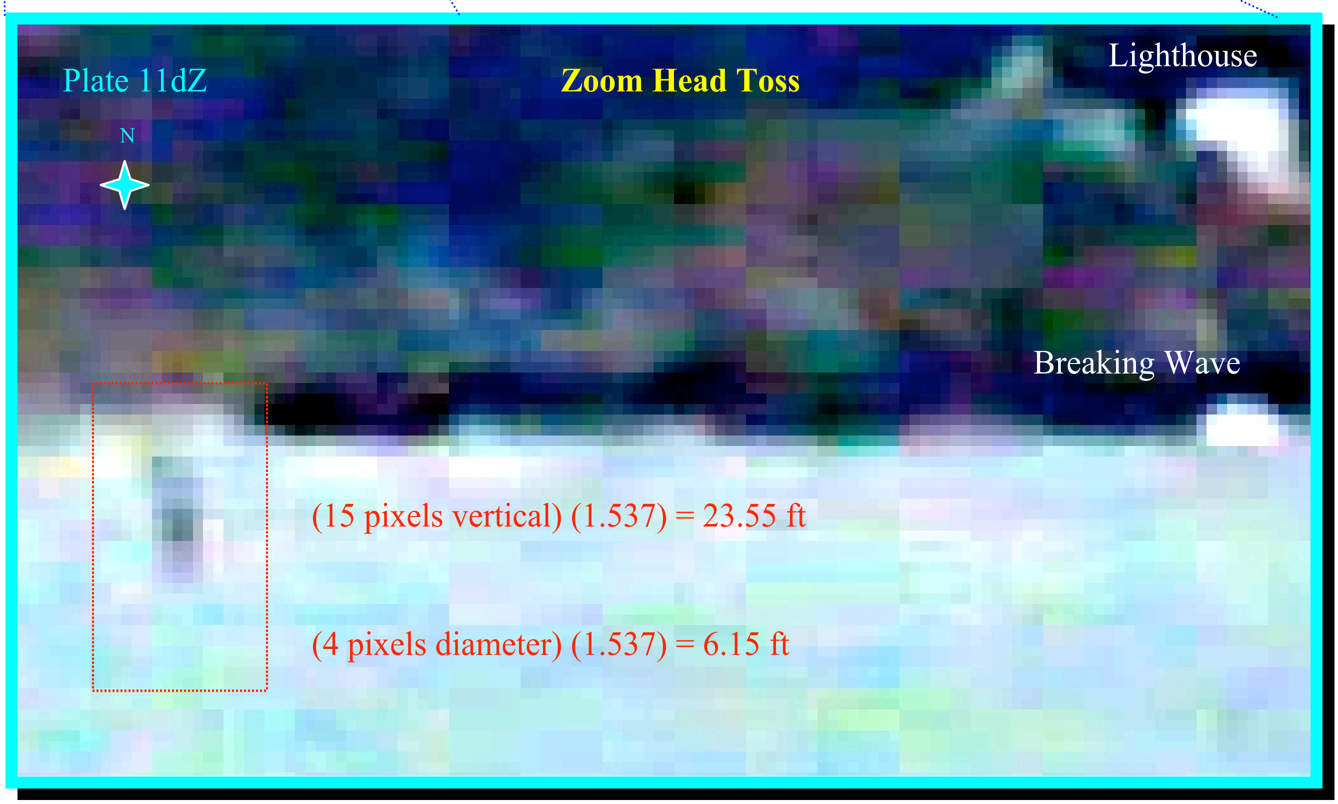
Critical Scale Assessment:

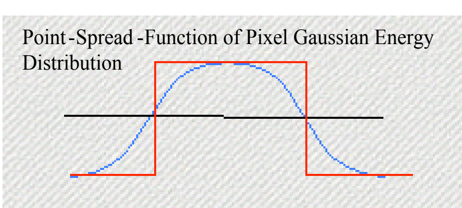
Pixels across lighthouse wide field-of-view (Plate 32): 6
Pixels across lighthouse at 50X zoom (Plate32Z): 12
Set: 6:12 or .5 ratio coefficient
Touring Ship: (169.1 ft_{length})/(55 $pixel_{length}$) = 3.07 ft/pixel (non-zoom 50X)
1.23 ft/pixel (50X and Point Spread =80%)

These critical scale (analysis constant scale) values are used throughout this investigation, adjusting scale lengths via the Z-ratio (zoom ratio). Indications are that the animals in question are of the order of 60-80 feet in length, depending on the frames used. Submerged sections of the targets are indeterminable however correlations scale is established for Elasmosaur and/or Plesiosaur (Plates 3 and 4 respectively).

Zoom: Head Tossing Sequence: Right-to-Left:

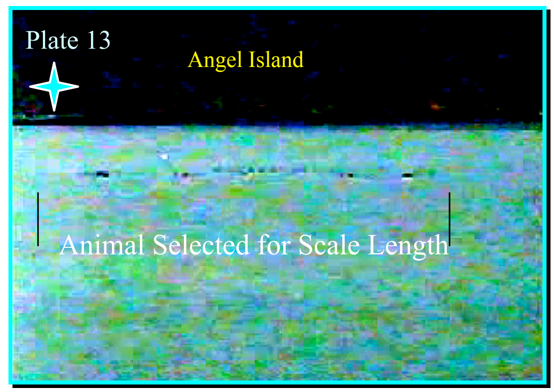


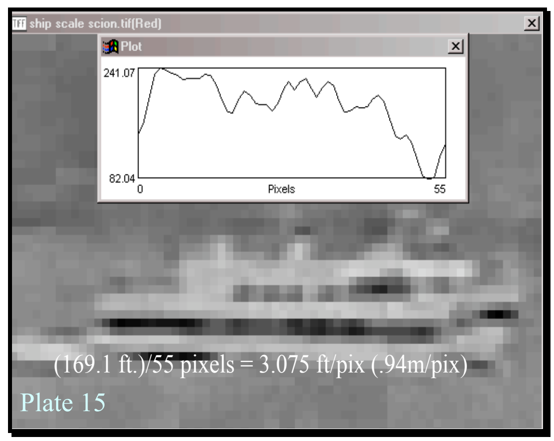




The Point-Spread-Function (PSF) determines the energy distribution across an individual pixel; and cumulative PSF for cumulative pixels across a detector results in image blur. This analysis assumes 80% of energy intensity residing within the upper red pixel box, for all pixels. The blue line outside the red box represents energy distributed outside and into the adjacent pixels. This external energy pixel distribution is termed “cross-talk” and is considered an error function in target detection and track-file generation.

E. Section III: Range Errors Due To Line-of-Sight (LOS) Projection

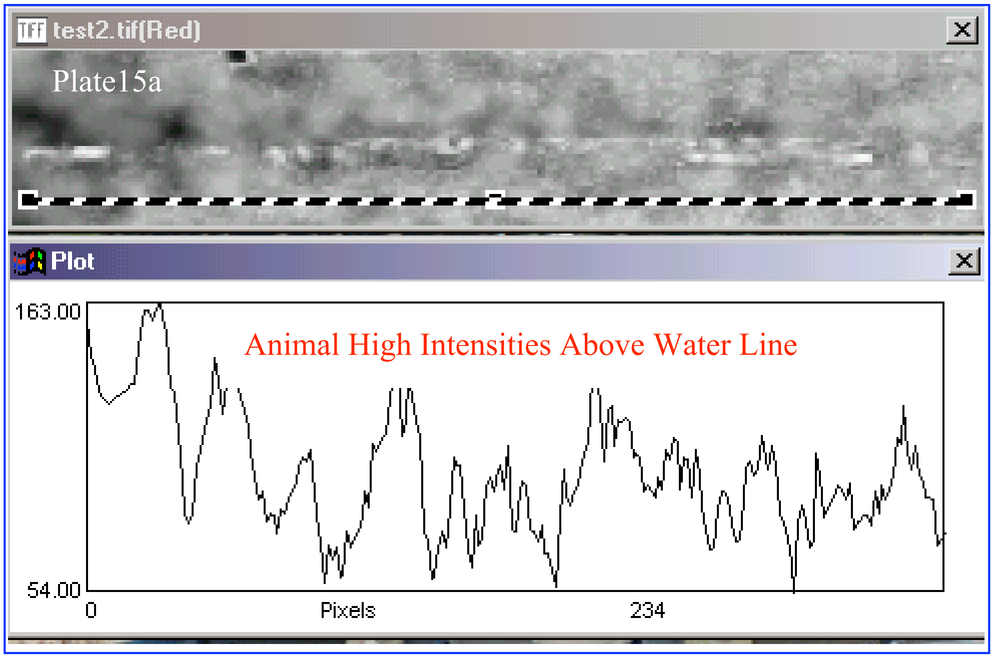




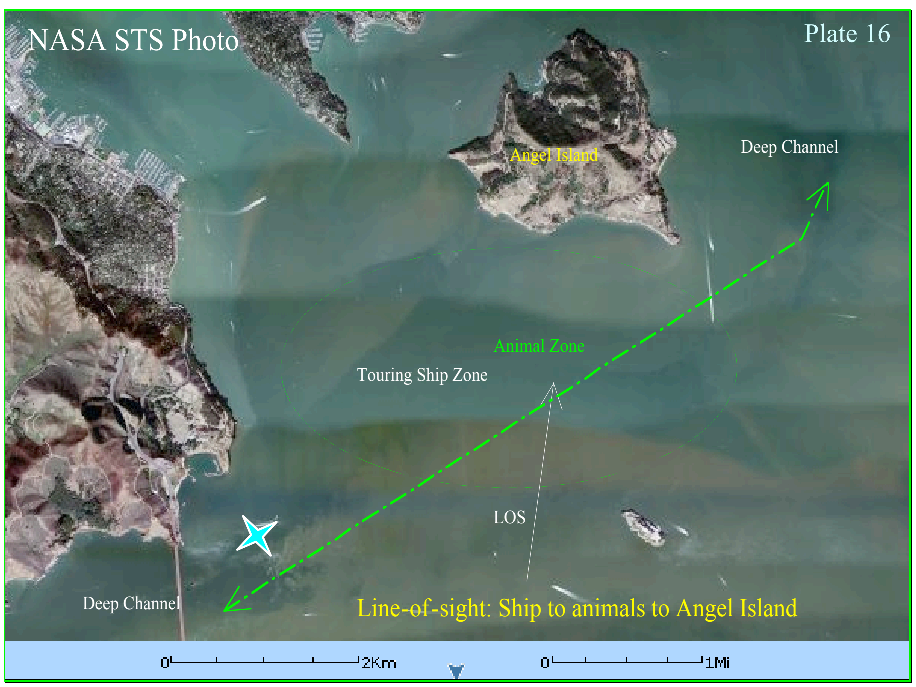
Touring ship length: 169. ft (51.54m), therefore total value per pixel: 3.075ft (.94m)

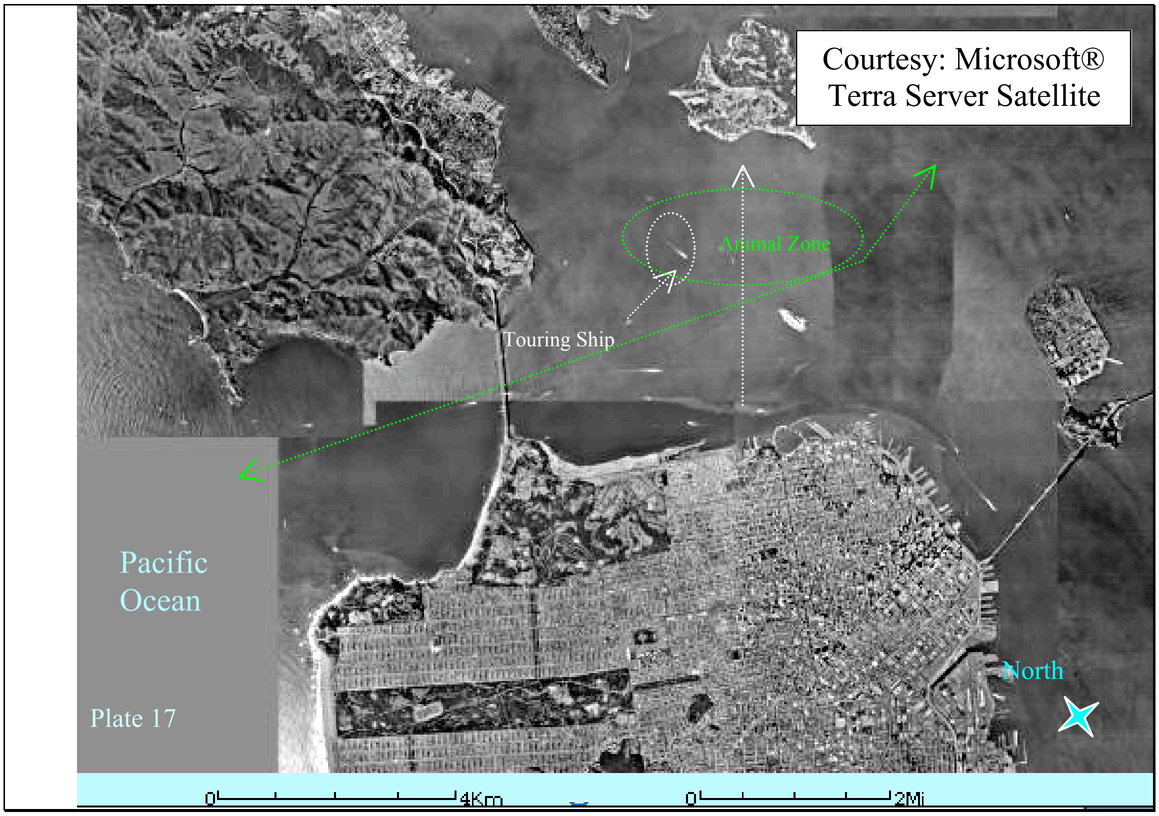
The primary assumption here concerns equal distance of the touring ship and animals, along a general line-of-sight, to the Clark brother’s observation position of Fisherman’s Wharf. This is a significant generalization and does affect the animals’ scale length. Although the animals and touring ship appear close to Angel Island, this remains only an illusion as shown in Plate 16. The general path on animals entering, operating in, and leaving the San Francisco Bay is shown in light green; this being generally in deep channel zones. Future observations in this context may be expected along and within these light green areas which indicate depth.

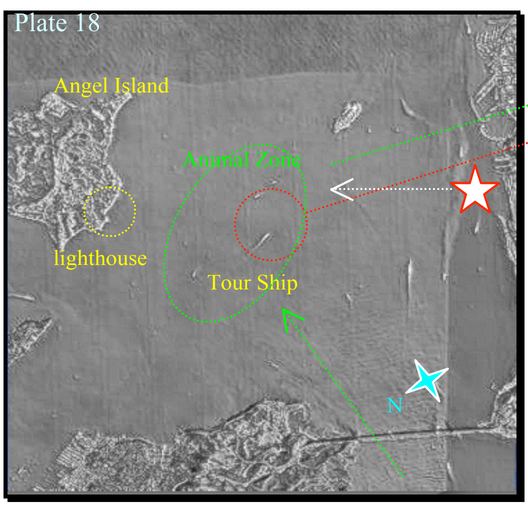
Approximate length of the animal based on (234 pixels)(1.23)(.5Z)(.80PSF)=115.13 ft. observable above the water line in Plate 15. Such extreme lengths require that this creature normally exists in a hyperbaric environment at large ocean depths. Large pressures at depth results in increase of metabolic processes, not unlike those required for the giant squid and deep diving whales.

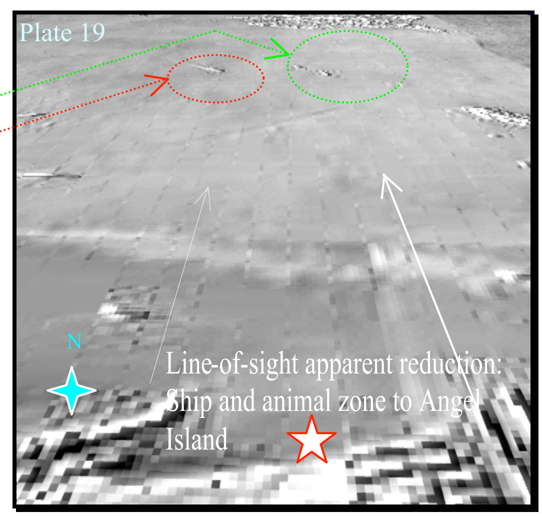


Warm Pacific Ocean bays during North Pacific months may then be expected, such as in Vancouver Bay and S.F. Bay. Alexander Mitchell of BSM Associates indicated that in fact such warm bay waters may be used by these marine animals in mating and other social behavior. Another possibility is the attraction to fishing industries associated with SF Bay. North American winter observations in such warm water bays should add further information in this respect. However the heavy tossing motions in the SF Bay seems to indicate the former reason for the animals entering the bay.



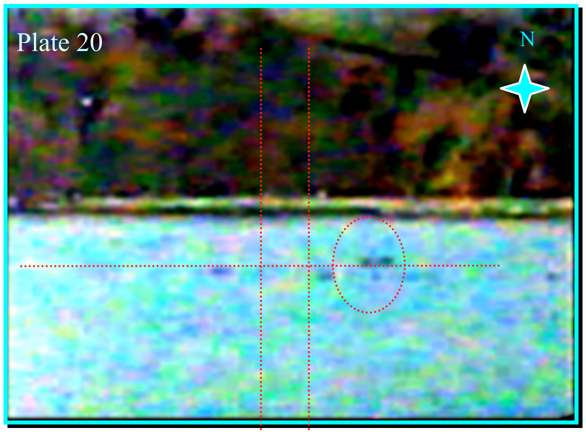


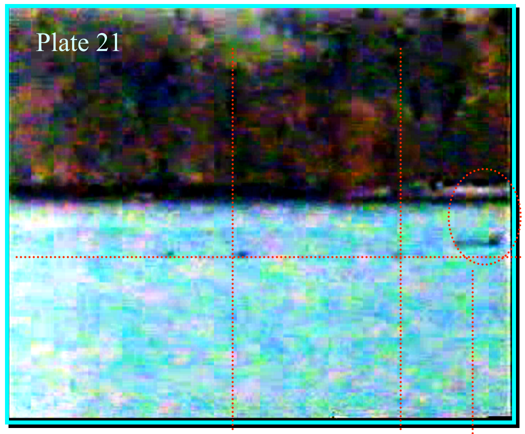




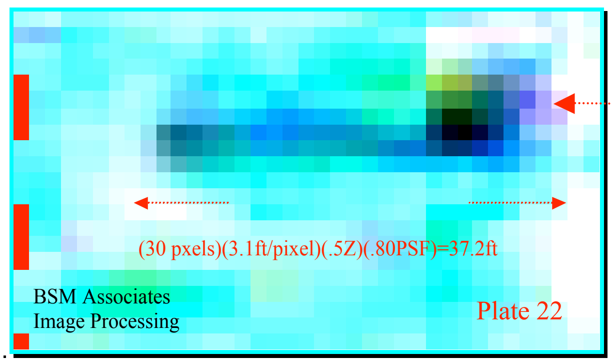
The star indicates the line-of-sight (LOS) from
Clark Brother's observation position

F. Section III: Displacement Velocity

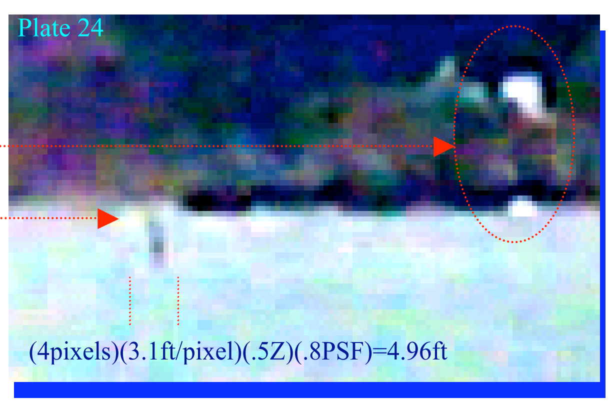


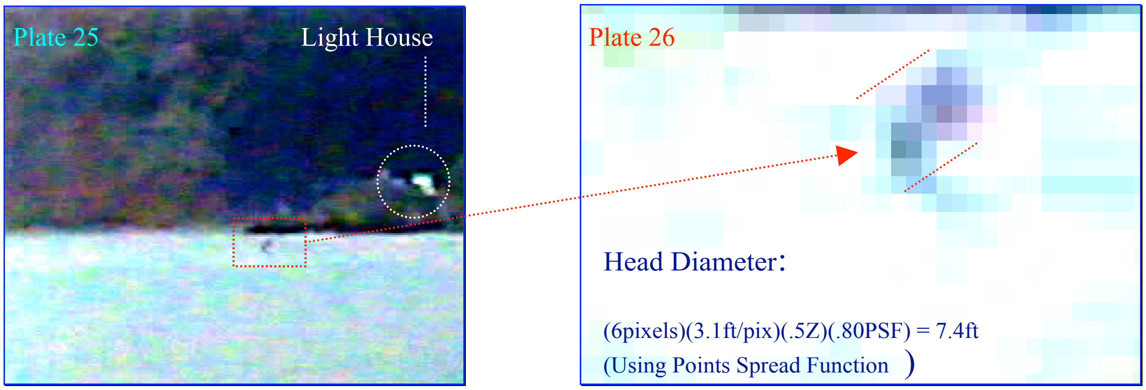


Frame Displacement: frame 1 to frame 2: t = 5 sec; velocity = 8 km/hr



G. Pixel Value Check In Terms of Length

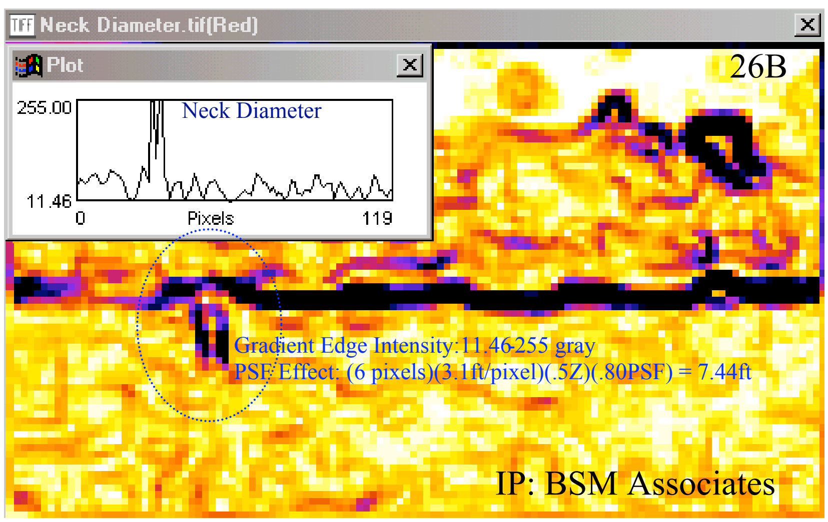




IV. Above Surface Body Length Calculations: Gradient Edge Intensity Applications

A. Edge Detection

An edge in an image containing targets is an abrupt change in image intensity, presumably at the boundary between differing materials; in the SF Bay: between animal necks and upper body and the surrounding water, land background and sky. We characterize the edge by considering both the width of the edge, and the magnitude and sign of the intensity difference along the animal selected for track-file generation. (The animal's track-file establishes direction and magnitude).



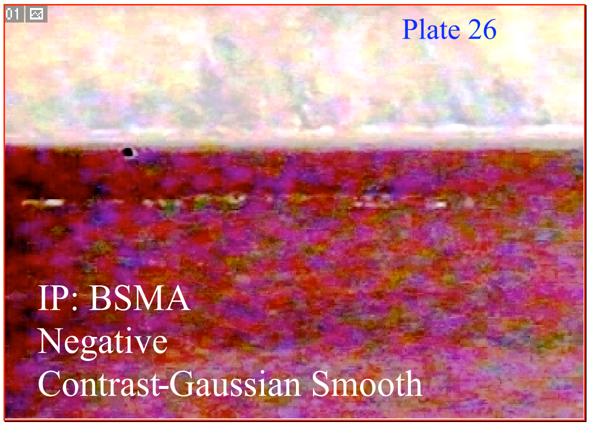


Plate 26
IP: BSMA
Negative
Contrast-Gaussian Smooth

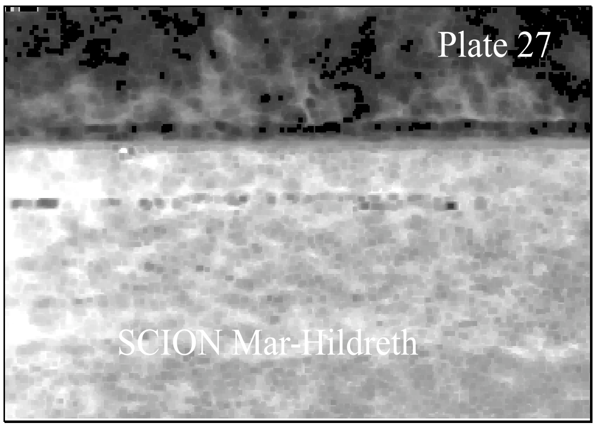


Plate 27
SCION Mar-Hildreth

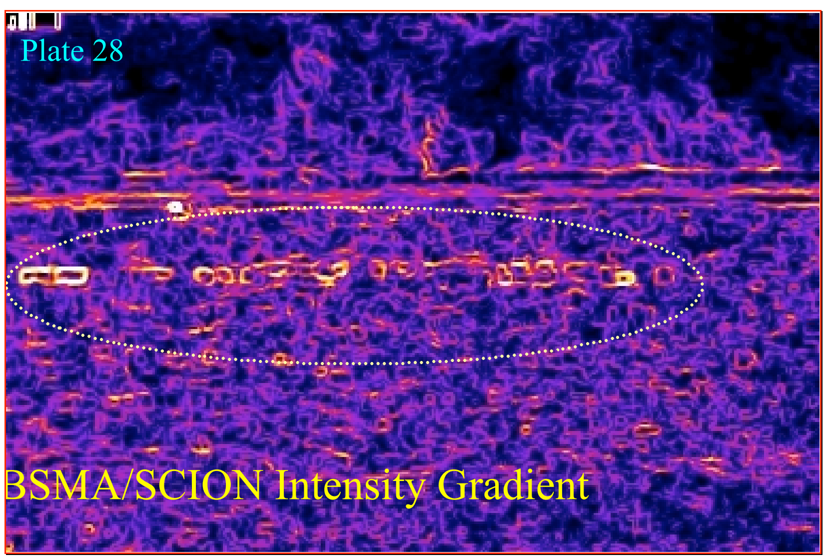
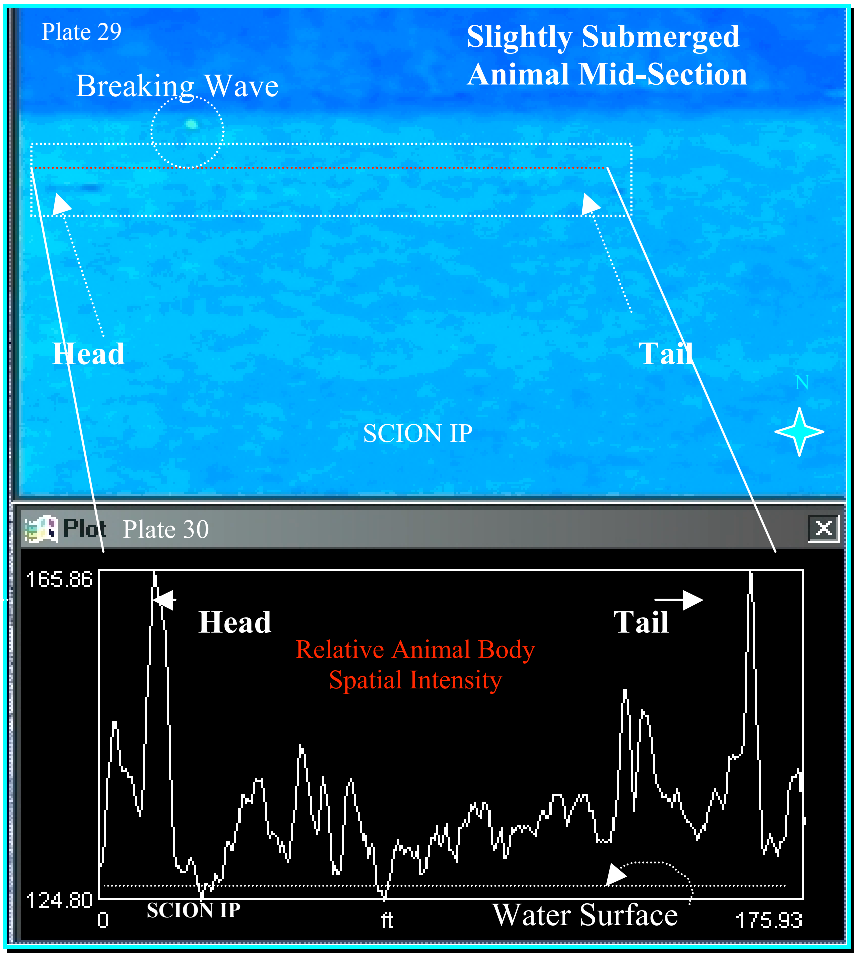
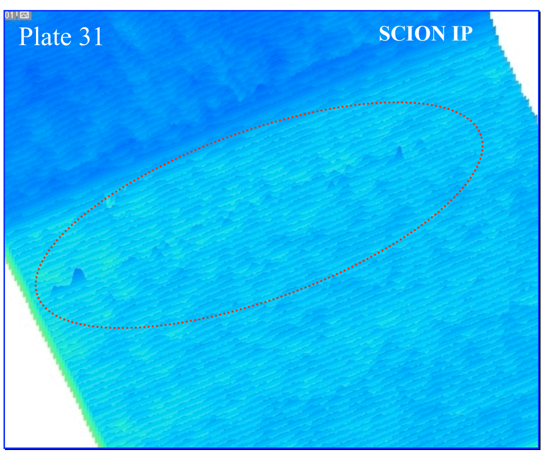


Plate 28
BSMA/SCION Intensity Gradient



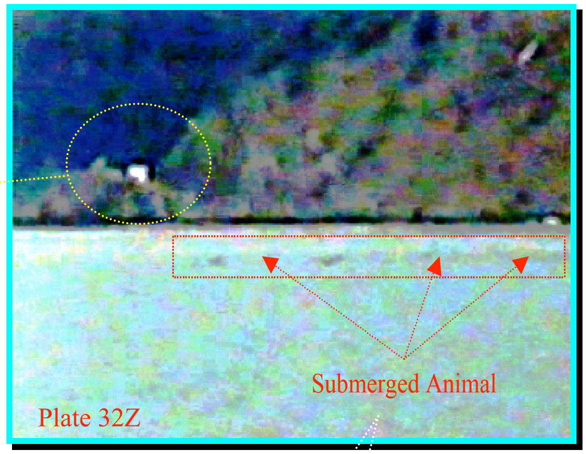
B. Length Measurement Considerations: Before Oscillation

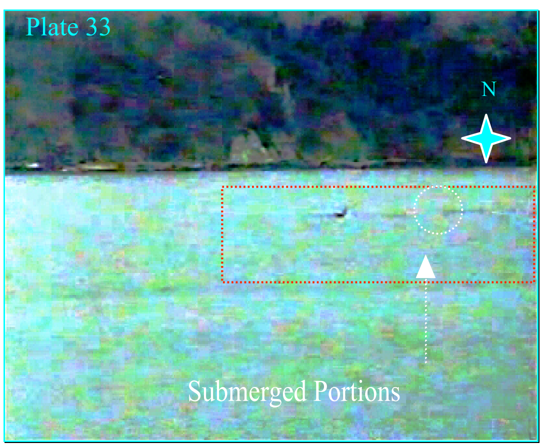
The primary issue concerning establishing length metrics for the body before oscillation is those portions of the animals, which are submerged. *The calculations only address those animal body parts, which are above the water surface line or, through image processing techniques using contrast-thresholding, and morphological operations (Plates 26 through 29), reveal submerged portions, which are visible through the water.* The exact length of the animals is, in this context, undeterminable. The visible length as determined from SCION is: **175.93 feet**.

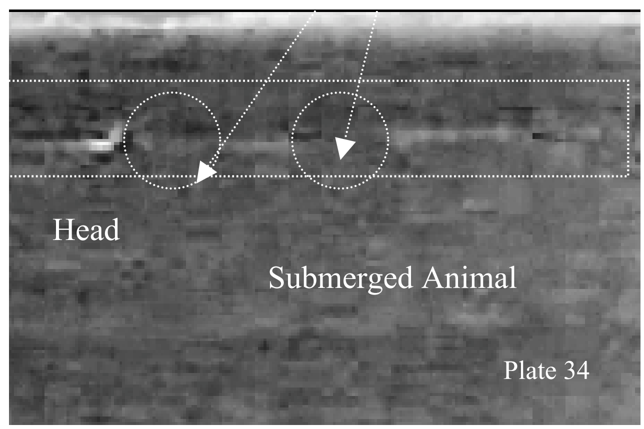


C. Length Body Zoom Calculation and Correlation:

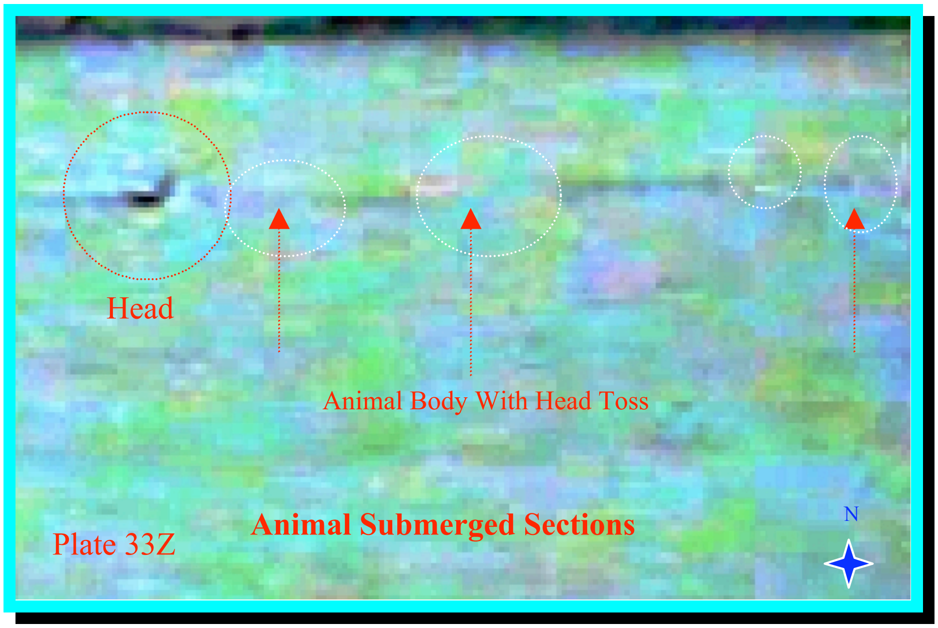
Pixels on the lighthouse at 1x and 50x, distance-to-target per focal length, determines the scale length coefficient.







As in Section C the primary issue concerning establishing length metrics for the body after oscillation is those portions of the animals, which are re-submerged. Also as in Section C *the calculations only address those animal body parts, which are above the water surface line or, through image processing techniques using contrast-thresholding, and morphological operations (Plates 26 through 29), reveal submerged portions, which are visible through the water*. Again:_**The exact length of the animals is, in this context, undeterminable. The *visible* length as determined from SCION for frames in Plate 33-34 is: (170.30ft) (.5Z)(.8PSF) =68.0.** It is the authors' position that most of the animal, other than those parts revealed in the double loop sequence is submerged throughout the video. Later correlation studies will determine lengths using the frame-to-frame formula:



The neck and head of the animal is measured 15 pixels in length from neck above waterline to head tip. Therefore: (10 pixels)(3.1ft/pix)=31ft. above surface.

Animal Body
Observable Length (including partially submerged) = 85 feet

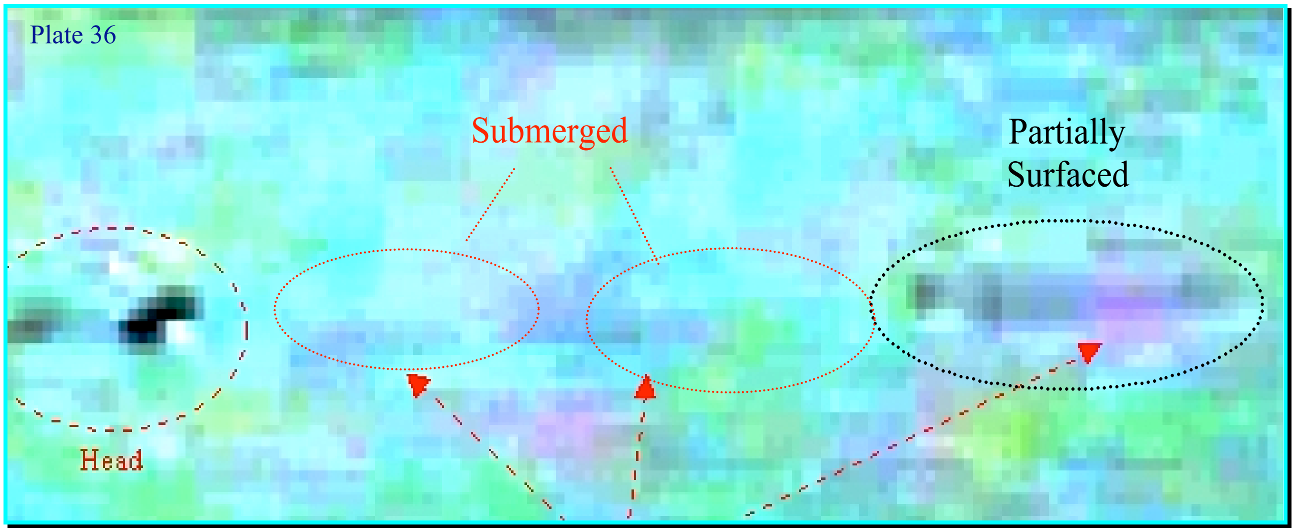
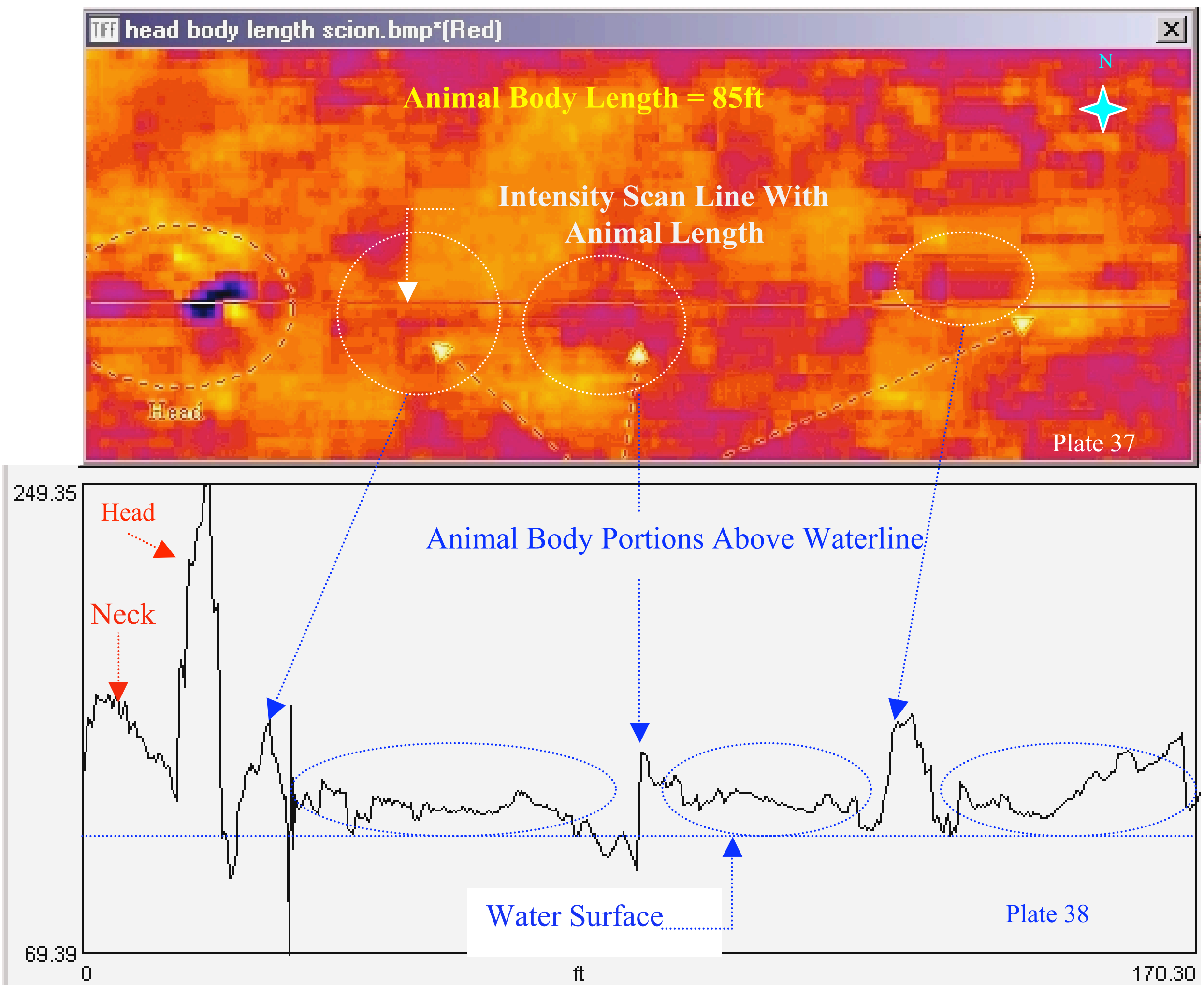


Plate 36
Submerged
Partially
Surfaced
Head


head body length scion.bmp*(Red)
N
Animal Body Length = 85ft
Intensity Scan Line With
Animal Length
Head
Plate 37
249.35
Head
Neck
Animal Body Portions Above Waterline
Water Surface
Plate 38
69.39
0
ft
170.30

V. Summary and Conclusion

BSM Associates determines that the video submitted by the Clark Brothers reveals an unidentified group of marine animals operating in the San Francisco Bay, 26 January 2004. The importance of the discovery in relationship to historical fauna of this planet has yet to be determined, but will probably have immense etiologic ramifications for the evolution model. Creation science models, certainly those incorporating Pre-Deluvian fauna and flora existing in a Post-Deluvian environment, will probably utilize the Clark discovery. When integrated into other explorations concerning, for example, marine and lake serpentine-type animals (including the genus plesiosaurus), the Clark Brothers video becomes pivotal. Although sea snake and Elasmosaur types seem to be the most tenable conclusion, the authors do not dismiss the possibility of yet unknown species for these animals. Total observable lengths of this animals are approximately 85 feet (26) meters. The next report will address mass and volume metrics and a closer examination of the first 100 frames (*animal group activity*) of the video.

The intrusion of research groups into the animals' otherwise relative benign habitat almost certainly will affect their behavior; and it is quite possible that no behavioral observations made to date have recorded anything more than *threat-responses* stimulated by the intrusion of human technologies (touring ships, etc.) Once animals are encountered, identification by simple observation is often impossible due to the events surrounding the observation limitations (distance and partial submergence, etc.) In the case of the Clark Brothers video, Bill and Bob Clark were not in the area on 26Jan04 for the purpose of setting a tripod or any other observation preparation. They were in the area for automotive repair near the bay when the January observation was made. In any case close observations of SF Bay specimens are certainly not well advised. Although the authors do not agree with the existence of sea monsters, we do recognize the existence of very large and potentially dangerous marine animals operating normally in what they may otherwise consider *their* winter, warm-water habitat.

VI. References

1. H.S Slusher; D.A. Wells, *Theory and Problems for Physics for Engineering and Science*, Schaum's Outline Series, McGraw-Hill Book Company, First Edition, (1983).

2. C.P. Paiva, "Maximum Detection Range of Low Intensity Target Edges As A Function of Precipitation Using Morphological and Segmentation Using Image Processing Techniques", Infrared *Imaging Systems: Design, Analysis, Modeling and Testing VI Proceedings*, Volume 2470, Society for Optical Engineering (OSA), (10 April 1995).

3. K.S. Shifrin, "Scattering of Light in a Turbid Medium", Tekhniko-Teoreticheskoy Literatury, Moscow-Leningrad, (1951).

4. A. Ishimaru, *Wave Propagation and Scattering in Random Media*, Volume One: Single Scattering and Transport Theory; Department of Electrical Engineering, University of Washington, Seattle, Washington, Academic Press, New York, London, (1978).

5. E.L. Bousefield, Cadoborsaurus; Amphipacifica; Volume I; Supplement I; 20 April 1995

6. New Media Republic; http://www.newmediarepublic.com/dvideo/compression/adv02.html

7. Barclay, John. "Remarks on some parts of the animal that was cast ashore on the island of Stronsa, September 1808," Memoirs of the Wernerian Natural History Society (Vol. 1 [1808-1810], 1811).

8. Bright, Michael. *There are Giants in the Sea* (London: Robson, 1989).

9. Dinsdale, Tim. The Leviathans, revised edition (London: Futura Publications, 1975).

10. Edwards, Frank. Stranger Than Science (New York: Ace Books, 1959).

11. Hanna, S.W. "Description of an Eel-like Creature Taken in a Net at New Harbor, Maine, in 1880," Bulletin of the United States Fish Commission (Vol. 3, 1883), pp. 407-410.
12. Heuvelmans, Bernard. In the Wake of the Sea-Serpents (London: Rupert Hart-Davis, 1968).

13. McEwan, Graham J. Sea Serpents, Sailors and Sceptics (London: Routledge, 1978).

14. Mackal, Roy P. "Biochemical Analyses of Preserved Octopus Giganteus Tissue," Cryptozoology (Vol. 5, 1986); pp. 55-62.

15. Seabury, Charles. "Capture of the Sea Serpent," Times [London] (10 March 1852).

16. Welfare, Simon and Fairley, John. Arthur C. Clarke's Mysterious World (London: Collins, 1980).

17 .MARINE SNAKES Sea Snakes and Sea Kraits (*Subfamily Hydrophiinae and Laticaudinae*); http://www.szgdocent.org/cc/c-sea.htm

18. The Plesiosaur Site; http://www.plesiosaur.com/taxonomy.1.htmm

19. OOPARTS & Ancient High Technology; http://www.s8int.com/noahsark9.html

20. F. Bohren, D.R. Hoffmann, *Absorption and Scattering of Light by Small Particles*, John Wiley and Sons, Inc., (1983).

21. P. Brosché, J. Sündermann, *Tidal Friction and the Earth's Rotation II*, Proceedings of a Workshop at Center for Interdisciplinary Research, (1983).

22. http://www.techimo.com/forum/t113232.html

23. http://www.dealtime.com/xPF-JVC_GR_SXM335