

Trustee Council Use Only

Project No: _____

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GEM PROPOSAL SUMMARY PAGE

(To be filled in by proposer)

Project Title: Youth Area Watch

Project Period: FY 04, FY 05, FY 06

Proposer(s): Richard DeLorenzo / Chugach School District

Study Location: Prince William Sound, Kenai Peninsula

Abstract: This project links students in the oilspill impacted area with research and monitoring projects funded by the Trustee Council and outside agencies. Youth conduct research identified and delegated by principal investigators who have indicated interest in working with students. The project involves students in the acquisition and monitoring of oceanographic and meteorological data over time. Students also develop a local restoration project, which provides them the skills to participate in community-based science. Youth Area Watch fosters long-term commitment to the goals set out in the restoration plan and is a positive community investment in that process. Participating communities in FY 04-06 will be Chenega Bay, Cordova, Seward, Tatitlek, Valdez and Whittier.

Funding:	EVOS Funding Requested:	FY 04	\$ 99.2	TOTAL: \$ 311.9
		FY 05	\$ 103.6	
		FY 06	\$ 109.1	
	Non-EVOS Funds to be Used:	FY 04	\$ 273.3	TOTAL: \$ 840.9
		FY 05	\$ 276.9	
		FY 06	\$ 290.7	

Date: June 11. 2003

(NOT TO EXCEED ONE PAGE)

GEM RESEARCH PLAN - 040210

I. NEED FOR THE PROJECT

A. Statement of Problem

Youth Area Watch links students in the oil spill impacted area with research and monitoring projects funded through the Trustee Council. The project involves students in the restoration process and provides these individuals the skills to participate in oil spill restoration now and in the future. Youth conduct research identified and delegated by principal investigators who have indicated interest in working with students. Youth Area Watch fosters long-term commitment to the goals set out in the restoration plan and is a positive community investment in that process. Participating communities include: Cordova, Chenega Bay, Seward, Tatitlek, Valdez, and Whittier.

B. Relevance to GEM Program Goals and Scientific Priorities

As YAW continues to partner students with scientists conducting research, it also links students with their communities via student-driven restoration projects. Once students become involved in YAW, they determine an area of need within the community that will benefit from student restoration efforts.

Recent projects include determining the feasibility of reestablishing little neck clams at the head of Resurrection Bay. These clams have been absent from the area since the 1964 earthquake. This year YAW students at Seward Jr/Sr High School worked in conjunction with biologists at the Quetekacak Shellfish Hatchery to map the area at the northern end of Resurrection Bay. The project involved sampling and mapping to determine substrate and possible locations for establishment of clam beds. Next year, the students hope to apply for a permit to seed clams in this area. If successful, their goal is to develop this into a personnel use fishery. Eventual Youth Area Watch restoration projects could focus on seeding the clams, monitoring growth, and keeping track of harvest levels.

YAW students in Port Graham participated in a community based GEM project to monitor and document organism size and population density of *Katarina tunicate* or “bidarkies” (chiton – a subsistence harvested mollusk) in its nearshore ecosystem. Students chose the project because this traditional Alutiiq food has been on the decline and harvest has occurred farther afield to locate larger individuals. Concern developed over the ecological consequences of possible overharvest. This project promoted community participation, as local tribal members guided students and others on their survey of bidarkies, Not only did students gain valuable experience in field sampling techniques, they conducted internet research on organism life cycles, learned how to survey local subsistence users and shared knowledge of local resources with their elders. Project results are to be presented at a community meeting and reported to the tribal council. Students hope to continue research to determine the minimum preferred size for harvest that will allow continued abundance of the resource.

YAW students in Tatitlek served an integral role in bridging communications between local elders and GEM scientists seeking local knowledge of pre- and post-oil spill observations. After a village visit from GEM scientists, students devised and delivered a survey seeking the information requested by the visiting scientists. YAW students presented those findings at the Science for Resource Dependent Communities – Joint Scientific Symposium in Anchorage, January 13-17, 2003.

YAW students in Valdez converted an old, broken aquarium tank into a river ecosystem/terrarium for students, faculty, and local community organizations (Boy Scouts, Girl Scouts) to use. They purchased a River Tank Ecosystem Lessons booklet for use in their classrooms, video filmed the restoration project, and developed a power-point presentation to inform students, faculty, school board members and any other interested parties of their work.

YAW students in Cordova continue to work in conjunction with ADFG and the Cooper River Watershed Project. FishWatch is a proactive, community based, monitoring project of the Copper River Watershed, organized by Becky Clausen. Community volunteers and students, conduct baseline water quality and aquatic invertebrates surveys, to assess the health of local streams. The goal of this project is to gather and organize information useful in maintaining healthy salmon habitat in the Copper River Delta. Data collection began this spring and will occur over several years, as YAW students continue working with the involved agencies.

Beyond the reach of the traditional YAW region, other schools have shown an interest in this program and have offered to participate of their own volition. Students at Susitna Valley Jr/Sr High School in Talkeetna worked with Cook Inlet Keepers and locally trained community members to conduct water quality measurements and monitoring techniques. Once they understood the process, these students entered data for all nine sites sampled in the Upper Susitna Soil and Water Conservation District (USSWCD), under YAW guidance. That data printout is forthcoming and will be used in further studies conducted by the USSWCD.

II. PROJECT DESIGN

A. Objectives

Selected students from the identified communities participate in research and restoration activities set out by University of Alaska, Fairbanks and GW Scientific scientists (Dr. Michael Lily), North Gulf Coast Oceanic Society biologists (Craig Matkin and Eva Solteis), Lawrence Livermore National Laboratory (Biotechnology Research Academy Director Kirk Brown) and other project principal investigators working with Youth Area Watch. As part of an area watch project that works with existing research and restoration projects, students collect samples and data that are then provided to the respective projects.

Youth Area Watch objectives include:

1. Research project principal investigators interact with students.
2. Identify all research and data collection activities.
3. Update memoranda of agreement with school districts.

4. Improve accountability for participating teachers and students.
5. Complete site teacher orientation.
- 6.. Conduct school orientations for students on Youth Area Watch.
- 7.. Select students to participate in Youth Area Watch.
- 8.. Conduct site teacher training on project activity protocol.
- 9.. Complete the student project orientation and training.
10. Conduct oceanographic and weather data collection and synthesis.
11. Obtain and process DNA samples from killer whales
12. Participate in killer whale monitoring and documentation
13. Conduct local research/restoration projects.
14. Facilitate project follow-up training for site teachers.
15. Maintain a Youth Area Watch web site.

B. Procedural and Scientific Methods

The Chugach School District currently works with the Kenai Peninsula Borough School District, Cordova School District and Valdez School District through memoranda of agreement so that the communities of Chenega Bay, Cordova, Nanwalek, Port Graham, Seldovia, Seward, Tatitlek, Valdez and Whittier may participate. School districts will operate under the existing agreements during the ninth project year.

Youth Area Watch project coordinators work with the principal investigators of the cooperating projects to solidify project expectations. Protocol is established for sample/data analysis. In addition, principal investigators commit to working with the students for a period of time during the training and/or data collection stage.

The Chugach School District developed an application and screening tool to select students for participation in the project. Up to 28 students will be selected from the communities to be a part of Youth Area Watch. While the distribution may vary according to the interest and ability of students that apply, it is expected that the distribution will be as follows: two students from Chenega Bay, three students from Cordova, two students from Port Graham, two students from Nanwalek, two students from Seldovia, six students from Seward, two students from Tatitlek, four students from Valdez, three students from Whittier, and two remote site students.

Youth Area Watch relies on the participation of research projects, sites and program resources to successfully fulfill the project objectives. Throughout the project year, students travel to research vessels, specific project sites near their community and research labs in the process of project activity completion. In the past year, Youth Area Watch was able to coordinate with projects conducting research cruises and work cooperatively on task completion while sharing the costs of vessel hiring. In FY99, FY 00, FY01 and FY02, Youth Area Watch coordinators assisted with the coordination of harbor seal protocol training. It is expected that this type of cooperative effort will continue in the coming years.

Students will participate in the core research projects as a group. This will consist of coming together as a group to work on collection protocol, as well as conducting activities for these projects in their community. In addition, students will participate in local projects that pertain to

their geographic area. It is during the local project work that students receive a high degree of one-on-one interaction and involvement with principal investigators and their research. Youth Area Watch coordinators will continue to be open to working with other projects funded by the Trustee Council if students can have meaningful participation in these projects.

Ongoing Youth Area Watch research and training projects include:

1. Comprehensive killer whale investigation in Prince William Sound, Project Number 04012. The principal investigator is Craig Matkin. The project tracks the killer whale population in Prince William Sound and Kenai Fjords. Whales are photographed and cataloged based on identifying markings and family relationships. Students will assist in locating and identifying the whales during day cruises in and around Resurrection Bay. Genetic studies on the whales are also conducted through the use of darting. Once tissue samples are obtained, students will conduct DNA sampling with the assistance of Biotechnology Research Academy Director and Milken Award winning educator Kirk Brown.
2. Environmental, meteorological and technical monitoring program, led by Michael Lily of GW Scientific. The project has been developing watershed classification tools and methods for their application in Alaska. This coordinated effort with Prince William Sound Oil Spill Recovery Institute (OSRI) and Regional Citizens Advisory Council (RCAC) will help insure the development of methods that will meet the needs of watershed protection programs and evaluate how to use and improve these tools in the future. Students will gather meteorological data and perform web-based data entry for Prince William Sound, Cook Inlet, Kenai Peninsula, the Susitna Basin, and Tanana Flats while learning basic weather monitoring principals through interaction with the scientists. Data logger recorders have been installed in PWS (Whittier, Tatitlek, Chenega Bay, Nuchek/Cordova), Kenai-Soldotna, Talkeetna, Delta Junction, and western Alaska. The student component of this project involves monitoring the data logger near the YAW participants' communities, collecting data at chosen sites, entering it into a web-based data system. Students will develop data exchange and comparisons with other participating students in various regions of Alaska.
3. Youth Area Watch teacher training workshop, EPA Grant Application Number 03-10-0-022. The principal investigator is Marilyn Sigman, director of the Center for Alaskan Coastal Studies. This proposal will develop and coordinate the first training workshop for teachers involved in the YAW program with a focus on: 1) fostering teacher-scientist partnerships and 2) training in implementation of standards-based environmental education teaching activities related to student participation in "real science" environmental monitoring and research projects. The project would serve as a model that can be extended to schools in other Alaska communities through the long-term EVOS-sponsored Gulf of Alaska Ecosystem Monitoring and Research (GEM) program for the northern Gulf of Alaska. The workshop will improve delivery and the educational effectiveness of a model science and environmental education program by providing teachers with the skills to lead and facilitate environmental teaching activities aligned with standards. That alignment will ultimately improve the abilities of students to attain

high academic performance in the content areas of science and environmental education. The workshop will combine two effective strategies for improving environmental education and science learning: student-teacher-scientist partnerships to provide participation in “real-world” environmental research and monitoring projects and standards-based classroom teaching activities and practices. Is this the best place for this?

In addition to the core projects in which Youth Area Watch students participate, each site selects a restoration project to conduct in their community. This restoration activity is something that the students select and not necessarily a project that is currently funded by the Trustee Council. However, local projects are closely linked to existing restoration activities. Some newer projects have developed from original restoration projects completed by past YAW students.

Coordination between Youth Area Watch and participating research projects remains strong. Where possible, research vessel costs are shared to maximize resources for project activities. In other instances, time and resources are contributed by participating projects to Youth Area Watch.

At this point, the YAW project is in the midst of a metamorphosis. With the Trustee Council transitioning to the GEM program, YAW must transition also if it is to remain vital and current. In the current climate, we must remain flexible and agile so as to most advantageously position ourselves to participate in long term research and monitoring projects. While we maintain our working understanding with the two previously mentioned projects, (Comprehensive Killer Whale Investigation in Prince William Sound, Project Number 04012A, and the Environmental, meteorological and technical monitoring program, led by Michael Lily), we expect that changes in the working protocol will probably occur. We also fully expect to forge new, long-term partnerships as the GEM program settles into a new phase.

During this time of funding reductions, student contributions to research projects will become more and more important. The past eight years have allowed us to demonstrate that students can cost effectively and reliably collect scientific data for existing projects. As we move toward a program of low cost, high yield monitoring, it is time for our previous work to bear fruit. The many relationships we have built within the research community will serve us well in the next chapter of the Youth Area Watch program.

As funding for the Youth Area Watch project comes from increasingly non-trustee sources, and the pool of Trustee Council projects diminishes, the project will transition to include some non-Trustee Council funded projects. This shift will be necessary in order to meet the goals of the original project proposal and provide a long-term role for middle and high school students in research and restoration projects.

Objectives and Activities:

Objective 1: Youth Area Watch students will interact with research project principal investigators, gaining a greater understanding of the human and natural affects on the ecosystem.

- Activity 1: Principal investigators commit to working with students directly at least once during the project year.¹
- Activity 2: Students work beside principal investigators during field work.
- Activity 3: Students independently conduct activities set out by the principal investigators.
- Activity 4: Students work with local facilitators and community members to increase awareness of restoration activities and the status of the ecosystem.

Objective 2: Project coordinators identify all research and data collection activities to be conducted by students at all sites participating in Youth Area Watch.

- Activity 1: Project coordinators meet with the principal investigators or delegate project research personnel either by phone or in person to set student activity parameters.
- Activity 2: Activity protocol forwarded by the principal investigator or delegate, including sample and data forwarding process, to project coordinators.
- Activity 3: Project coordinators finalize project activities for site teacher and students.

Objective 3: Project coordinators update memoranda of agreement with the Valdez School District, Cordova School District, and Kenai Peninsula Borough School District for participation in Youth Area Watch.

- Activity 1: Project coordinators contact each school district to evaluate the current agreement and make any necessary changes.
- Activity 2: Site teachers are identified by each school district for the participating communities.

Objective 4: Project coordinators and PIs improve accountability for participating teachers and students.

- Activity 1: All players, with guidance from project coordinators and PIs, establish roles and responsibilities for students and staff.
- Activity 2: All players, with guidance from project coordinators and PIs, generate expectations and outcomes to be met by students and staff.
- Activity 3: Students will pass through content levels as they accomplish set goals.

Objective 5: Site teachers receive Youth Area Watch project orientation.

- Activity 1: Project coordinators develop an orientation and training session plan in consultation with research project principal investigators.

¹ It is expected that additional contact occur throughout the project year, though not necessarily in person. Research project PIs receive updates and samples according to the protocol set out for students.

Activity 2: Project coordinators set a date in the early part of October to conduct orientation. Site teachers are contacted to determine the most appropriate dates.

Activity 3: Project coordinators perform site teacher orientation and training.

Objective 6: Project coordinators conduct school orientations on Youth Area Watch.

Activity 1: Project coordinator travels to each participating school site prior to beginning the project year.

Activity 2: Project coordinators present Youth Area Watch to community science classes. Students that have participated in prior years will be asked to assist.

Activity 3: Students will be informed of the process to apply and participate in Youth Area Watch '04.

Objective 7: Students are selected to participate in Youth Area Watch.

Activity 1: Project coordinator distributes student applications to project sites. All village council/tribal offices (Chenega Bay, Seward, Tatitlek, Valdez, Seldovia, Port Graham, Nanwalek) will receive application forms, as well as the Valdez, Cordova and Kenai Peninsula Borough School Districts for their respective community sites.

Activity 2: Project coordinators convene a committee to review student applications for Youth Area Watch participation. The committee is comprised of Chugach School District staff and may be assisted by participating school district staff and community facilitators.

Activity 3: The review committee examines applications and selects students based on science interests, academic achievement, maturity, motivation towards learning and site teacher recommendation.

Objective 8: Project coordinators conduct site teacher training on project activity protocol.

Activity 1: Project coordinators set a date in early October for site teacher protocol training and coordination

Activity 2: Project coordinators request the attendance of research project principal investigators at the site teacher orientation.

Activity 3: Project coordinators facilitate a protocol training session to ensure that correct information and research practices are followed by students during the project year.

Objective 9: Project coordinators complete the student project orientation and training. All participating students from the community sites collectively meet at the Alaska SeaLife Center in Seward for the Youth Area Watch introduction and preliminary activity participation.

- Activity 1: Project coordinators work with SeaLife Center staff to determine appropriate dates for orientation.
- Activity 2: The project coordinators invite research project principal investigators to participate in the student orientation.
- Activity 3: The Youth Area Watch principal investigator coordinates travel arrangements for student participation in the orientation.
- Activity 4: In cooperation with the research project principal investigator(s), project coordinators conduct the student orientation to Youth Area Watch goals, responsibilities and activities. Students learn about the ecosystems, and identify ways in which project activities fit into the biotic cycle.

Objective 10: Students conduct oceanographic and meteorologic data collection in their local communities. Site teachers oversee these activities.

- Activity 1: Students take twice monthly water temperature and salinity readings at their local site.
- Activity 2: A weather station and data logger are monitored at each site under the supervision of the site teacher. Students measure the wind speed and direction, air temperature and barometric pressure.
- Activity 3: Data is monitored and collected at each site and transmitted to the other sites and project coordinator, periodically.
- Activity 4: Data is posted on the Youth Area Watch web page by qualified students.

Objective 11: Each community site conducts a local research/restoration project.

- Activity 1: The site teachers and project coordinator work with participating students to identify a local research/restoration project.
- Activity 2: During the winter months of November through January, students develop a plan for their local restoration project. This is completed with the appropriate assistance and coordination of community facilitators.
- Activity 3: Site teachers work with project PIs where appropriate to develop protocol for student participation.
- Activity 4: Students conduct local project activities according to protocol and timelines set out by site teachers.
- Activity 5: Students provide data/samples to project PIs according to protocol.

Objective 12: Students maintain a Youth Area Watch web site.

- Activity 1: Students become Internet proficient and learn to update their web site with current YAW information.²
- Activity 2: Students analyze data collected from the research projects, both past and current.
- Activity 3: Using the established reporting format, the data is posted on the web site.
- Activity 4: Students update data on research activities as necessary.

Objective 13: Project coordinators facilitate project follow-up training for site teachers in the spring.

- Activity 1: Project coordinators set a date convenient for site teachers to conduct a spring follow-up session.
- Activity 2: Project coordinators invite principal investigators of participating projects to assist in the follow-up session.
- Activity 3: Project coordinators facilitate a follow-up session for site teachers to share information and identify strategies for improving student activities.

Objective 14: Students participate in killer whale identification project.

- Activity 1: Principal investigators train students in killer whale identification methods. Students are also informed of project scope and goals.
- Activity 2: Students participate in a day cruise with principal investigators to track and identify killer whales in and around Resurrection Bay including: hydrophonic monitoring of whales, photographic recording of individual animals, and darting to obtain blubber and skin samples.
- Activity 3: Students work with BioRad Laboratories to conduct genetic studies on whale tissue samples.

C. Data Analysis and Statistical Methods

Data from various research projects will be analyzed by the appropriate participating PIs. Where applicable, scientists will work with students to guide them through data analysis. As in the case of the killer whale identification project, students confirm individual animal identification based on comparisons of past field notes, photos and tissue samples. In the meteorological monitoring program, students take first-hand measurements to verify proper and accurate readings posted on the website by the data loggers. Students are trained in the importance of consistency, accuracy, reproducibility as associated with data collection and analysis.

D. Description of Study Area

The study area encompasses the waters of PWS, Resurrection Bay and local watersheds associated with those areas.

² While many students will be familiar with the Internet, some communities recently linked will need training. Additionally, previous Youth Area Watch participants may be proficient at updating the web site, yet new students will need assistance.

While Youth Area Watch is administered through the Chugach School District's main office in Anchorage by project coordinators, project activities currently take place in the nine participating communities and in the oil spill impacted area. Local communities include Chenega Bay, Cordova, Seward, Tatitlek, Valdez and Whittier.

The science teacher (site teacher) within each of the six communities oversees the day-to-day activities pertaining to the project. Project coordinators travel to the local communities to facilitate in-class integration of project activities and offshore research in specific locations of importance to the identified research projects. Local projects activities identified by each site occur at or near the community.

E. Coordination and Collaboration with Other Efforts

The Chugach School District serves as the administrative agency for Youth Area Watch through their contract with the Department of Fish and Game. This is changing with the new administration. The school district has shown that it is an effective link to the students and communities it serves. As the administrative entity, the Chugach School District will maintain memoranda of agreement with the Valdez School District, Cordova School District and Kenai Peninsula Borough School District as the school districts that serve the identified communities.

The Chugach School District continues to work with the Chugachmiut and Chugach Regional Resources Commission to coordinate and exchange community information with regard to regional restoration activities. As the coordinating agency for community involvement, Chugach Regional Resources Commission works with the youth through the local facilitators so that students may participate in research and restoration activities.

Since the inception of the project, significant contributions have been made and are identified in the budget. Contractors have provided discounted services, as in the case of vessel hiring. Expensive equipment used in project activities is offered by coordinating agencies, as with GWScientific. Cooperating agencies provide technical assistance, student supervision and support for project activities. The Chugach School District relies heavily on the commitment and participation of cooperating school districts involved in the project. Site teachers dedicate their time to the goals of Youth Area Watch, serving as an in-kind contribution.

In keeping with its commitment to secure additional support for Youth Area Watch activities, Chugach School District has sought and is slated to receive additional funding from the Center for Alaskan Coastal Studies. On a local level, Whittier wrote a grant for and received additional funding from ASTF for the ongoing killer whale identification project. (These funds were since retracted with recent budget cuts.) In conjunction with installation and operation of the GW Scientific data loggers, additional support and coordination efforts are provided by PWS Regional Citizens Advisory Council (RCAC), Oil Spill Recovery Institute (OSRI), Dept of Transportation (DOT), Coast Guard and school districts housing and maintaining data loggers.

In addition, the district will continue to commit general funds to the project and will seek out alternative funding sources as the program transitions away from Trustee Council support. The

success of the project activities motivates the Chugach School District to commit additional funding through diversified means so that the youth are equipped to continue their restoration and ecological management activities as an integral component of their education.

As Trustee Council responsibility for restoration activities decreases due to the decline of settlement funds, the project coordinators continue to pursue opportunities where Youth Area Watch project activities can transition to a more stable position. Toward this end, the school district maintains cooperative relationships with entities engaged in ecological management and restorative projects, independent of Trustee Council funding. Particularly with respect to local restoration projects where other agencies, organizations and private groups are involved, the Youth Area Watch project scope is expanding so that a smooth shift of focus can occur. Building and maintaining these cooperative working relationships can enhance resource exchanges and augment other district resources.

III. SCHEDULE

A. Project Milestones

- Objective 1: Youth Area Watch students will interact with research project principal investigators, gaining a greater understanding of the human and natural affects on the ecosystem.
To be met by November 30 of each year
- Objective 2: Project coordinators identify all research and data collection activities to be conducted by students at all sites participating in Youth Area Watch.
To be met by September 30 of each year
- Objective 3: Project coordinators update memoranda of agreement with the Valdez School District, Cordova School District, and Kenai Peninsula Borough School District for participation in Youth Area Watch.
To be met by September 30 of each year
- Objective 4: Project coordinators and PIs improve accountability for participating teachers and students
To be met by October 30 of each year
- Objective 5: Site teachers receive Youth Area Watch project orientation.
To be met by October 30 of each year
- Objective 6: Project coordinators conduct school orientations for YAW
To be met by October 30 of each year
- Objective 7: Students are selected to participate in Youth Area Watch.
To be met by October 30 of each year
- Objective 8: Project coordinators conduct site teacher training on project activity

protocol.
To be met by October 30 of each year

Objective 9: Project coordinators complete the student project orientation and training. All participating students from the community sites collectively meet at the Alaska SeaLife Center in Seward for the Youth Area Watch introduction and preliminary activity participation.
To be met by November 30 of each year

Objective 10: Students conduct oceanographic and meteorologic data collection in their local communities. Site teachers oversee these activities.
To be completed by May 30 of each year

Objective 11: Each community site conducts a local research/restoration project.
To be completed by May 30 of each year

Objective 12: Students maintain a Youth Area Watch web site.
To be completed by May 30 of each year

Objective 13: Project coordinators facilitate project follow-up training for site teachers in the spring.
To be completed by May 30 of each year

Objective 14: Students participate in killer whale identification project.
To be completed by May 30 of each year

B. Measurable Project Tasks

FY 04, 1st quarter (October 1, 2003-December 31, 2003)

October - November: Site teacher orientation, school site orientations, students selected for participation, improve accountability, site teacher training on protocol, student orientation and training,

FY 04, 2nd quarter (January 1, 2004-March 31, 2004)

January – March: Students participate in research activities, students design and conduct local restoration projects, students maintain website, PIs interact and exchange information with students, project coordinator sends data to PI

January 12-16 (tentative): Annual GEM Workshop

FY 04, 3rd quarter (April 1, 2004-June 30, 2004)

April - May: Second quarter activities continue, sites complete local restoration projects, project coordinator facilitates follow-up training for site teachers, students participate in killer whale identification project.

FY 04, 4th quarter (July 1, 2004-September 30, 2004)

August - September: Confirm research and data collection activities, update memoranda of agreement with participating school districts

FY 05, 1st quarter (October 1, 2004-December 31, 2004)

October - November: Site teacher orientation, school site orientations, students selected for participation, improve accountability, site teacher training on protocol, student orientation and training

FY 05, 2nd quarter (January 1, 2005-March 31, 2005)

January – March: Students participate in research activities, students design and conduct local restoration projects, students maintain website, PIs interact and exchange information with students, project coordinator sends data to PI

(dates not yet known) Annual GEM Workshop

FY 05, 3rd quarter (April 1, 2005-June 30, 2005)

April - May: Second quarter activities continue, sites complete local restoration projects, project coordinator facilitates follow-up training for site teachers, students participate in killer whale identification and project.

FY 05, 4th quarter (July 1, 2005-September 30, 2005)

August - September: Confirm research and data collection activities, update memoranda of agreement with participating school districts

FY 06, 1st quarter (October 1, 2005-December 31, 2005)

October - November: Site teacher orientation, school site orientations, students selected for participation, improve accountability, site teacher training on protocol, student orientation and training,

FY 06, 2nd quarter (January 1, 2006-March 31, 2006)

January – March: Students participate in research activities, students design and conduct local restoration projects, students maintain website, PIs interact and exchange information with students, project coordinator sends data to PI

January 12-16 (tentative): Annual GEM Workshop

FY 06, 3rd quarter (April 1, 2006-June 30, 2006)

April - May: Second quarter activities continue, sites complete local restoration projects, project coordinator facilitates follow-up training for site teachers, students participate in killer whale identification project.

April 15 Submit final report (which will consist of draft manuscript for publication) to Trustee Council Office.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

One of the main goals of Youth Area Watch is to facilitate community involvement in the restoration process at a primary and secondary school age. It is through community interest and participation that the project has had a positive impact on students. Ultimately, long-term impacts, to include local ongoing restoration and ecosystem sustainability, are anticipated as youth conduct established research and apply this knowledge to community efforts to understand and preserve species affected by the oil spill. As a result, communities continue to request participation in Youth Area Watch.

Local oil spill impacted communities are involved and participate in Youth Area Watch. The local facilitators of GEM and CRRC, continue to work with students and their communities to involve youth in Youth Area Watch activities. Those facilitators, community members, and parents of participating youth assist with various aspects of project activities such as serving as chaperones, providing traditional ecological knowledge and coordinating opportunities for youth to work with local projects. Through this cooperative effort, information is exchanged between projects and across generations.

As a component of the project scope, students at each site are asked to identify a local project that they will conduct. Through these local projects, students gain a greater understanding of what the research and restoration process means at the community level, as well as an interest in meaningful project outcomes.

B. Resource Management Applications

While not all Youth Area Watch restoration projects have resource management applications, several recent projects have been conducted with the support of local resource agencies.

YAW students in Seward worked with biologists from the Quetekacak Shellfish Hatchery to survey possible sites for reestablishing little neck clams at the head of Resurrection Bay. This year, students began sampling and mapping the area to determine substrate and possible locations to establish clams for a personnel use fishery. Next year's goal is to apply for a permit to seed the clams. Future Youth Area Watch projects include seeding the clams, measuring growth, and keeping track of harvest with the guidance of hatchery managers.

YAW students in Cordova collected water quality data for FishWatch, a proactive, community based, monitoring project of the Copper River Watershed Project. The goal of this project is to gather and organize information useful in maintaining healthy salmon habitat in the Copper River watershed. Community volunteers currently collect data during June, July and August. YAW students gathered early season data from the three sites during the month of May. Previous year data from these sites showed some unusual anomalies in the nitrate levels in June. Taking earlier measures may contribute to the understanding of these readings.

YAW students in Port Graham participated in a project entitled "Community-based monitoring and conservation of a traditional shellfish resource, Badarkies (*Katharina tunicate*), and its nearshore ecosystem" assisted by marine biologist Paul McCollum. This project was chosen because residents observed a decline of the resource around their villages, thus having to move

farther a field to harvest larger individuals. Project results are to be delivered at a community meeting and reported to the Tribal Council, along with recommendations including the possibility of a marine reserve designation.

The data loggers installed by GW Scientific, and supported by OSRI, PWSSC, GCI, DOT, Coast Guard and local school districts will be monitored for use by those agencies, as well as local mariners and harbor masters. In addition to involving many agencies, this project also meets federal requirements for GCI to provide educational opportunities for students. While this does not constitute management of a resource, per say, it does offer information sharing among appropriate agencies.

V. PUBLICATIONS AND REPORTS

Youth Area Watch was featured in “The Science Teacher,” “Living on Earth” and “Alaska Magazine.” Copies of these articles have been forwarded to the Restoration Office. In addition, the project has been featured on NPR. The project has also been featured during statewide broadcasts on the Alaska Rural Communication System during programs on standards in education.

The Youth Area Watch Web site http://www.chugachschoools.com/youth_area_watch/index.html continues to be an important venue for students to both receive and distribute information. Each project that students work with has a student-generated page of explanation and photographs. There is also space for students’ reports on their own local restoration projects as well as meteorological and oceanographic data. Students utilize the site during training at the beginning of the year as they attempt to learn about each of the projects with which they will participate work over the course of the year. FY ’04 will be the fourth year that all of the community schools involved in the project are online. This connectivity has been a strong benefit in allowing the project coordinator to communicate directly and regularly with students at each school. This increase in communication and coordination enables more flexible and responsive action by project coordinators and school site participants.

VI. PROFESSIONAL CONFERENCES

Chugach School District received the 2001 Malcolm Baldrige National Quality Award for Excellence in Education and YAW was a showcased program. As a result of receiving this honor, the project has been highlighted through several National and Regional Quality Conferences.

The American Water Resources Association (AWRA) is tentatively planning to hold their annual national meeting in Cordova in April 2005. GW Scientific works closely with the Alaska chapter of this organization, which allocates funds for secondary education endeavors. GW Scientific will work with YAW students in organizing presentations and logistics, should this conference come to Cordova.

J. Kirk Brown

**20377 Timmin Rd.
Manteca, CA 95337
(209) 239-6367
kbrown@tusd.net**

Education:

- | | | |
|-----------------------------|-------|--|
| • Modesto Junior College | 81-84 | No degree |
| • C.S.U. Stanislaus | 84-86 | B.A. Biology
Concentration in
Entomology |
| • University of the Pacific | 86-87 | Credential |
| • University of the Pacific | 90-92 | M.A. Education |

Course work/College or University Research Experience:

- Completed Independent Study in Aquatic Entomology 1987
- Completed Course work in: Molecular Genetics, Cell and Molecular Bio., Electron Microscopy, Histological and Cytological Techniques, Plant Physiology, Many Entomology courses.
- Completed workshop in Multiple Intelligence's, Norfolk, Virginia, 1988.
- Completed Summer workshops at Exploratorium (Physics) Summer 1990
- Completed Summer workshop in Biotechnology (Sacramento State) T.E.B. SFSU Summer 1993
- Scientific Research Associate, Summer Research Internship Program, Lawrence Livermore National Laboratory: Human Genome Center Dr. Greg Lennon, Mentor. Summer 1994 (Identifying Sequence Tagged Sites).
- Scientific Research Associate, Summer Research Internship Program, Lawrence Livermore National Laboratory: Human Genome Center Dr. Greg Lennon, Mentor. Summer 1995. (Transposon Facilitated cDNA Sequencing)
- Participant in the Human Genome Networking Project at Kansas University Medical Center (Debra Collins Director) 1996, 1997.
- Fellow of the Association of Western Universities at Lawrence Livermore National Laboratory Summer 1997
- Applied Biosystems workshops in Polymerase Chain Reaction 1997 and Mitochondrial Sequencing 2000.

Work Experience:

- | | | |
|--------------------|--------------------------------------|--|
| • 1986 | Franklin High School
Stockton, CA | Student teaching
Biology & Physical Science |
| • 1987-Present | Tracy Joint Union H.S. | I.B. Advanced Biology I 11th, 12th
I.B. Advanced Biology II 11th, 12th
R.O.P Biotechnology |
| • 1990-92, Present | | Department Chairman: Science |
| • 1993-97 | | Project Coordinator/Department
Head of Tracy's Ag/Sci Academy |
| • 1994-Present | | Appointed Assistant Examiner for
International Baccalaureate Higher
Level Biology. |
| • 1992-97 | | Mentor Teacher |

- 1995-96 Curriculum Integration Mentor for California Department of Education in Career/Vocational Education
- 1994-Present Lawrence Livermore National Laboratory Education Program Fellow
- 1993-Present Biotechnology Education Program (BEP) Steering Committee,
- 1994-97 Member of the Tracy J.U.H.S. District Curriculum and Assessment Council.
- 1996- Present Member of the D.A.R.T. advisory committee at San Joaquin County Office of Education (Student Research) District Science Curriculum Committee
- 1996-Present Diving Coach
- 1987-1999 Waterpolo Coach
- 1987-90, 1999-2000 Consultant for Biorad Labs.
- 1997-Present Director: Biotechnology Academy Edward Teller Education Center LLNL
- 2002-Present Key Leader: National Science Teachers Association Building a Presence
- 2001-Present Adjunct Instructor: San Joaquin Delta Community College Core Biology
- 2003- Present TEAM Science Project Leader. NSF Grant to bring Grad Students into local schools as mentors.

Associations:

- California Teachers Association 1987-Present
- Phi Delta Kappa 1993-Present
- National Science Teachers Association 1996-Present
- National Association of Biology Teachers 1987-Present
- California Science Teachers Association Board of Directors 94-95
- Valley Association of Science Teachers (V.A.S.T.) President
Past President
High School Representative

Activities/Presentations (Updates upon request)

- Developed the International Baccalaureate Higher Level Advanced Biology Curriculum at Tracy High School.
- Teacher/Presenter at International Baccalaureate Conference, Armand Hammer United World College, Montezuma, New Mexico, summer 1993. Biology teachers from all around World attended.
- Supervised the writing and implementation of the Integrated Curriculum for the Agricultural/Scientific Academy.
- Biotechnology Education Program L.L.N.L. Steering Committee from it's inception in 1993-Present.
- Presented to 50 teachers/educators in Baton Rouge, Louisiana in April 1995 on the implementation of the BEP program in Louisiana.

- Many presentations on Biotechnology via the Biotechnology Education Program at Lawrence Livermore National Laboratory (8 two-day workshops, many single day follow-up meetings, and many promotional talks).
- Have made many presentations for the Valley Association of Science Teachers on the Human Genome Project, Multimedia in Science Teaching, and “How to Start a Scientifically Speaking Club”.
- Many presentations on HIV/AIDS and how to implement an Integrated approach to the California Assembly Bill 11 requirements.
- Have presented at the California Science Teachers Association state convention in San Jose on Starting a Scientifically Speaking Program to teach elementary students with high school student mentors.
- Helped design and present a weeklong workshop as a member of the BEP steering committee to 40 teachers in Baton Rouge, Louisiana, summer 1995.
- Presented at the California Partnership Academies 1994-95 state meeting on *How to Start an Academy*.
- Presented for Monterey County Office of Education: “Starting Academies, Integrating Science and Agriculture with History and English” to approximately 100 teachers. Oct. 1995
- Consulted on the development of an interdisciplinary curriculum for Southern University in Baton Rouge, LA. Spring 1995.
- Consulted on the development of a three day workshop for the International Science Project with Dr. John Knezovich, L.L.N.L. Summer 1995
- Coordinated the HIV/AIDS awareness week and Integrated Curriculum that is utilized by all three high schools in Tracy Joint Union High School District for the past three years.
- Participating in the Scope Sequence and Coordinated Science Hub in Region 6 as the Coordinator or the Ag/Science Academy at Tracy High.
- Have had many students pursue original research projects at L.L.N.L., UC Davis, and Tracy High.
- Many students have been published as a result of these experiences in the laboratory.
- One student won the Junior Science and Humanities Symposium and went to the Nobel Prize ceremonies in Stockholm, Sweden (Sophy Wong).
- Wrote successful Specialized Secondary School Grants and wrote a successful Multimedia (A.B. 1470) Grant as part of grant writing team at T.J.U.H.S.
- Was part of the Golden State Examination Science Portfolio Pilot Program
- Graded Golden State Examinations in Biology.
- Have marked International Baccalaureate Higher Level Biology exams and written individual school reports as an Assistant Examiner since 1994.
- Multiple presentations at the C.S.T.A. State Convention 1996 in Sacramento, CA.
- Multiple presentations at the N.S.T.A. Global Summit Dec 1996 in San Francisco.
- Conducted a workshop for L.A. Unified for Biorad on Bacterial Transformation and Protein Purification Summer 1997
- Conducted Biotech Education Program training in San Diego for Schools in San Diego at Mira Costa College. Summer 1997
- Conducted a one week Research Bootcamp for Teachers for Lawrence Livermore National Laboratory Summer 1997
- Presented Transformation and Protein Purification in Minneapolis MN at the N.A.B.T national convention 1997
- Presented in Las Vegas Nevada NSTA National for Biorad 1997
- Presented at the International Symposia on Green Florescent Protein in New Brunswick NJ for Biorad 1997
- Presented in Los Angeles Unified twice on Protein Purification and Transformation 1997
- Presented at the Boston Museum of Science 1997
- Many workshops and conferences from 97 to Present

- Presented Lessons to teachers/professors at the National University of Singapore Sept. 2000
- Presented Lessons to professors at Fudan University in Shanghai China Sept 2002
- Presented Lessons to professors at Beijing Normal University, Beijing China Sept. 2002
- Presented Lessons to students, teachers in Seoul Korea Sept. 2002
- Presented workshop for students in Whittier Alaska April 2003
- Successful NSF Grant called TEAM Science. I was on grant writing team and currently am Project Leader. Brings local Grad Students into middle and high school classrooms.
- See attached workshop

Awards:

- | | |
|---|--|
| • Crystal Apple award for Teaching | Tracy Joint Union High School District |
| • Golden Apple Awards | Tracy 1993-95 |
| • Honor Science Educator | San Joaquin County Office of Education |
| • Outstanding Certificated Employee of the first Quarter | 1992 |
| • Teacher of the Year for Tracy Unified School Dist. | 1992 |
| • Most Influential Teacher, M.I.T. | 1993 |
| • Most Influential Teacher, U.C. Santa Barbara | 1993,1996,2002 |
| • Most Influential Teacher, U.C. San Diego | 1997,2000,2002 |
| • Access Excellence Award Winner/Genentech, NSTA | 1996 |
| • Sigma XI Outstanding Science Teacher of 1996 | 1996 |
| • California Technology Assistance Project Distinguished Teacher award | 1998 |
| • Valley Association of Science Teachers Peer Recognition Award 1997-98 | 1998 |
| • Radioshack Honorable Mention (top 200) | 1999 |
| • Walmart Teacher of the Year | 1999 |
| • Milken National Educator Award | 1999 |
| • KXTV 10 Calteach Teacher of the Month (April 2000) | 2000 |
| • Character Recognition Award Tracy Unified S.D. | 2002 |

Publications:

- *Biotechnology Education Project Curriculum* University of California, Lawrence Livermore National Laboratory 1995
- *Access Excellence* [Http://www.gene.com/AE](http://www.gene.com/AE) Various Laboratory exercises on the AE website.
- *Advanced Learning Opportunities for California's Youth Specialized Secondary Programs: Pages 45-50 Tracy High School's Agricultural/Scientific Academy.* California Department of Education 1997.
- PCR kit for Biorad Labs 1998 release.
- Fish Protein kit for Biorad Labs 2000 release.

Personal:

U.S. Citizenship
 Married: Lisa
 Children: Lynae, Ryan

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

Budget Category:	Proposed FY 04	Proposed FY 05	Proposed FY 06	TOTAL PROPOSED
Personnel	\$50.4	\$52.8	\$55.2	\$158.4
Travel	\$36.7	\$38.0	\$40.4	\$115.1
Contractual	\$9.1	\$9.6	\$10.1	\$28.8
Commodities	\$3.0	\$3.2	\$3.4	\$9.6
Equipment	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal	\$99.2	\$103.6	\$109.1	\$311.9
Indirect (rate will vary by proposer)	\$11.9	\$12.4	\$13.1	
Project Total	\$111.1	\$116.0	\$122.2	\$311.9
Trustee Agency GA (9% of Project Total)	\$10.0	\$10.4	\$11.0	\$28.1
Total Cost	\$121.1	\$126.4	\$133.2	\$340.0

Cost-share funds = \$273.3 for FY04 (with 5% inflation increase each following year)

Cost-share funds include teacher time at \$31.5 (6 teachers x \$3.5/day x 15 days); participating PIs at \$18.0 (3PIs x \$.50/day x 12 days); YAW PI at \$13.25, additional administrative support at \$20.0; health care coverage at \$30.38 (30% of 51.25+\$50.0 for YAW coordinator); \$2.8 in video conferencing fees beyond the 3 days budgeted (\$.4/day x 7 more days); facility space rentals at \$24.0 (ASLC; Anchorage House; CSD (20.0), Kenai and Delta schools); fuel costs & insurance for rental vans @ \$1.5; existing equipment @ \$6.0; air travel costs not funded by EVOS \$51.0; data logger costs, installation and maintenance \$60.0; EPA grant pending for FY 04 YAW teacher training \$5.0
GWSscientific offers matching funds for FY04 at 28.4% of \$34.8 for a total of \$9.9

**FY 04-
06**

Date Prepared:

Project Number: 04210
Project Title: Youth Area Watch
Proposer: Chugach School District

**FORM 4A
NON-
TRUSTEE
SUMMARY**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

Contractual Costs:		Contract
Description		Sum
Kenai Fiords Tours @ \$1.6/day x 4 days		6.4
Video conferencing equipmentt operating costs \$4.0/day x 3 days		1.2
3 rental vans @ \$.1/day x 5 days		1.5
If a component of the project will be performed under contract, the 4A and 4B forms are required. Contractual Total		\$9.1
Commodities Costs:		Commodity
Description		Sum
calibration standards for water quality monitoring kits, 6 kits x \$400		2.4
replacement parts for kits and classroom supplies, 6 sites x \$100		0.6
Commodities Total		\$3.0

FY 04

Project Number: 04210
Project Title: Youth Area Watch
Proposer: Chugach School District

**FORM 4B
Contractual &
Commodities
DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

Personnel Costs:			Months	Monthly		Personnel
Name	Description		Budgeted	Costs	Overtime	Sum
Sheryl Salasky	Project coordinator		6.0	4.4		26.4
Randy Fleharty	Co-coordinator		6.0	4.4		26.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
Subtotal			12.0	8.8	0.0	
Personnel Total						\$52.8
Travel Costs:		Ticket	Round	Total	Daily	Travel
Description		Price	Trips	Days	Per Diem	Sum
student trips to Seward 28 x 2 trips		0.6	56			33.6
Project coordinator to Cordova		0.4	1			0.4
Project coordinator to Seward		0.4	1			0.4
Project coordinator to Tatitlek		0.8	1			0.8
Project coordinator to Chenega Bay		0.8	1			0.8
Project coordinator to Valdez		0.4	1			0.4
Project coordinator to Whittier		0.4	1			0.4
PI travel to Seward		0.6	2			1.2
						0.0
						0.0
						0.0
						0.0
Travel Total						\$38.0

FY 05

Project Number: 05210
 Project Title: Youth Area Watch
 Proposer: Chugach School District

**FORM 4B
 Personnel
 & Travel
 DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

Contractual Costs:		Contract
Description		Sum
Kenai Fiords Tours @ \$1.6/day x 4 days		6.7
Video conferencing equipmentt operating costs \$4.0/day x 3 c		1.3
3 rental vans @ \$.1/day x 5 days		1.6
If a component of the project will be performed under contract, the 4A and 4B forms are required.		
Contractual Total		\$9.6
Commodities Costs:		Commodity
Description		Sum
calibration standards for water quality monitoring kits, 6 kits x \$400		2.5
replacement parts for kits and classroom supplies, 6 sites x \$100		0.7
Commodities Total		\$3.2

FY 05

Project Number: 05210
Project Title: Youth Area Watch
Proposer: Chugach School District

**FORM 4B
Contractual &
Commodities
DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

New Equipment Purchases:		Number of Units	Unit Price	Equipment Sum
Description				
	none			0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
New Equipment Total				\$0.0
Existing Equipment Usage:		Number of Units	Inventory Agency	
Description				
	water quality kits	6	W Scientific	
	computer maintenance and repair	varies/school	schools	
	video/digital camera	1	CSD	
	GPS	1	W Scientific	
	data loggers	6	W Scientific	

FY 05

Project Number: 05210
 Project Title: Youth Area Watch
 Proposer: Chugach School District

**FORM 4B
 Equipment
 DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

Contractual Costs:		Contract
Description		Sum
Kenai Fiords Tours @ \$1.6/day x 4 days		7.0
Video conferencing equipmentt operating costs \$4.0/day x 3 c		1.4
3 rental vans @ \$.1/day x 5 days		1.7
Contractual Total		\$10.1
Commodities Costs:		Commodity
Description		Sum
calibration standards for water quality monitoring kits, 6 kits x \$400		2.6
replacement parts for kits and classroom supplies, 6 sites x \$100		0.8
Commodities Total		\$3.4

FY 06

Project Number: 06210
 Project Title: Youth Area Watch
 Proposer: Chugach School District

FORM 4B
 Contractual &
 Commodities
 DETAIL

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

New Equipment Purchases:		Number of Units	Unit Price	Equipment
Description				Sum
	none			0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
				0.0
New Equipment Total				\$0.0

Existing Equipment Usage:		Number of Units	Inventory
Description			Agency
	water quality kits	6	W Scientific
	computer maintenance and repair	varies/school	schools
	video/digital camera	1	CSD
	GPS	1	W Scientific
	data loggers	6	W Scientific

FY 06

Project Number: 06210
 Project Title: Youth Area Watch
 Proposer: Chugach School District

**FORM 4B
Equipment
DETAIL**