Southwest Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
La Jolla, California

SECTION 515 PRE-DISSEMINATION REVIEW & DOCUMENTATION FORM (5/2003)

AUTHOR/RESPONSIBLE OFFICE:
D.G. Foley (Coastwatch Coordinator) and LTjg. L. J. Spence* (Coastwatch Operations Officer)

* = point of contact.

TITLE/DESCRIPTION: NOAA Coastwatch Sea-viewing Wide Field-of-view Sensor (SeaWiFS) High Resolution Picture Transmission (HRPT) Ocean Color Data

PRESENTATION/RELEASE DATE: April 2003 - ongoing

MEDIUM: Internet

PRE-DISSEMINATION REVIEW:
Name and Title of Reviewing Official:____Dr. Frank Schwing_____.
(Must be at least one level above person generating the information product)

Pursuant to Section 515 of Public Law 106-554 (the Data Quality Act), this product has undergone a pre-dissemination review.

_____ _____
Signature Date

SECTION 515 INFORMATION QUALITY DOCUMENTATION

I. Utility of Information Product

Explain how the information product meets the standards for utility:

A. Is the information helpful, beneficial or serviceable to the intended user?

The satellite-derived products generated by the NOAA Coastwatch, West Coast Regional Node (WCRN), offer useful information to data customers in easily accessible formats. The products are utilized by a wide range of users, including member of the scientific community, managers, fishers, educators, and the interested public.

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The Sea-viewing Wide Field-of-view Sensor (SeaWiFS) is an eight channel ocean color sensor. SeaWiFS-generated ocean color can be used to measure chlorophyll concentration which, in turn, can be used to infer phytoplankton concentration and primary productivity levels.

Due to the restrictions on distribution, this data set has been used primarily in support of fisheries stock assessments and surveys. A recent example includes a groundfish survey conducted in the Southern California Bight by researchers from the NOAA Fisheries Northwest Fisheries Science Center (Elizabeth Clarke, Chief Scientist). The data is also incorporated in the monthly El Nino Watch report, which is used by fisheries biologists of the Stillaquamish tribe in Washington State to assist in the management of Chinook salmon.

B. Is the data or information product an improvement over previously available information? Is it more current or detailed? Is it more useful or accessible to the public? Has it been improved based on comments from or interactions with customers?

SeaWiFS ocean color data is made available on the SWFSC-Environmental Research Division's website, OceanWatch Live Access Server (http://las.pfeg.noaa.gov/oceanwatch.html). The images can be viewed by any computer with internet access using common internet browsers.

SeaWiFS ocean color data is purchased under NOAA contract from OrbImage Inc.. This contract imposes restrictions on the distribution of SeaWiFS data. Distribution of data files is restricted to US civilian government operational applications. Permissible data applications include stock assessment and harmful algal bloom monitoring. SeaWiFS pictures, however, may be viewed without restriction.

All venues for accessing CoastWatch data and images include information required to contact CoastWatch personnel. Improvements are continuously being implemented based on feedback from customers, with a focus on increasing usability and accessibility.

C. What media are used in the dissemination of the information? Printed publications? CD-ROM? Internet? Is the product made available in a standard data format? Does it use consistent attribute naming and unit conventions to ensure that the information is accessible to a broad range of users with a variety of operating systems and data needs?

This is an internet product; pictures are distributed via simple browser and Live Access Server. Data is distributed to qualifying investigators via a password-protected ftp site.

Public distribution of the data is confined to image formats (e.g., GIF). Authorized users may acquire the data in additional formats commonly used by imaging (HDF, netCDF), spreadsheet (CSV, column ascii), and GIS (GeoTIFF) programs.

All attributes are named in compliance with NESDIS standards. All units follow System Internationale (SI) and United Nations Educational, Scientific and Cultural Organization (UNESCO) guidelines.

II. Integrity of Information Product

Explain (Circle) how the information product meets the standards for integrity:

A. All electronic information disseminated by NOAA adheres to the standards set out in Appendix III, _ Security of Automated Information Resources, _ OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

B. If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

C. Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100 - Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

III. Objectivity of Information Product

(1) Indicate which of the following categories of information products apply for this product:

Original Data
• Synthesized Products
Interpreted Products
Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories
□ Experimental Products
Natural Resource Plans
Corporate and General Information

(2) Describe how this information product meets the applicable objectivity standards.
(See the DQA Documentation and Pre-Dissemination Review Guidelines for assistance and attach the appropriate completed documentation to this form.)

SECTION 515 INFORMATION QUALITY DOCUMENTATION

B. <u>Synthesized Products</u>
The objectivity of synthesized products is achieved by using data of known quality, applying sound analytical techniques, and reviewing the products or processes used to

create them before dissemination. For synthesized products, please document the following:

Data and information sources are identified or made available upon request.

The data source is identified as the NOAA Coastwatch program. General information regarding SeaWiFS ocean color products can be viewed at http://coastwatch.noaa.gov/seawifs_ocolor_overview.html.

More detailed information regarding the NASA SeaWiFS project, including information on the SeaWiFS sensor and Orbview-2 spacecraft, can be viewed at the NASA SeaWiFS project information page, http://seawifs.gsfc.nasa.gov/SEAWIFS/BACKGROUND/.

NOAA uses data of known quality or from sources acceptable to the relevant scientific and technical communities in order to ensure that synthesized products are valid, credible and useful.

The source data are derived using methods acceptable to the relevant scientific and technical communities. Chlorophyll concentration is calculated from the normalized water-leaving radiances using the NASA/GSFC SeaWiFS Project OC4v4 algorithm (e.g., *O'Reilly et al., 1998; O'Reilly et al., 2000*). NASA has also developed the SeaWiFS Data Analysis System (SeaDAS) software for the viewing, analysis, and processing of SeaWiFS and other ocean color data (*Fu et al., 1998).*

Validation of SeaWiFS data is accomplished by the comparison of remotely sensed chlorophyll with chlorophyll concentrations gathered *in-situ* from oceanographic research ships and buoys. Details on NOAA's ocean color validation efforts, including methods of analysis and linear regression equations for the west coast region, can be found at http://coastwatch.noaa.gov/validation/index.html.

NASA's calibration and validation efforts are carried out in a similar manner (*Hooker and McClain, 2000).* NASA maintains details of their SeaWiFS calibration and validation efforts, including extensive documentation, at http://seawifs.gsfc.nasa.gov/SEAWIFS/CALVAL/.

Synthesized products are created using methods that are either published in standard methods manuals, documented in accessible formats by the dissemination office, or generally accepted by the relevant scientific and technical communities.

The methods employed in the mapping and composite image generation are consistent with techniques in the published literature. The data are mapped to an equal angle grid (0.0125 degrees by 0.0125 degrees) using a simple arithmetic mean to produce individual and composite images of various durations (e.g., 1, 3, 8, and 14-days), following the recommendations of the International Ocean-Colour Coordinating Group (*Antoine et al., 2004*) and using methods described by *Smith and Wessel, 1990*. Graphical end products are generated using the Generic Mapping Tools software (*Wessel and Smith, 1998*).

NOAA includes the methods by which synthesized products are created when they are disseminated or makes them available upon request.

A basic description of all methods is included in the accompanying FGDC-compliant metadata files. A more detailed description of these methods is available on-line, with links originating at the WCRN web page. A complete description of the methods, including the program code used to generate the end products from the data supplied by NOAA Satellites and Information, is available upon request.

NOAA reviews synthesized products or the procedures used to create them (e.g. statistical procedures, models, or other analysis tools) to ensure their validity.

NOAA continues to validate SeaWiFS data. The Marine Optical Characterization Experiment (MOCE), in conjunction with the Marine Optical Buoy (MOBY) project, continues to support SeaWiFS data products through the deployment of buoy-mounted light sensors. (see http://www.orbit.nesdis.noaa.gov/sod/orad/mot/moce/)

These products are generated and distributed on an operational basis in near real time. In addition to the efforts WCRN takes to ensure data validity, users are cautioned these products may not be appropriate for many scientific applications. Users interested in scientific applications which are not time critical are referred to an appropriate data source, whenever one is available.

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