

**SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT (SCCWRP)
REQUEST FOR PROPOSAL**

***UPPER NEWPORT BAY INTERTIDAL MACROALGAL DISTRIBUTION
AERIAL SURVEY***

I. INSTRUCTIONS TO BIDDERS

Three copies Bidder's complete Proposal to provide the services detailed are to be enclosed in a sealed envelope marked "Macroalgal Aerial Survey" and addressed to:

Bryan Nece
Administrative Officer
7171 Fenwick Lane
Westminster, CA 92683-5218

All supplemental materials requested within this Proposal must be attached to the Proposal. Any unauthorized conditions, limitations, or provisions attached to this Proposal may be cause for rejection.

If a Bidder wishes to withdraw its Proposal, the Bidder may do so without prejudice by delivering a written notice of withdrawal to the Administrative Officer at any time before the time fixed for the opening of bids.

Sealed bids will be received at SCCWRP's Office – 7171 Fenwick Lane, Westminster, CA 92683-5216 up to 11:00 am (PST) on **May 16, 2005**, at which time the Administrative Officer will open the bids. Bids received by facsimile or E-mail will not be accepted.

All Bidders should inform SCCWRP in writing of their intention to submit a bid by April 28, 2005 via email (bryann@sccwrp.org), FAX (714.894.9699) or letter mail. Although this notification is not mandatory, it is necessary to ensure receipt of future updates to the bid notification. SCCWRP will hold a non-mandatory bidders meeting at 10:00 a.m. on May 4, 2005 at SCCWRP's office in Westminster. This meeting is intended to provide Bidders the opportunity to ask questions and request clarifications about this document. SCCWRP's responses to will be sent to the Bidders by E-mail and posted on the SCCWRP web site (www.sccwrp.org).

This solicitation for proposals shall not be construed as obligating SCCWRP to award a contract or pay any compensation for the information solicited.

II. BACKGROUND AND GOALS OF STUDY

The Southern California Coastal Water Research Project (SCCWRP) is engaging in a study of Upper Newport Bay (UNB) in order to characterize its dissolved oxygen and macroalgal regimes. This will include color infrared (CIR) photography of UNB on three (3) separate occasions. The goal is to obtain images from which SCCWRP can produce digital orthophotos and subsequently determine 1) the area of exposed intertidal mudflat and 2) the percentage of that area covered by macroalgae. Target dates for image acquisition are in May, June and September 2005 with alternate dates in July and October 2005.

Newport Bay is the second largest estuarine embayment in southern California and provides critical natural habitat for terrestrial and aquatic species. The Lower Bay provides significant recreational opportunities to the southern California community and is one of the largest pleasure craft harbors in the United States. Upper Newport Bay (UNB) is a state ecological reserve and serves as refuge, foraging areas, and breeding grounds for a number of threatened and endangered species.

The Newport Bay watershed is rapidly converting from orchards and row crop farms to an urban environment. Subsequently, high nutrient loads from the surrounding watershed have resulted in excessive growth of macroalgae (*Enteromorpha* and *Ulva* spp.) and impairment of the Bay's designated beneficial uses, primarily through a reduction in dissolved oxygen (DO). As a result, a Total Maximum Daily Load (TMDL) for nitrogen and phosphorus was adopted for the Bay in 1998.

The State Water Resources Control Board recently allocated funding for a Newport Bay Nutrient TMDL Dissolved Oxygen and Algae Distribution Study, which will characterize the DO and macroalgae regimes of UNB by completing two special investigations. First, the spatial and temporal extent of hypoxia/anoxia in UNB will be determined via paired surface and bottom multi-parameter sondes that continuously record DO, pH, temperature, and salinity at 3 locations along the main channel. Second, the distribution and quantity of exposed, intertidal macroalgae will be determined 3 times between May and October 2005 via aerial photography; these data will be used to evaluate the relationship between macroalgal blooms and hypoxia.

Partners in the study are the County of Orange Resources and Development Management Department (RDMD), Irvine Ranch Water District (IRWD), SCCWRP, and Moss Landing Marine Laboratories (MLML). SCCWRP, in conjunction with MLML, is responsible for determining the distribution and quantity of intertidal macroalgae via aerial photography at least 3 times between May and October 2005. This work is being conducted by SCCWRP under subcontract to the County of Orange, who is in turn supported by a grant from the California State Water Resources Control Board. This work is the subject of this RFP.

III. CONTRACTOR SCOPE OF WORK

SCCWRP is requesting proposals from potential bidders to collect three (3) sets of vertical, false-color near-infrared (color infrared, CIR) aerial images of UNB between May and October 2005. The goal is to obtain images from which SCCWRP can produce digital orthophotos and

subsequently determine 1) the area of exposed intertidal mudflat and 2) the percentage of that area covered by macroalgae. Film or digital photography techniques are acceptable. The area covered will include Upper Newport Bay from the mouth of San Diego Creek to the seaward end of Shellmaker Island as illustrated in Figure 1.

Requirements

Images should be collected during optimal light conditions to maximize discrimination of the intertidal macroalgae from the mudflat while avoiding solar spots that interfere with photo-interpretation. To maximize the exposed intertidal mudflat area, images should be collected at the lowest possible tides within optimal light conditions. Image photo-scale and quality will be such that when digitized, a ground sample distance (GSD) of 25 cm can be achieved. The following criteria shall be met:

1. Targeted time periods and dates
 - a. Target dates for optimum photographic coverage of the intertidal flats are shown in Figure 2.
 - b. Primary target dates are May 26-29, June 24-28, and September 17-20, 2005.
 - c. Alternate target dates are July 24-26 and October 3-6, 2005.
2. Nominal Photographic Scale
 - a. 1:6000 for flight lines with variation in scale of not more than five (5) percent.
 - b. Flight lines and photocenters shall be numbered in a consistent fashion corresponding to a flight map.
3. Frontlap (overlap): average 60% \pm 2%
4. Sidelap: approximately 40%
5. Weather Conditions
 - a. Images shall be collected when skies are free from smoke and excessive haze or smog, and clouds are above flight altitude without casting shadows that obscure sections of UNB. High overcast skies are acceptable. The ground shall be free from fog.
6. Aircraft
 - a. The Contractor shall be responsible for operating and maintaining the aircraft used in the performance of work under this contract in accordance with the regulation of the Federal Aviation Administration and Civil Aeronautics Board. The contractor is also responsible for filing all required flight plans and obtaining all necessary approvals to conduct this work.
 - b. The design of the aircraft shall be such that when the camera is mounted with all its parts within the outer structure, an unobstructed vertical field of view is obtained. The field of view shall be shielded from exhaust gases, oil, effluence and air turbulence. No window of glass or other material shall be interposed between the camera and the ground to be photographed unless said window is of optical quality, free of scratches and blemishes, and will in no way degrade the resolution or accuracy of the camera.
 - c. The aircraft shall have a proven service ceiling with operating load (crew, camera, film, oxygen and other required equipment) of not less than the highest altitude required to secure the specified photography. At the flight altitudes required, the aircraft shall have flight characteristics such as to provide a stable platform for the

operation of the camera that will not degrade the orientation or the resolution of the photographic image.

7. Flight Plan

- a. Horizontal deviation: compass bearing of each flight line should be within five (5) degrees of the charted flight line in each direction.
- b. Tilt shall not exceed 4 degrees for each exposure. Tilt shall not exceed five (5) degrees between any two successive photos. Tilt shall not average more than two (2) degrees for the entire project.

8. Aerial Camera

- a. Forward image-motion compensating and GPS-triggered camera.
- b. Nominal lens focal length: Six (6) inches (153 mm).
- c. Filter(s): Kodak Wratten filter #12, or equivalent as specified in proposal by the Contractor.
- d. Four (or more) fiducial marks shall be visible on each frame of the film.
- e. Area-weighted average resolution rating of approximately 90 line pairs per millimeter or higher.

9. Aerial Film

- a. Film characteristics
 - i. 23 cm x 23 cm (9 inch x 9 inch) format.
 - ii. Kodak Aerochrome III Infrared 1443 film or equivalent¹ as specified in proposal by the Contractor.
 - iii. Color infrared film shall be sensitive to the visible and near infrared spectrum from 400-900 nanometers.
- b. Film storage: color infrared film shall be kept refrigerated in a waterproof container until one day before being exposed and returned to cold storage after exposure until processed. All rolls of film shall be contained in Contractor-furnished sturdy, plastic cylinders.
- c. Film processing for diapositives
 - i. Film processing method shall be specified by Contractor; method will be compatible with selected film.
 - ii. Film shall be processed in a continuous roller transport processor to achieve consistent and uniform development throughout roll.
 - iii. Film shall be processed within 48 hours of exposure to avoid undesirable changes in the latent image.
- d. Physical quality
 - i. All aerial film shall be free from chemicals, stains, tears, scratches, abrasions, watermarks, fingermarks, lint, dirt, and other physical defects. The imagery shall be clear and sharp in detail and uniform in density. It shall be free from light streaks, static marks, and other defects that would interfere with the intended purpose.
 - ii. All film shall be thoroughly fixed and washed to ensure freedom from chemicals and shall be of archival quality.
 - iii. Film found to contain an excess of residual chemicals, by testing in accordance with manufacturer's procedures, may be rejected or returned to the Contractor for refixing and rewashing.

¹ Equivalent must be specified in response and acceptable to SCCWRP.

- iv. Film shall remain suitable for making transparencies or contact prints either at this time or in the future.
 - e. Composition of film roll: a roll of aerial film shall consist only of exposures made with the same camera system. All film on any roll shall have the same roll number.
 - f. Film labeling: placed on each exposure shall be the flight date, time, nominal scale, "SCCWRP", flight line number and exposure number corresponding to the flight map.
- 10. Diapositives
 - a. For each of the three surveys, within ten working days of photography, three test diapositives of an image of an area to be specified by SCCWRP from the CIR exposures will be provided to SCCWRP. Within ten working days of receipt of a set of three test diapositives, SCCWRP will indicate which test diapositive is to be used as the guide to produce a full set of diapositives for that survey.
- 11. Photographic Diapositive or Negative Digitization
 - a. The contractor shall digitize each CIR diapositive photographic transparency OR each negative. Scanning shall be accomplished with a high resolution photogrammetric color scanner at a scanning resolution not less than 32 microns or 800 dpi in 24 bit color. Please specify the make, model, and calibration settings of the scanner used in your response.
 - b. Scanning shall be conducted in a consistent manner that will ensure the highest fidelity to the colors present in the photographic diapositive transparencies or the negatives. A pilot area shall be scanned and approved for color balance by SCCWRP before scanning all images. The film must first be cleaned of surface dust. Scans must include all fiducial marks complete to the edge of the image. The output format shall be uncompressed Tiff image format. The delivery media shall be DVD.
- 12. Flight Log
 - a. A copy of the pilot's flight log shall be provided upon delivery of the diapositives and digital scans of the film from the aerial photography surveys.

The photography must be accomplished during time frames that optimize available light conditions while maximizing intertidal exposure. The contractor must have the ability and commitment to utilize the flight windows necessary to obtain all the photographs under the conditions specified in the contract. Substantial deviation from the above requirements may result in SCCWRP requesting the contractor to re-fly the survey at the contractor's expense. Any reflight photography requested by SCCWRP must be accomplished by October 31, 2005.

Minimum Qualification Requirements

Bidders should have the capability to conduct both the aerial surveys and process the film and deliver the specified products. The contractor shall meet the following minimum qualification requirements:

1. Coastal/estuarine aerial photography experience
2. Experience with color infrared film photography, processing and printing
3. GPS capability on the aircraft, with forward motion compensating GPS-triggered camera
4. Flexibility of flight schedule to conduct flights during specified times and conditions which may be during non-business hours (Figure 3)
5. Aerial camera calibration: tested and calibrated precision aerial cameras for taking aerial photographs are required. One copy of the Report of Calibration from the USGS, for any camera (including lenses) to be used, is required to be submitted with the proposal. A camera report shall not be acceptable if more than three years old at the time of the scheduled date for receipt of offers. The three year period may be waived if written evidence is furnished of a firm scheduled date the camera is to be tested at the USGS Optical Science Laboratory. The fee for such tests is the responsibility of the Contractor.

Deliverables

Contractor deliverables will include:

1. Detailed workplan
2. Quarterly written updates of the progress of the study to the SCCWRP
3. Diapositive transparencies and electronic images of the digitally scanned diapositives or negatives (dpi~800) if film photography is used or the electronic images if digital imaging is used
4. Camera report
5. User parameter files for each flight
6. Flight log for each flight

Schedule for deliverables:

1. All aerial photography, including reflights, shall be completed by October 31, 2005.
2. A set of three test diapositives for a given image (to be specified by SCCWRP) from each flight shall be submitted to SCCWRP within ten working days of completion of that flight. Upon receipt of SCCWRP's choice of the model diapositive for a flight, the diapositives for the remaining images from that flight shall be delivered to SCCWRP within 20 working days.

IV. SPECIAL REQUIREMENTS AND INSTRUCTIONS

The contractor will be required to comply with the following special requirements and instructions during the performance of services rendered under this project.

General

The Contractor is required to comply with all the terms and conditions, certifications, assurances, provisions, laws, and regulations of Orange County RDMD and the State Water Resources Control Board Contracts.

Insurance

The Contractor shall, at their sole expense, maintain in effect the following insurance coverage and include SCCWRP as an additional insured on their policy:

Workers' Compensation insurance shall be held and maintained by the Bidders as required by applicable laws of the State of California with a minimum amount and limit of One Million Dollars (\$1,000,000) for each accident.

General Liability insurance shall be held and maintained by the Bidders covering all operations by or on behalf of the Bidders providing insurance for bodily injury liability and property damage liability. The combined single limits of liability for bodily injury or property damage shall be One Million Dollars (\$1,000,000) for each occurrence, and One Million Dollars (\$1,000,000) aggregate.

Automobile Liability (Bodily Injury and Property Damage Liability) insurance shall be held by the Bidders, including coverage for all owned, hired, and non-owned automobiles. The combined single limit of liability shall be Two Hundred Fifty Thousand Dollars (\$250,000) for any one accident or loss.

Determination of Satisfactory Progress

Satisfactory progress will be determined through quarterly reports. These reports may be in written form, or at the request of SCCWRP, in the form of a presentation.

Billing and Retention

The Contractor shall provide invoices for work completed on a monthly basis. SCCWRP shall have the right to retain from the Contractor's earnings for each period for which payment is made an amount equal to ten percent (10%) of such earnings, pending satisfactory completion of the agreement.

Ownership

All interim, draft, and final documents, studies, graphics, maps, photographs, computer models, data sets, and reports prepared by the Contractor will be developed using public funds and are intended for public use. Public documents/products lose their status as privileged and proprietary and may not be used for proprietary development or profit.

Length of Contract

The term under this contract will be approximately 8 months. Final billing shall be submitted on or before December 31, 2005.

V. PROPOSAL SUBMISSION

Length and Content of Proposal

Proposals are limited to 10 single spaced pages (Times New Roman, 12-point font), exclusive of figures, resumes and budgets. Bidders must submit three copies of the entire proposal package. Content should address the following:

1. Technical approach for the scope of work, including how the proposed approach meets the goals described in “Contractor Scope of Work.” Bidders should specifically provide a flight map with flightlines, number of photos, photocenters and overlap.
2. Equipment specifications, including whether film processing and scanning will be done in-house by the Contractor or through cooperation with an outside photo laboratory.
 - a. Camera model and specifications
 - b. Filters to be used
 - c. Film type and processing method
 - d. Photogrammetric scanner specifications.
3. Please include a discussion of qualifications and experience of the personnel that will be working on the proposed project. Please provide resumes of key personnel. Minimum qualifications include experience with aerial photography, particularly in estuarine/coastal areas, experience with CIR photography, required equipment, ability to fly during targeted flight windows, and ability to process film.
4. Schedule: include capability to work on holidays and weekends and any cost differential associated with this.

Additional Information to Accompany Proposal Form

Budget

Bidders should submit a detailed cost proposal for activities related the scope of work. These costs will be considered firm fixed fee proposals. The proposed budget should be included as a separate page(s) from the technical proposal. Please specify additional costs associated with the need to work on weekends and/or holidays.

Qualifications and Team Organization

Include resumes for principal personnel who will participate in the project.

VI. BID EVALUATION PROCESS AND CRITERIA

Following the opening of bids, a review panel will evaluate the bids using the following criteria and scoring system. A maximum score of 100 points is possible.

1. Study approach. Each study approach will be rated based on the likelihood that it will meet the requirements of the study described in **Contractor Scope of Work**. (25 pts.)
2. Qualifications and experience. Proposals will be rated based upon each bidder's qualifications and experience. (35 pts)
3. Cost. Each bidder will be rated on its proposed cost of the study approach. (35 pts)
4. Schedule. Each bidder will be rated on how realistic the proposed schedule is for the completion of the study. (5 pts)



Figure 1. Study area of Upper Newport Bay.

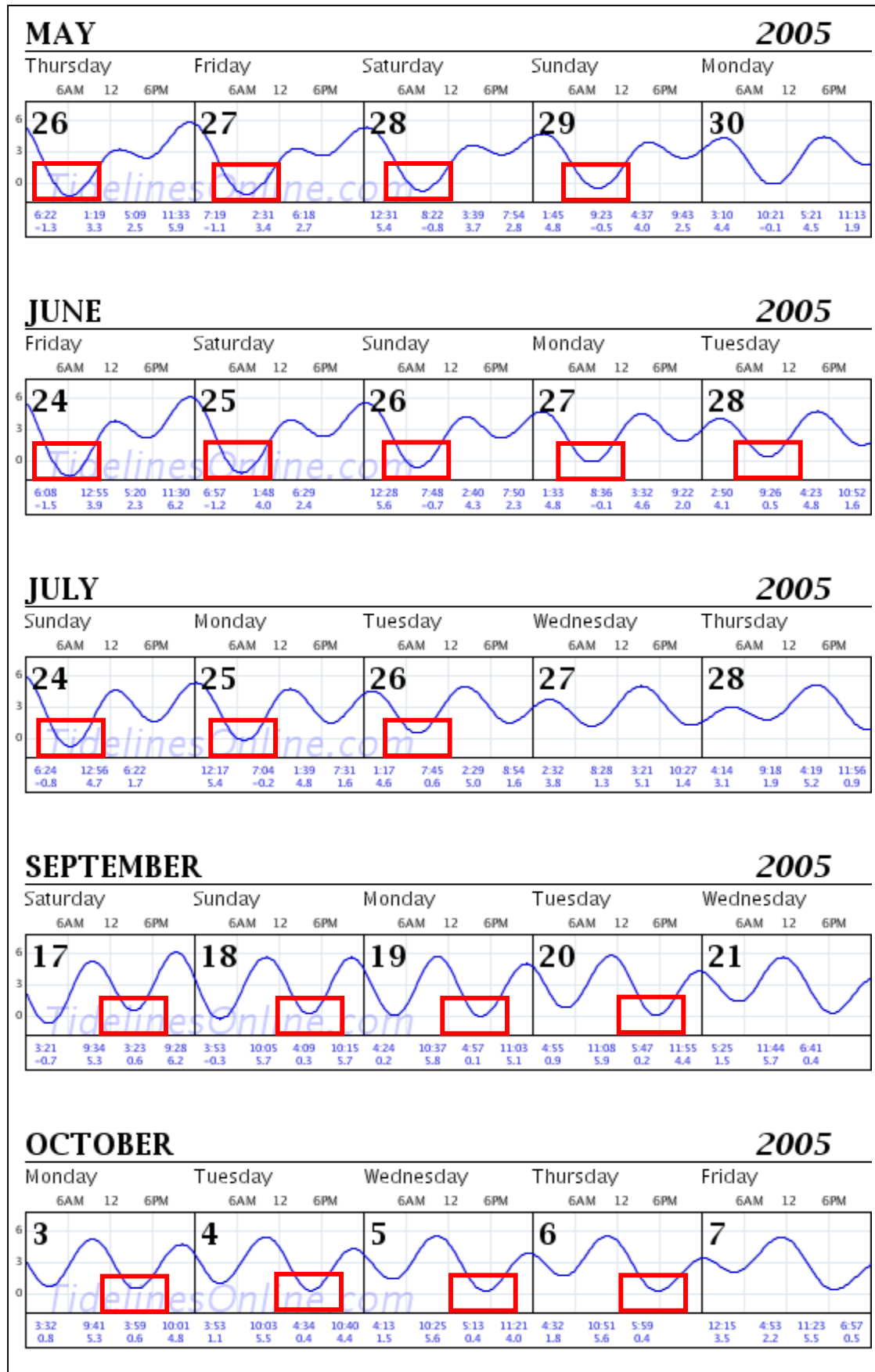


Figure 2. Targeted time periods and dates. May, June and September dates are primary targets; July dates are alternates for May or June, October dates are alternates for September.