

Resources
For COSEE-West Bioluminescence Workshop
April 26, 2008

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Bioluminescence Websites

I. Online articles (PDF files):

Deep Sea Bioluminescence (2 page article, PDF format)
Monterey Bay Aquarium Research Institute (MBARI) -
<http://www.mbari.org/itd/retrospective/bioluminescence.pdf>

“Marine Bioluminescence: Why do so many animals in the open ocean emit light?” by Dr. Edith Widder (PDF format, 9 pages with color photographs)
‘BioScience Explained’: *link to article & related video clips*:
<http://www.bioscience-explained.org/EN1.1/features.html>

II. Video clip

Amazing Adaptations

<http://www.ted.com/index.php/talks/view/id/206>

a downloadable video clip that includes a mesmerizing gallery of bioluminescent fish that light up the blackest depths of the ocean, featuring the work of Edith Widder at the Ocean Research & Conservation Association

III. Radio Script

Glow in the Deep: Flashing fish & other glow-in-the-dark creatures are common in the deep sea. -

Earthwatch Radio (audio and printed script)

<http://www.ewradio.org/program.aspx?ProgramID=3755>

IV. Music

Bioluminescence Sing-Along Song to the tune of “I’ve been working on the railroad” (audio and text, with animation) - American Natural History Museum

http://www.amnh.org/ology/marinebiology#features/theyglow?TB_iframe=true&height=500&width=750

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IV. Websites with assorted content, audio visual presentations, links

Introduction to Bioluminescence

The Latz Research Laboratory at Scripps Institution of Oceanography

http://siobiolum.ucsd.edu/biolum_intro.html

links to other sources of information

At-Sea Expeditions – Viewing the Mesopelagic* Fireworks (*200 to 1000 meters deep)

<http://www.at-sea.org/missions/migration/070899/dispatch.html>

@Sea Operation Deep Scope III

<http://at-sea.org/missions/deepscope3/>

2007 research expedition, using Dr. Edith Widder's "Eye-in-the-Sea" and other instruments to explore deep sea habitats in the Caribbean - science content and daily logs

Operation Deep Scope IV

<http://oceanexplorer.noaa.gov/explorations/04deepscope/>

2004 research expedition, using Dr. Edith Widder's "Eye-in-the-Sea" and other instruments to explore deep sea habitats in the Gulf of Mexico - science content, photos, lesson plans, daily cruise logs

Operation Deep Scope V

<http://oceanexplorer.noaa.gov/explorations/05deepscope/>

2005 research expedition, using Dr. Edith Widder's "Eye-in-the-Sea" and other instruments again to explore deep sea habitats in the Gulf of Mexico - science content, photos, lesson plans, daily cruise logs

Deep Sea Bioluminescence

SEA and SKY

<http://www.seasky.org/deep-sea/biolumiscence.html>

Phytoplankton Bioluminescence

<http://www.bigelow.org/foodweb/microbe4.html>

content information and activities using dried luminescent ostracods, Glow dough" or other glow-in-the-dark material, Glow stick (optional), fluorescent minerals and "black" light (optional)

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**Online resources listed in NOAA Ocean Explorer's activities,
"Cool Lights," "Where is that Light Coming From?" & "Who has the Light?"**

The Bioluminescence Web Page

<http://www.lifesci.ucsb.edu/~biolum/>

The Bridge Connection

www.vims.edu/bridge/

Click on "Biology" in the navigation menu to the left, then "Plankton," then "Phytoplankton" for resources on ocean food webs.

Click on "Habitats," then "Deep Sea" for resources on deep sea communities.

Harbor Branch Oceanographic Institution web site on bioluminescence

<http://www.biolum.org/>

How to detect and record bioluminescence of small animals photographically

http://www.geocities.com/bioluminus/how2detect_bioluminescence.html

How Stuff Works - Information about the chemistry of lightsticks

<http://science.howstuffworks.com/light-stick.htm>

(NOTE: replaces URL <http://www.sas.upenn.edu/~mtc/Lightstick.html>, which is gone)

Ocean Explorer photograph gallery - corals

http://oceanexplorer.noaa.gov/gallery/livingocean/livingocean_coral.html

Project Oceanica - a variety of resources on ocean exploration topics

<http://oceanica.cofc.edu/activities.htm>

Places to look for materials to teach these NOAA lessons:

Blacklight Items - offering science education supplies, including ultraviolet lamps

http://www.24hours7days.com/Science/Blacklight_Items.html

Flinn Scientific, Inc. - materials for demonstrating chemiluminescence

<http://www.flinnsci.com>

GlowSpace Inc., offering various products for demonstrating chemiluminescence

<http://www.glowspace.com/>

NightSea - offering products for studying fluorescence underwater

<http://www.nightsea.com/>

Web sites listed but no longer active

<http://www.sas.upenn.edu/~mtc/Lightstick.html>

<http://ice.chem.wisc.edu/materials/light/lightandcolor7.html>