

# The Sickbay

When *Turtle Trax* began in 1995, fibropapilloma tumors were considered to be a major threat to the survival of green turtles, and to the honu in particular. This page was created to increase public awareness of this horrible disease, and to provide a resource for those interested in pursuing research into fibropapillomatosis, or FP for short.

Although FP continues to be a serious concern, severely debilitating and often killing turtles, recent studies have shown that it will **not** drive the honu to extinction. At Honokowai, our own observations have shown that an encouraging number of honu with FP recover from the tumors--provided that they are big enough when they contract the disease. In the smaller (younger) turtles, FP is both more severe and faster progressing. Still, the overall prospects for the honu are much brighter than we thought a few years ago.

When time permits, we will be posting a more thorough and complete summary of the current status of FP. Until then, please keep in mind that the information here could be outdated.

Here's a short list of papers that have been published recently concerning the effects of FP on the Hawaiian green turtle:

- Chaloupka MY, Balazs GH (2005) Modelling the effect of fibropapilloma disease on the somatic growth dynamics of Hawaiian green sea turtles. [Mar Biol Published Online](#) 20 July 2005.
- Balazs GH, Chaloupka MY (2004) Spatial and temporal variability in somatic growth of green sea turtles (*Chelonia mydas*) resident in the Hawaiian Archipelago. [Mar Biol 145: 1043-1059](#).
- Balazs GH, Chaloupka MY (2004) Thirty-year recovery trend in the once depleted Hawaiian green sea turtle stock. [Biological Conservation, 117:491-498](#).

Contact [George H. Balazs](#) for PDF copies of these articles.

This page is broken down as follows:

- [Essays and articles](#) that we have written, as well as worthy articles by other non-scientists.
- [Scientific papers](#) on fibropapilloma, reproduced with permission.
- [Pathology pages](#) that use our photos to illustrate the pathology of fibropapilloma.
- [External links](#) to other useful fibropapilloma resources.
- [A form](#) that you can use to report sea turtle sightings in Hawaii, including examples that allow you to report on their fibropapilloma status.

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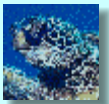
*The following pages contain essays that we have written about our thoughts about fibropapilloma and how it is affecting the turtles we see. We also include articles by other lay writers.*

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[The eyes have it: Manifestation of ocular tumors in an ohana of green turtles at Honokowai, West Maui, Hawaii](#)

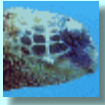
This is a paper presented at the 21st Annual Sea Turtle Symposium held February 24-28, 2001, in Philadelphia, PA. Using close-up photographic images, it describes the early stages of FP as manifested in the eye, and the scarring left when FP has regressed.



[Fibropapilloma tumors at Honokowai](#)

This essay is our 1995 assessment of what was happening at our dive site and how it might apply to other green turtle populations. **Some of the material in this essay has become outdated with progress in the**

research concerning fibropapilloma, and also with our own continuing education about the disease.



### [Fibropapilloma tumors--Green turtles in peril](#)

This is our original essay concerning the fibropapilloma threat. It describes the disease in terms aimed at the ordinary reader, and also includes a more scientific description, written by George Balazs for *NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-156, Research Plan for Marine Turtle Fibropapilloma, March 1991*. **Some of the material in this essay has become outdated with progress in the research concerning fibropapilloma, and also with our own continuing education about the disease.**



### [Why Howzit Is Dying](#)

This sad story is written for kids in grades 4 to 6, and adults of all ages.



### [Letter to 1997 Marine Turtle Fibropapilloma Workshop](#)

This is an open letter to the participants of the Marine Turtle Fibropapilloma Workshop conducted in Honolulu, Hawaii, from December 2-5, 1997.



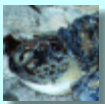
### [Epidemic Levels of Tumors Found in Green Turtles](#)

This article was written by Kelly Arbor, staff writer for *The Lahaina News*. It was published in the May 9-16 edition of the paper, and is reproduced here with permission.



### [On the Vulnerability of Female Sea Turtles](#)

This essay was prompted by a statistic reported in *The Lahaina News*. George Balazs has studied data from the examinations of 1100 stranded turtles, and says that 57% of the turtles found with tumors were female.



### [Fibropapilloma in Bonaire](#)

This page was created to document and track the progress of fibropapilloma in Bonaire, where FP was reported for the first time in 1999.

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*The following pages contain papers and resources intended to help anyone interested in learning more about marine turtle fibropapillomatosis.*

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### [Dermex trials on fibropapilloma tumors](#)

Robert A. Morris and George H. Balazs, Unpublished report, June 2002



### [Manifestation of fibropapillomatosis and rates of growth of green turtles at Kaneohe Bay in the Hawaiian Islands](#)

George H. Balazs, Shawn K. K. Murakawa, Denise Ellis, and A. Alonso Aguirre. In F. A. Abreu-Grobois,

R. Briseno-Duenas, R. Marquez-Millan, and L. Sarti-Martinez (comps.), Proceedings of the Eighteenth International Sea Turtle Symposium, March 3-7, 1998, Mazatlan, Sinaloa, Mexico, p. 112-113. U.S. Dep. Commer. NOAA Tech. Memo. NMFS-SEFSC-436.



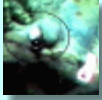
[Fibropapillomas in Marine Turtles: A Workshop at the 18th Annual Symposium on Biology and Conservation of Sea Turtles](#)

A. Alonso Aguirre. 1998. Marine Turtle Newsletter 82:10-12.



[Occurrence of oral fibropapillomas in the Hawaiian green turtle: differential disease expression](#)

George H. Balazs, A. Alonso Aguirre, and Shawn K. K. Murakawa. 1997. Marine Turtle Newsletter 76:1-2.



[Health advisory for fibropapilloma disease](#)

George Balazs and Elliot Jacobson. 1990. Marine Turtle Newsletter 49:27.



[Growth rates and residency of immature green turtles at Kiholo Bay, Hawaii](#)

George H. Balazs, Marc Rice, Shawn K. K. Murakawa, and George Watson. In F. A. Abreu-Grobois, R. Briseno-Duenas, R. Marquez-Millan, and L. Sarti-Martinez (comps.), Sixteenth Symposium Proceedings Addendum in the Proceedings of the Eighteenth International Sea Turtle Symposium, March 3-7, 1998, Mazatlan, Sinaloa, Mexico, p. 283-285. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-436.



[Causes of green turtle \(\*Chelonia mydas\*\) morbidity and mortality in Hawaii](#)

Thierry M. Work and George H. Balazs. In S. P. Epperly and J. Braun (comps.), Proceedings of the Seventeenth Annual Symposium in Sea Turtle Biology and Conservation, March 4-8, 1997, Orlando, Florida, p. 291-292. U.S. Dep. Commer. NOAA Tech. Memo. NMFS-SEFSC-415.



[Summary of FP papers from the 19th Annual Sea Turtle Symposium](#)

This is a brief summary of some of the fibropapilloma papers presented at the 19th Annual Sea Turtle Symposium, South Padre Island, Texas, in March, 1999.



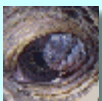
[Sickbay Bibliography](#)

This is a listing of articles and other resources that we hope will be useful to students and researchers interested in learning about marine turtle fibropapillomas.

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*These pathology pages were inspired by a request from Dr. Robert George, a veterinarian at the Virginia Institute of Marine Science (Sea Turtle Project).*

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[Pathology: Green Turtle Eyes](#)

This is the first in a series of pathology pages. The intent of these pages is to provide images that might be of use to researchers, lecturers, and students interested in marine turtle fibropapillomas.



### [Pathology: Green Turtle Eyes, Mouth, and Throat](#)

This page features images illustrating the typical advanced stages of fibropapilloma tumors as seen at Honokowai. These turtles have severe tumors growing over the eyes, from the mouth, and surrounding the neck.



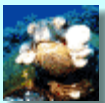
### [Pathology: Regression at Honokowai](#)

This page includes images documenting the apparent regression of fibropapilloma tumors in two turtles at Honokowai, Maui, Hawaii.



### [Pathology: A Sample of Tumors at Honokowai, 1996](#)

This page contains some samples of our photographs of Green Turtle Fibropapilloma Tumors taken during the summer of 1996.



### [Pathology: A Sample of Tumors at Honokowai, 1998](#)

This page contains some samples of our photographs of Green Turtle Fibropapilloma Tumors taken during the summer of 1998, including examples of both regression and deterioration.

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*The following are external links to other valuable resources helpful to those interested in learning more about marine turtle fibropapillomatosis.*

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### [Fibropapillomatosis of Marine Turtles](#)

This page is presented by the Department of Wildlife and Zoological Medicine at the University of Florida, world leaders in the research of marine turtle fibropapilloma tumors.



### [State of the Reefs](#)

NOAA/AOML has prepared an extensive report of the state of the world's coral reefs. This information is important to us because we believe that the health of the coral reef system and the outbreak of green turtle fibropapilloma tumors are both reflections of the effects of human activity on land.



### [Release and recapture of captive-reared green sea turtles, \*Chelonia mydas\*, in the waters surrounding the Cayman Islands](#)

F. Wood and J. Wood. Herpetological Journal, Vol. 3, pp. 84-89 (1993). This paper reports that 66% of the turtles recaptured by this program were infected with fibropapilloma tumors.

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*The reporting form included here provides a way for you to help determine the status of the fibropapilloma disease in Hawaii. [Acrobat Reader](#) is required.*



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[Table of Contents](#)

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Send comments or corrections to [webmaster@turtles.org](mailto:webmaster@turtles.org)