EVOS ANNUAL PROJECT REPORT

All recipients of funds from the *Exxon Valdez* Oil Spill Trustee Council must submit an annual project report in the following format by September 1 of each fiscal year for which project funding is received, with the exception of the final funding year in which a final report must be submitted. Satisfactory review of the annual report is necessary for continuation of multi-year projects. Failure to submit an annual report by September 1 of each year, or unsatisfactory review of an annual report, will result in withholding of additional project funds and may result in cancellation of the project or denial of funding for future projects.

PLEASE NOTE: Significant changes in a project's objectives, methods, schedule, or budget require submittal of a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval.

Project Number: 060210

Project Title: Youth Area Watch

PI Name: Bob Crumley

Time Period Covered by Report: September 1, 2005 to August 30, 2006

Date of Report: August 30, 2006

1. **Work Performed:**

September 05

Recruitment for YAW students was conducted at the beginning of the school year in: Cordova, Whittier, Tatitlek, Chenega Bay. Students in Valdez completed their application process in May 05. Several of the Valdez students are past YAW participants and they continue to seek this opportunity, preferring the "real-life" opportunities that this program offers them. (See May 05 evaluations). This year's program involved 5 students from Valdez, 6 from Cordova, 2 from Whittier, 2 from Tatitlek, 2 from Chenega Bay and 3 from Chugach Extension School (home-school) for a total of 20 students. YAW Orientation was held for 23 participants (20 students + 3 adults) at Prince William Sound Science Center in Cordova, Alaska from September 16-19. Transportation to and from Cordova was by Alaska Marine Highway ferry (from Valdez and Whittier) and a charter flight by Alaska Air Transit (from Anchorage, Tatitlek and Chenega Bay). Lodging on selected classroom floors was provided by Cordova High School; meals were taken at the Orca Adventure Lodge. Training presentations given by scientists Mary Anne Bishop of the Copper River Delta Project, Brad Reynolds and Kate Alexander of PWSSC, Lauren Padawer of ADFG and Becky Clausen of Copper River Watershed Project were conducted at PWSSC and various nearby field locations. The purpose of the Orientation was to familiarize students with long-term monitoring techniques used to assist scientists in collecting data. Activities included mud core sampling, beach seining for large invertebrates and small fish, fyke net sampling, surveying human use of salmon habitat, water quality sampling and aging scale samples from various salmonid populations. See photos at: http://www.chugachschools.com/youth_area_watch/05_yaw_orientation_photos/index.html

October 05

Once trained, students returned to their school sites with guidelines for developing their own long-term monitoring project (conducted with community input throughout the school year).

Tatitlek students began monitoring water quality in a nearby stream and posting data on the World Water Monitoring website

CSD (Chugach School District) Extension students also began monitoring water quality in nearby streams and sending data to Copper River Watershed Project; (Tatitlek would have joined this group, however it contained no drainages into the Copper River Watershed)

Valdez students continue their long-term resource inventory of Mineral Creek State Park started in 2004

Chenega Bay students work with their local EPA scientist monitoring PSP shellfish for a testing kit certification project

Cordova students work with their local Prince William Sound Science Center staff to implement "storm drainage" awareness issues regarding responsible dumping

Whittier students continue to define their project

Various onsite agencies and personnel assisted students in their training and data collection:

Whittier: National Weather Service-Linda Tolman, certified weather observer

Tatitlek & CSD Anch Ext: World Water Monitoring, water monitoring website

Chenega Bay: EPA-Kate McLaughlin

Valdez: Dept Natural Resources – Jack Sinclair, district ranger

CSD PWS Extension School: Copper River Watershed Project-Becky Clausen

Digital copies of these projects are accessible on the YAW website:
http://www.chugachschools.com/youth_area_watch/projects_research.html

Since PI involvement with YAW varies each year, the YAW program is focusing on sustaining the long term monitoring projects. One way is through online science research and curricula such as GLOBE and Signals of Spring. These programs offer students the opportunity to collect local data and post it to websites where scientists can review their postings, read student observations and questions, and offer interactive communication on a timely basis. Two YAW teachers participated in GLOBE training in September, and Signals Of Spring online courses in October and November. Signals of Spring web-based curriculum will be offered to YAW students during the March 2006 YAW Wave, as a precursor to using it in 2006/2007.

Students from Tatitlek, Whittier, & CSD Extension participate in YAW-Wave: Learning About Learning, October 10-14, 2005 at CSD Anchorage House. Focus is on environmental science standards for Chugach School District Science levels 3, 4, and 5. Evaluations from involved students indicated this a valuable experience. (Increased scores on science assessments taken March 06 support this.)

November 05

Students participate in research activities at their sites while coordinators continue planning for upcoming YAW spring activities.

Additions to the YAW website include:

- posting EVOS annual report on "overview" page
- posting of YAW dvd (filmed May 05) on "overview" page

- posting of 04/05 YAW student projects on projects/research page
- posting of 05/06 YAW Orientation photos on projects/research page

December 05
Preliminary plans devised for a YAW Wave 4-Signals of Spring, based on teacher training during September/October. Wave 4 is a follow-up from Wave 3-Learning About Learning to ensure students are proficient in National Science Standards for 'science in the personal and social perspectives' (environmental science).
Queries are made for YAW students interested in presenting their YAW projects in a poster session at the January annual Marine Science Symposium in Anchorage. Valdez YAW students submit preliminary poster plans and are approved for attendance to the symposium.

January 06
Annual Marine Science Symposium is held in Anchorage, January 22-25. Three Valdez YAW students and their teacher are registered to attend. Weather deteriorates and causes plane cancellations; students are unhappy and unable to attend.

February 06
"Spirit of Youth" organizers contact YAW coordinator for references of the YAW students nominated from Valdez.
These students are nominated (and awarded) a 2006 "Spirit of Youth" Award for their ongoing participation in two YAW projects: a natural resources survey of the newly formed Mineral Creek State Park and, and another study to locate the invasive European green crab species in the Port of Valdez Harbor.

March 06
Spirit of Youth Banquet is held in Anchorage. YAW students from Valdez and Chenega Bay attend to accept their awards. See www.spiritofyouth.org/award_lists/banquet_06.html.

Teacher training in conducted at CSD inservice. Current YAW teachers hold workshops to train other teachers how to teach science standards through use of field sampling techniques, YAW project guidelines and web-based science curricula, including GLOBE and Signals of Spring.

Wave 4- Signals of Spring is held March 19-24, immediately following the CSD inservice. Students participated in classroom lessons in science content followed by field trips to science agency offices and labs where they received hands-on experience in various aspects seasonally triggered migratory behavior. Eva Saulitis of North Gulf Coast Oceanic Society joined students for an afternoon of whale photo identification and problem solving. Students were posed with the same hurdles that whale biologists face in the field. Working alongside adults, students regularly solved scenarios, more accurately than their older (and supposedly wiser!) teachers. A learning experience for all!
Student work for the week culminated in a newscast that conveyed accurate information on their chosen migratory animal.

As with the earlier Wave, evaluations from involved students indicated this a valuable experience. All ten students in attendance advanced further along their science levels after passing their science assessments following this weeklong session.

April 06

Arrangements for whale observation trips with Craig Matkin and Kenai Fiords Tours are confirmed for May 20, 21. Logistics include charter flights to/from Valdez and Tatitlek, airport shuttle from Seward airport to boat harbor, and driving arrangements from Whittier. Students wrap-up their long term-monitoring projects for the May 1 deadline. Their completed project, submitted in digital format earns students' passage aboard Kenai Fiords Tours vessel with whale biologists.

May 06

Five of six sites (all but Cordova) submitted their work, according to YAW guidelines, in digital format. See October report above for the list of projects.
Projects are too large to attach to this report, but are posted to the YAW website:
http://www.chugachschools.com/youth_area_watch/05_06_yaw_student_projects/index.html

Students participate in whale identification and tissue sampling trip in Resurrection Bay:

- May 20, 2006—day trip with Craig and Eva for 12 students and teachers from Valdez and McCarthy; one humpback whale was observed hours after leaving Seward harbor; resident killer whales were observed resting throughout the day; vocalizations were sparse; like last year, a large swell caused mild seasickness in over half of the participants onboard; students were unable to assist biologists in photo identifications of whales; we spent time in calmer bays when possible.
- May 21, 2006—day trip with Craig and Eva for 13 students and teachers from Tatitlek, Whittier and Anchorage; seas were calmer than the day before and whale activity was plentiful throughout the sunny day; many resident killer whales were observed repeatedly; fish scales were collected to determine upon which species whales were feeding; students were adept at assisting biologists in photo identifications of whales, due in part to their earlier training in March with Eva. End of the year student evaluations echoed this observance.
- Students actively mapped the vessel's route, based on vessel GPS readings at regular intervals, recorded data regarding the whale observations, recorded hourly meteorological data and downloaded photos of whales to be used for immediate identification purposes.
- Even though Chenega Bay students completed their YAW project, they chose not to join the whale trips for personal reasons.
- The cost of day charter with Kenai Fiords Tours increased from $1600/day to $2000/day. Since YAW budgeted for 1600/day one less charter was scheduled to absorb the price increase.
- The incentive of a reserved space on the KFT boat with whale biologists, worked well in motivating YAW teams to use the YAW guidelines to submit a long term monitoring project prior to the end of the school year (even though some projects will continue next year). The quality of these projects increases each year.

No recruitment was conducted at YAW schools in May due to uncertain funding for next year. The YAW dvd compiled last year may be used for future recruitment purposes.

June 06
Invitation to bid opens for FY07 EVOS proposals. YAW grant writing begins. PIs contact YAW coordinator requesting student involvement in upcoming projects. See July 06 below for more details

July 06
Grant writing continues. It is decided that Bob Crumley and Sheryl (Shoo) Salasky will submit the proposal as co-PIs.
Arrangements are made with scientists for next year's projects. PI's include:
Brian Lance from NOAA, Bob Piorkowski from ADFG, Dan Gilson of PWSSC, Dan Rosenberg from ADFG. See YAW-PWS 070210 for more information on these PIs and their projects.

August 06
Preparation for the 06/07 school year began with a request for a no-cost extension of existing YAW funds. These funds will be used during the remaining field season (August, September and October), which overlaps with the start of school, so that selected scientists can work outdoors with students during the last few weeks of the field season.

2. **Future Work:**

While the ultimate goal of the Youth Area Watch program is to involve students in the real-life science taking place in their backyard, it is not always guaranteed that scientists will be able to work with students. To that end, YAW continues to seek authentic opportunities for students and community members to learn from each other. Interactive, online science investigations such as GLOBE and Signals of Spring are two such programs that partner students with scientists over the internet. These programs provide students the same data as the researchers and facilitate opportunities to dialogue with other participants, thus leading students to ask same questions alongside trained scientists. In this way, future scientists of our area are guided by a cadre of professionals worldwide. Since internet access is the common thread linking the YAW communities, it's easy for students to gain entry to the larger scientific e-community, while involving their local communities. Several community members in PWS villages have GLOBE training and have volunteered as GLOBE "guides". YAW hopes to develop this concept in the future.

In addition, several scientists conducting research in PWS contribute data to the Signals of Spring website. They have graciously offered their "live" support alongside the web-based curriculum we offer our students. The study of killer whales merges nicely with this website, and biologists Craig Matkin and Eva Saulitis (project PIs for EVOS Project Number 07012) have agreed to continue their tireless involvement with YAW students over the years.

As always, YAW coordinators are in constant communication with various research agencies, seeking new and continued training opportunities for students and staff.

A new partnership will begin Fall 06. National Oceanographic and Atmospheric Administration (NOAA) scientist Brian Lance recently contacted us about involving YAW students in his data

collection and monitoring project that examines an artificial reef recently installed in Passage Canal near Whittier. The goal is to find ways of restoring lost habitat in Alaska marine waters. This project includes an education outreach component: once the Whittier project is established, plans are to install artificial reefs throughout PWS, involving other YAW students in monitoring those sites nearest them; i.e. Cordova, Chenega Bay, Tatitlek & Valdez. Students will collect data and monitor the site(s) for accuracy. Brian has agreed to train and mentor students and teachers in the scientific endeavors necessary for their participation.

A third partnership has developed with the multi-agency sponsored Invasive Species Program (ISP). Bob Piorkowski, ADFG biologist, coordinates a network of federal and state agency personnel charged with monitoring the presence of European green crabs in near-coastal waters of PWS. Dan Gilson, program coordinator with the PWS Regional Citizens Advisory Council (RCAC) and Denny Lassuy, invasive species program manager for US Fish and Wildlife Service (FWS) are actively seeking opportunities to involve students and community members in establishing long-term data sets. Specific tasks include the deployment of fouling plates in June and removal for inspection in the fall. This works well with the school calendar schedule. Baited fish traps are also set once a month during a 24-hour tidal period from July through September. Student participation is slated to begin in Tatitlek, Chenega and Cordova Fall 06, and will continue for the third year in Valdez. Whittier students will join in 07.

Since the YAW Waves (conducted in 04, 05, and 06) have been so successful with students and teachers, two more are being planned for the upcoming school year: September 11-15, 2006 and April 16-20, 2007. These weeklong workshops not only enhance students' scientific awareness, students gain more confidence in their ability to work alongside researchers in the field.

3. **Coordination/Collaboration:**

In addition to the various agencies that assisted students in their training and data collection (see list of agencies under: 1. "Work Performed" - October 05, YAW coordinated with new and continuing educators, scientists and scientific supply companies.

One of this year's goals was increased involvement with Prince William Science Center (PWSSC) in Cordova. Kate Alexander, PWSSC science education specialist, helped make this happen with our Fall 05 YAW Orientation activities in Cordova. Following that, conducted a "Lingering Oil Education Project" that involved students in an essay contest writing about oil spill impacts on the environment, community, family, &/or way of life. A panel of judges including scientists, community members, industry representatives and students not entered in the competition reviewed the essays. The top four essayists participated in an all-expense paid field trip through the Prince William Sound and to Washington, D.C. to learn more about the history of oil in Alaska, the Exxon Valdez Oil Spill, and the effects of lingering oil on the natural environment and the political process.

PWSSC also conducted site visits, offering science activities in Chenega Bay and Tatitlek, both YAW schools.

Craig Matkin and Eva Saulitis continue to work tirelessly with YAW students and planners, to give students the most comprehensive, real-life science experience possible. Prior to the May 06 whale trips, they met with YAW students to increase their observation skills while traveling

aboard the vessel. If more scientists were this accessible and willing to spend time bringing students into their research world, more students would jump into science with both feet, gladly!

4. **Community Involvement/TEK & Resource Management Applications:**

One of the standard content areas necessary for Chugach School District students to address prior to graduation is "Service Learning". This can translate as participating in community improvement projects, volunteering for a local agency, or involving local elders in educational endeavors. YAW students are encouraged to include local community members in their environmental monitoring projects, thus addressing several criteria: the need for a service learning project, and garnering community involvement/input in management of local resources.

Most community members in the villages of Tatitlek and Chenega Bay are long-term residents possessing a wealth of traditional ecological knowledge. While addressing various CSD education targets, students are regularly encouraged to dialogue with their families and then write about those discussions.

Cordova also boasts a population of knowledgeable long-term residents, both Native and non-Native Alaskans. YAW students there have access to two of the local resource management agencies: ADFG and USFWS. This year, students of the YAW teacher assisted USFWS personnel in conducting a shorebird census during spring migration as well as installing "no toxic waste" storm drains throughout the community.
With increased sport fishing pressure on the Copper River Delta, agency managers are conducting human-resources use surveys at local fishing spots. YAW students were trained to administer those surveys at the Fall 05 Orientation. The plan is for these partnerships to continue. While students in Cordova were very involved in their community projects, they neglected to submit their digital projects at the end of the year, thus were ineligible to attend the May 06 whale trips.

Valdez YAW students finished their second year of a natural resources survey within the Mineral Creek State Park under the guidance of a state park ranger. The resource survey is a required step prior to designating the use of those resources. The YAW teacher in Valdez involved her marine biology class in collecting baseline data requested by state park personnel. These same YAW students were also the first to assist in the invasive green crab monitoring project, with direction from Dan Gilson of PWSRCAC (see "Future Work" above for more details on this project).

5. **Information Transfer:**

A Chenega Bay community member is trained in GLOBE protocols and is willing to work with local students in collecting and entering data on the GLOBE website. The YAW project coordinator and CSD Extension School coordinator received GLOBE training September 23-24, 2005. They worked with the CSD Extension School students, encouraging them to collect (and enter on the GLOBE website) local environmental data based on GLOBE protocols.

The YAW website is developing into a central information gathering and collection point for YAW-related activities. It has been updated with the current YAW application, past and present student projects and links to involved agencies. Improvements are ongoing.

6. **Budget:**

Due to the delay in funding for FY04, there were no whale observation & monitoring trips in May 2004. When the trips were planned for May 2006, the cost of the day charter had increased from 1600 in 04 to 2200 in 06. This price increase was not budgeted for originally. YAW was able to pay the increased price by scheduling fewer trips at $2200/day, rather than the usual 4 trips at $1600/day. Since one of the YAW schools was unable to attend, all eligible students were able to attend in 2 trips, thus saving another $2000. When the 07 Invitation to Bid was delayed, YAW coordinators tried to cut costs in hopes of saving money for future use.
It has been requested that leftover funds be carried into a no-cost extension, thereby funding the beginning of the YAW school year 06/07, which overlaps with the remaining field season. Several scientists have agreed to field train our students for their upcoming YAW projects while we await notification of the proposal review process. The YAW schedule has been revised so that only existing funds will be necessary to keep the program operational during this interim period.

This school year 05/06 was the second of a three-year designation for CSD as a NASA Explorer School. With this partnership Chugach Schools are granted $17500 for science education. Those monies supplemented some of the YAW teacher training costs in an effort to sustain science education in a consistent manner.

Report Prepared By: **Sheryl Salasky**
Project Web Site Address: **http://www.chugachschools.com/youth_area_watch/**

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