

# Youth Careers in Nature Program FY 2010 Annual Report

## Western Washington Fisheries Resource Office



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## **Executive Summary**

An educated public and competent work force are two basic essentials that enable fish and wildlife conservation to succeed. These two necessities are being threatened due to deficiencies in both the emphasis on eco literacy in schools and opportunities to experience nature. The Fisheries Division of the Washington Fish & Wildlife Office (WWFRO) addressed both concerns through an ambitious and multifaceted outreach campaign in FY2010.

This campaign aimed to advance the understanding of and appreciation for aquatic ecosystems while generating interest in fisheries conservation careers to a large number and wide age range of young people. This project included the following components in an effort to diversify and maximize our reach:

- Classroom presentations to 1,184 middle school students,
- Assisting in 7 partner outreach events for 510 students,
- 5 “Youth Fisheries Academy” day camps for 121 students,
- 2 Student Temporary Employment Program hires,
- Activity reporting with Social media.

Curriculum and programming was designed by WWFRO staff and piloted within a matter of months. Assessment data were collected for the majority of the programming and the response was overwhelmingly positive. The success of this endeavor is testament to the staff as well as the support from numerous contributors who provided time, expertise and funding. A solid foundation has now been laid for us to build upon in the coming years.

## **Methods:**

### *Middle School Classroom Presentation Curriculum*

The first phase of this outreach campaign was designing, scheduling and implementing a classroom presentation curriculum. This programming was crucial as it allowed us to reach a large number and diversity of young people, regardless of whether or not they or their parents had an interest in nature. These visits were also an opportunity to promote the Youth Fisheries Academy day camps.

A PowerPoint slide show was created with the intent to educate local middle school students on the following subjects: defining fisheries conservation, why it is important, how it is practiced, examples of diverse career opportunities and examples of aquatic ecosystems and food webs in the Pacific Northwest. Exciting photos of field projects ranging from western Washington to the Yukon River in Alaska were incorporated into this presentation to provide real life examples for each concept. Two short classroom activities were also added to the curriculum to reinforce concepts and facilitate active participation by the students.

This presentation was offered to all middle school teachers in Lacey, Olympia and Tumwater Washington. Each teacher received a lesson plan which included all applicable state standards covered by the presentation. This provided a strong justification for participation. All teachers who showed interest were scheduled for classroom visits.

This curriculum was primarily presented to one classroom of approximately 25 students at a time. There were, however, a few unique cases where presentations were given to up to three classes at a time. Classroom assessment questionnaires were designed and handed out to participating students (Appendix A) and teachers (Appendix B) in order to quantify the effectiveness of the presentation. Qualitative data were also

collected via comment sections on the assessment sheets. These data were reviewed after each class to determine if the presentation needed any modifications.

#### *WWFRO Assistance to Partner Projects*

In addition to classroom visits, assistance was provided to seven partner projects in the months leading up to the Youth Fisheries Academy day camps. Participation in these efforts resulted in multiple benefits including additional opportunities to connect young people with nature and promoting careers in nature. These projects also allowed us to promote the Youth Fisheries Academy day camps and helped establish partnerships that provided physical and/or material assistance for those camps.

#### *Youth Fisheries Academy Curriculum*

The Youth Fisheries Academy (YFA) day camp curriculum was designed to maximize hands-on involvement and provide participants with realistic field work experience and instill a confidence in participants as the subject of biology can be intimidating. The campers were split into four groups that rotated through activity stations throughout the day. These stations were: Sampling methods, identification (fish & invertebrates), fish anatomy, and fisheries technology. The camp with the youngest participants had a modified curriculum with 3 modules. Team building activities were also incorporated into the curriculum to stress the importance of interpersonal and communication skills when collecting data as a field crew.

Diversification of age range and camper registration tactics was maximized in order to gauge strategy effectiveness. While overall grade level range spanned from 2<sup>nd</sup> to 11<sup>th</sup> graders, each individual camp had no more than a four grade span in order to keep camp curriculum age

appropriate. Participants within each camp were also split into similarly aged groups to further minimize any cognitive gaps. Camper recruitment tactics included: open registration, working with youth in existing camps, a teen employment forestry program, and a free walk-in day camp with a meal program for needy families.

Camper assessments (Appendix C) were designed and implemented for all camps but the youngest due to cognitive limitations. Assessment questions focused on enjoyment level and knowledge gained for the camp as a whole as well as by activity station. Assessment questions were both qualitative and quantitative.

#### *Student Temporary Employment Program Staffing*

Two STEP technicians (Caprice Fasano and Stephen Nelson) were specifically employed to assist with Youth Fisheries Academy. These positions provided necessary and consistent camp staffing and in turn provided the technicians with valuable outreach experience. Three other STEP technicians from different WWFRO field projects assisted with the day camps as well (one camp event per). Cumulative camp staffing consisted of volunteers (2), partners (11), and USFWS employees (7). Activity station lesson plans, site visits and training sessions were made available for all camp staff. Staff was also encouraged to provide constructive feedback and suggestions as a means of improving camp curriculum.

This outreach campaign sought to provide educational and field experience to college students in addition to the 2<sup>nd</sup> – 12<sup>th</sup> graders targeted by the classroom visits and camps. As such, Caprice and Stephen were provided with a diversity of field experience to complement their outreach work. In addition, the WWFRO helped Caprice earn

independent study credits at Evergreen State College for her summer employment experience.

### *Activity Reporting with Social Media*

While a main role for these STEP students was to inspire participants in the Youth Fisheries Academy, their potential to serve as role models for other K-12 as well as college students in the immediate area and beyond was also recognized. We chose to share their experiences through social media. A blog journal component was therefore incorporated into Caprice's work and school responsibilities.

We initiated a WWFRO blog called "The Fish Files" at <http://the-fish-files.blogspot.com> that is linked to the USFWS Washington Fish & Wildlife Office web site. The Fish Files blog has two components. Caprice's STEP hire journal was dubbed "My Life Aquatic: A Look at A U.S. Fish & Wildlife Service Seasonal Employee's Summer Through A Fish-Eye Lens". Caprice's responsibilities were to submit periodic blog entries, photos and videos of her outreach and field experiences. A separate journal on the Fish Files blog featured a WWFRO river restoration assessment field project on the Hoh River. The goals for both journals were to educate the public on WWFRO efforts to conserve aquatic resources, teach young people about aquatic ecology and conservation science, and to promote career opportunities in fisheries conservation.

All of the aforementioned programming was feasible as a result of funding, staffing and material support from within and outside of the USFWS Youth Fisheries Academy Day Camp staffing support from partnerships, for example, was essential because most biologists and technicians were unavailable due to summer field work obligations.

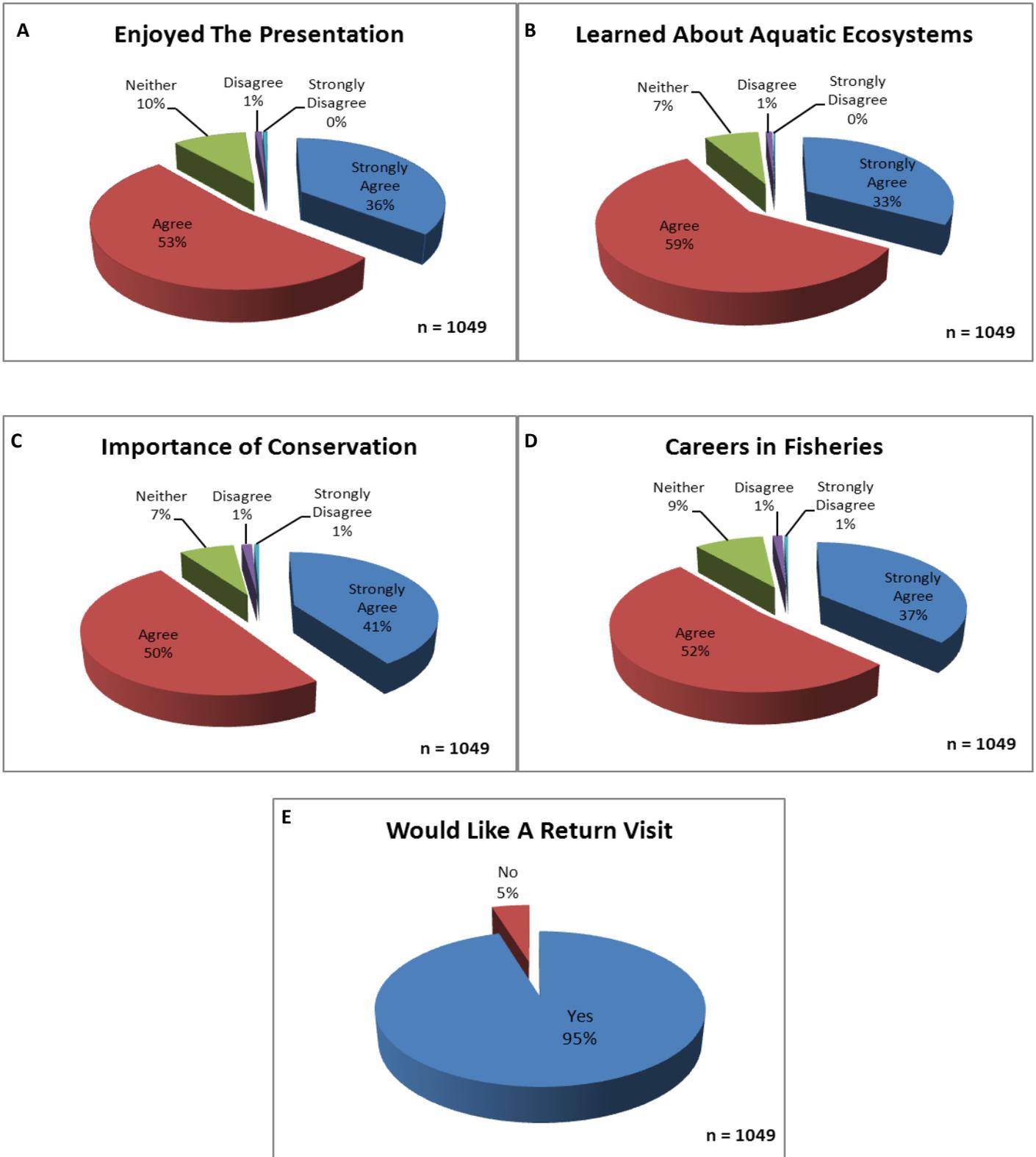
## **Results:**

Classroom presentations occurred between March 31<sup>st</sup> and June 10<sup>th</sup>, 2010. A total of 8 schools, 16 teachers, 59 classes and 1,184 middle school students were reached through this programming. Classroom presentation assessments were completed and submitted by 1049 students and all 16 teachers. Semester transitions and teacher coordination issues resulted in the 125 student discrepancy between presentation observation and assessments completed and submitted. All student assessment data was entered, regardless of any presentation issues such as shortened periods, earthquake drills and technological issues with school computers/projectors.

Those who enjoyed the presentation accounted for 89% (answering strongly agree or agree) while 9.7% were neutral and less than 2% of students had an unfavorable opinion (Figure 1 A). A majority of 92% felt they learned about aquatic ecosystems while 7% were neutral and less than 2% disagreed (Figure 1 B). At 91%, most students felt they learned about the importance of fisheries conservation and 9% either neutral or disagreed (Figure 1 C). A majority of 89% believed they learned about careers in fisheries conservation while 9% were neutral and 2% disagreed (Figure 1 D). When asked if they would like a return visit from the USFWS fisheries instructor, 95% selected yes (Figure 1 E).

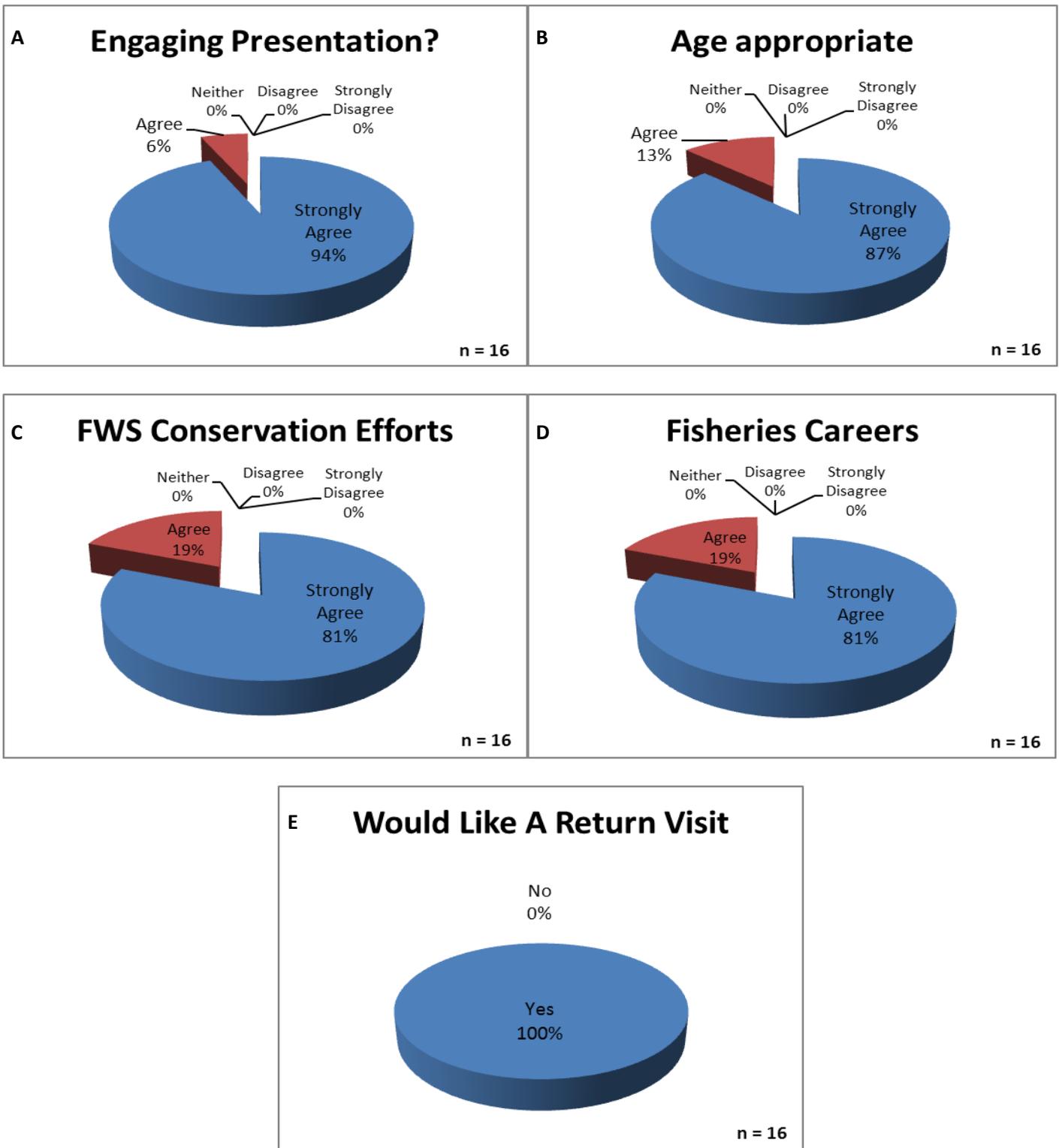
Common constructive criticism from students included a desire for more hands on activities and aversion towards the biological samples (invertebrates and juvenile salmonids in alcohol) that were passed around the class. Common positive feedback from the comment section included favorable views towards the activities, PowerPoint photos, and the biological samples.

Figure 1. Middle school student responses to questionnaire post WWFRO classroom presentation



All 16 middle school teachers agreed that the presentation was both engaging (Figure 2 A) and age appropriate (Figure 2 B). Teachers were also in 100% agreement when asked if their students learned about fisheries conservation efforts by the USFWS (Figure 2 C) as well as careers in fisheries conservation (Figure 2 D). Common constructive criticism included recommendations for a slower pace and slightly less content. Positive feedback included: covered state standards, good activities, instructor enthusiasm, exciting photos and real life examples of career experiences. When asked if they would like a return visits and additional activities by the USFWS fisheries presenter, 100% selected yes (Figure 2 E). Follow up comments for that answer consistently stressed that field trips would be great but transportation costs and logistical challenges are hard to overcome.

Figure 2. Middle school teacher responses to questionnaire post WWFRO classroom presentation



WWFRO assisted with seven other outreach projects leading up to the Youth Fisheries Academy.

<b>Partner's Outreach Projects Assisted by WWFRO</b>				
<b>Event</b>	<b>Location</b>	<b>Dates</b>	<b>Number</b>	<b>Age Range</b>
Student Congress (Chehalis Basin)	Aberdeen	03/19/10	32	10 - 14
Islandwood Nature Camp	Bainbridge Island	04/6-7/10	105	10 - 14
Tolmie State Park Field Trips	Lacey	04/26 - 6/1/10	192	12 - 14
Kids at the Beach Field Trip	Steilacoom	6/15/10	50	9 - 11
Nisqually NWR Field Trip	Olympia	6/16/10	52	10 - 11
Natural Resources Youth Camp	Randle	06/22-23/10	54	12 - 16
NW Youth Conservation & FF Academy	Lacey	06/24/10	25	12 - 16
			<b>Total</b>	<b>510</b>

Involvement ranged from 45 min to 2.5 hour fisheries modules at field trip sites to residential camps respectively. A total of 510 youth participated in these events and the overall age span ranged from 9 to 16.

The Youth Fisheries Academy programming included five separate camps in four cities.

<b>Youth Fisheries Academy Events and Participation</b>				
<b>City</b>	<b>Date</b>	<b>Age range</b>	<b>Number</b>	<b>Registration</b>
Lacey	7/14/10	10 - 14	14	YFA specific through Parks & Rec
Shelton	7/15/10	14 - 17	24	Existing 4-H Forestry Employment Program
Tumwater	7/20/10	10 - 14	12	Existing Parks & Rec Day Camps
Olympia	7/21/10	11 - 14	9	Existing Parks & Rec Day Camps
Shelton	7/28/10	7 - 10	62	Free, existing day camp with free meals
<b>Totals</b>		<b>7 - 17</b>	<b>121</b>	

There were 121 participants with an overall age span of 7 to 17 years. Staff to camper ratio varied from 1:6 to 1:2. Assessments collected from the first four camps (none given to the youngest group) showed that 90% of participants both enjoyed the camp and gained knowledge (Figures 3 A, 3 B). Enjoyment of individual modules ranged from 68% to 85% and knowledge gained ranged from 81% to 88% (Figures 3 C – 3 J).

Figure 3. Participant responses to questionnaire post Youth Fisheries Academy.

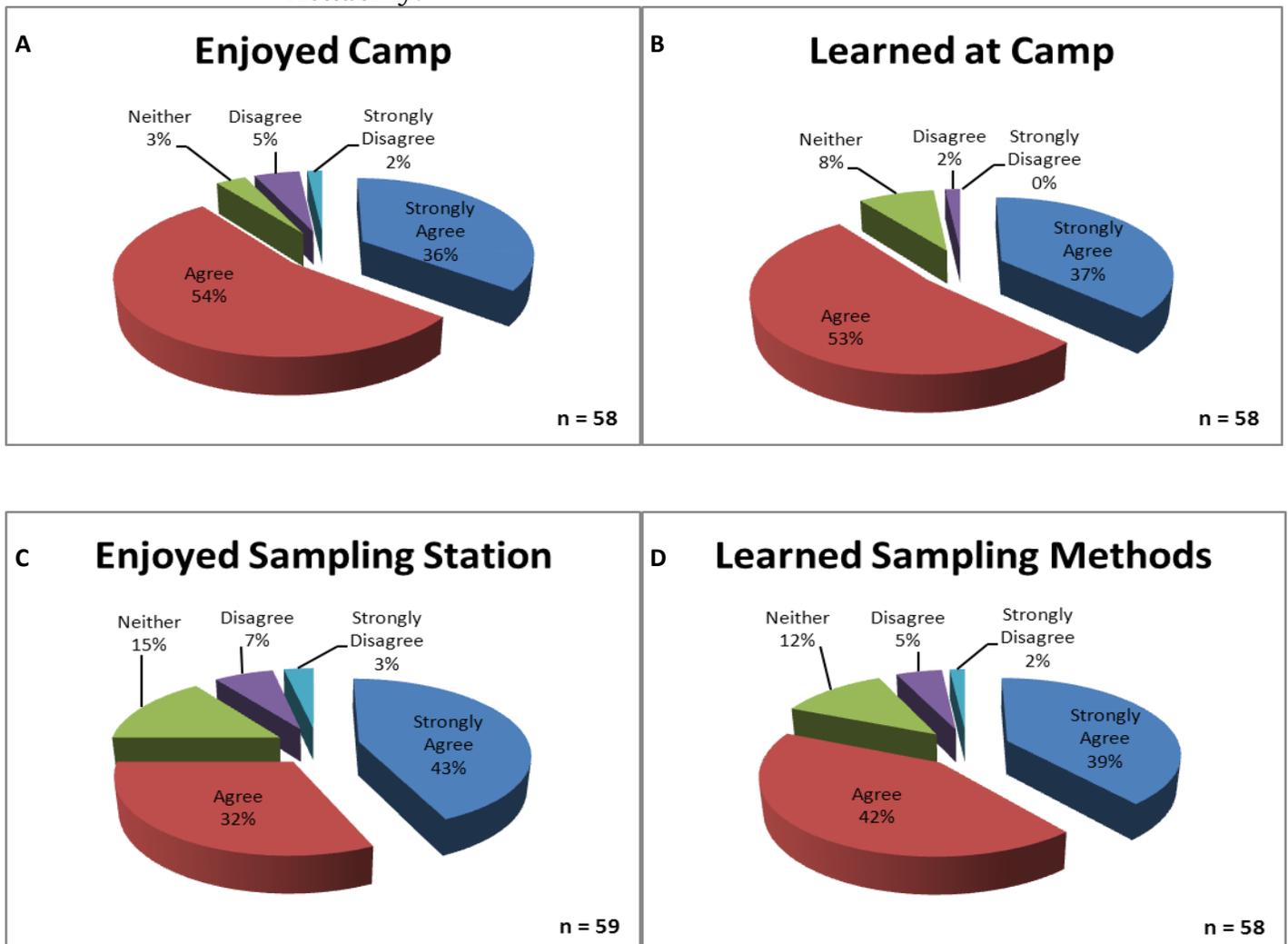
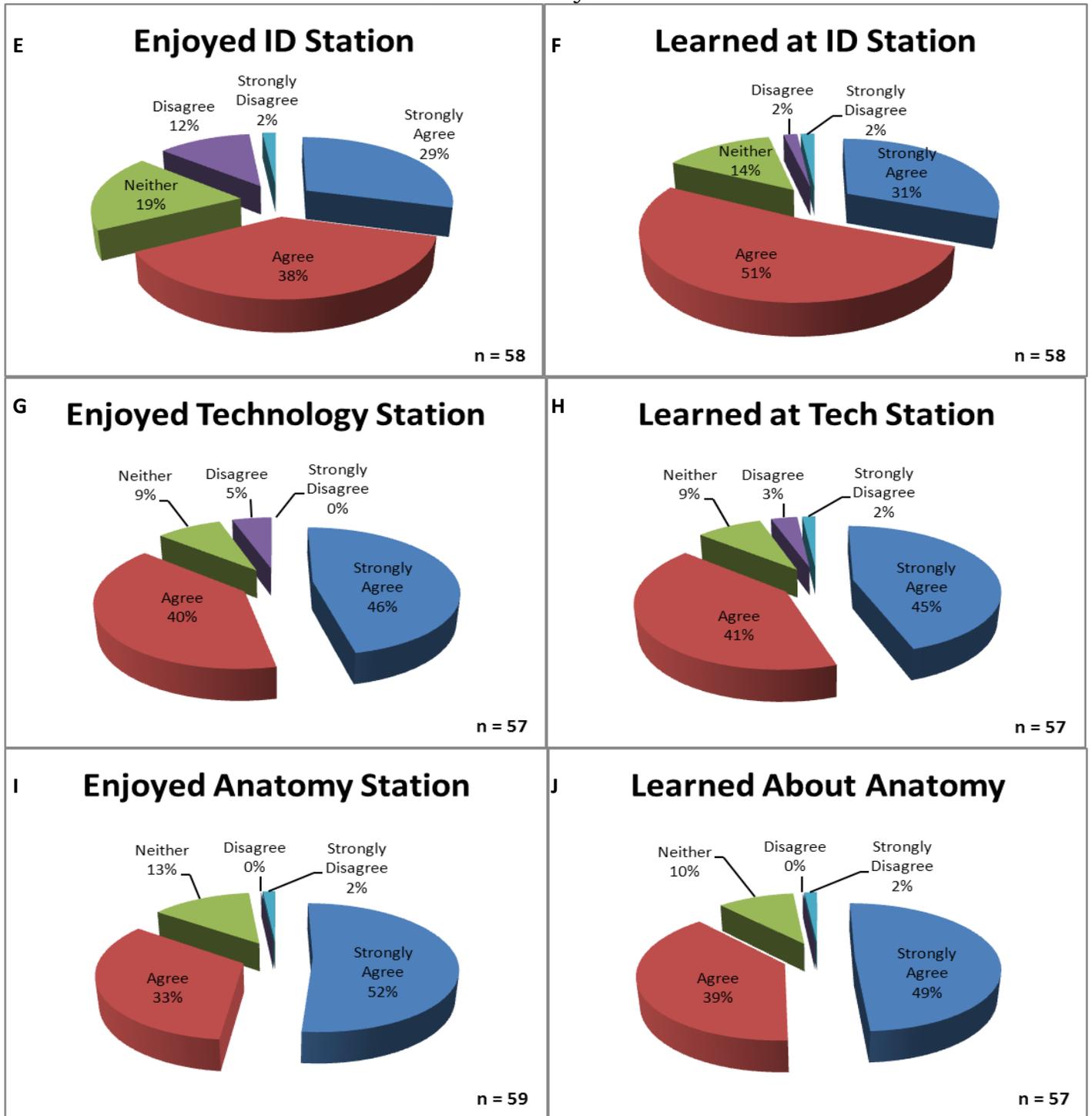


Figure 3 continued. Participant responses to questionnaire post Youth Fisheries Academy.



The overall programming numbers leading up to and including the Youth Fisheries Academy day camps totaled out at 1815 participants with an age range of 7 to 17.

<b>Total Programming Outreach Contacts</b>			
<b>Type</b>	<b>Age Range</b>	<b>Participants</b>	<b>Contact Hours</b>
Classroom Visits	11 - 14	1184	1184
USFWS Assisted Programming	9 - 16	510	719
Youth Fisheries Academy	7 - 17	121	485
<b>Totals</b>	<b>7 - 17</b>	<b>1815</b>	<b>2388</b>

There was a total of 2388 contact hours when factoring the number of hours of instruction received by each participant in their respective events.

This programing was funded by multiple USFWS sources and numerous partner contributions.

<b>Program Support</b>			
<b>Source</b>	<b>Type</b>	<b>Funding</b>	<b>In-Kind</b>
WWFRO	Staff & Materials	\$17,000	\$0
WFWO CPWN Funding	Materials	\$2,000	\$0
FWS Region 1 RO Careers & Nature Funding	Staff & Materials	\$30,000	\$0
FWS Region 1 RO CPWN Funding	Materials	\$996	\$0
American Fisheries Society - WA & BC	Materials	\$500	\$0
City of Lacey	Staff & Facilities	\$0	\$450
City of Olympia	Staff & Facilities	\$0	\$400
City of Tumwater	Staff & Facilities	\$0	\$450
Thurston Conservation District (SS Green)	Materials	\$0	\$400
Mason Conservation District	Staff & Materials	\$0	\$200
Chehalis Basin Education Consortium	Staff & Materials	\$0	\$200
Squaxin Island Tribe	Staff & Materials	\$0	\$300
WSU Shelton Extension	Staff	\$0	\$200
Volunteers	Staff & Materials	\$0	\$500
Evergreen State College	Materials	\$0	\$100
	<b>Totals</b>	<b>\$50,496</b>	<b>\$3,200</b>

Non WWFRO station funds totaled \$33,496 along with \$3200 of in kind from partners.

In addition to outreach experience, Caprice Fasano and Stephen Nelson each assisted with three different field projects in their remaining weeks as STEP employees. Caprice posted three blog entries and is currently working on a final posting.

Both Caprice and Stephen completed resume updates and revisions as part of the career mentoring process. Before and after resume examples are included in the appendices D and E.

## **Discussion:**

Both quantitative and qualitative assessment data verified the success of the classroom visits and provides strong justification to continue such efforts in the future. While documenting less than 2% of students who disliked the presentation (Figure 1 A) and 95% of students wanting return visits (Figure 1 E) is concrete support in and of itself, it should also be noted that these data includes students who were turned off by biological samples and classrooms whose presentations were effected by technical difficulties and shortened periods.

In addition to the assessment forms, comments received during and after the presentations also validate the effectiveness in achieving programming goals. Classes were enthusiastic as they learned about salmon based food webs, for example, and an average of one to two students per class commented on their desire to pursue careers in fisheries conservation. Planting such seeds of interest at the middle school level should do much towards fostering the future fisheries conservation work force, let alone a general public who supports conservation efforts.

The feedback from the teachers were even more striking; with 100% agreeing the presentation was engaging, age appropriate, and their students learned about methods of and careers in fisheries conservation (Figures 2 A – 2 D). In addition, 100% of teachers indicated they wanted follow up visits (Figure 2 E). Echoing the student assessments, these data show a strong demand for these presentations as well as additional programming. Implementing additional school programming is highly recommended as this would serve as excellent follow ups to the presentation and would allow for more student involvement through hands on activities.

The feasibility of such follow up visits would be dependent on funding. The number and type of follow up visits are school dependent. The most ideal situation would be USFWS led field trips, however almost all teachers commented that field trips are logistically and financially complicated. Bringing the field to the classrooms would therefore be the primary route in order to insure the neediest students are not left behind.

While feedback from classroom visits was overwhelmingly positive, there is still room for content and strategy improvement. Multi-class presentations (up to three at a time), for example, received relatively less favorable assessments compared to single class visits. This was likely due supply limitations for the hand-outs and activity portions of the presentation as well as less time to answer student questions. As such, there will be a stronger emphasis on presenting to individual classes.

Constructive criticism from assessment forms also indicated a desire for sacrificing some content for additional hands on activities. This presentation was designed as an introduction and overview of fisheries conservation. With that in mind, goals included providing field work examples of each concept mentioned in the presentation introduction while meeting as many science state educational standards as possible. Achieving these goals and including interactive and hands on activities made for a packed 50 min presentation. Some slides and content were reduced or eliminated throughout the spring as feedback was reviewed. Nevertheless, we plan on adding one additional activity and slimming down the remaining presentation slides to find a better balance.

In addition to classroom visits, significant time was also spent assisting with partner outreach events in the months leading up to the Youth Fisheries Academy. Assisting with partner outreach programming had multiple benefits, including: additional opportunities to connect young

people with nature and promote eco literacy, additional FWS presence and visibility in the community, additional avenues to promote the Youth Fisheries Academy, opportunities to test curriculum prior to the Youth Fisheries Academy and establishing/strengthening outreach partnerships. The Natural Resources Youth Camp, for example, was Thurston Conservation District programming. I was able to teach four 2.5 hour modules to the camp, allowing for ample time and repetitions to test and refine fisheries curriculum. The partnership established through programming paid additional benefits as we were provided staffing and material loans for the Youth Fisheries Academy. In addition to these benefits, future participation in this programming will provide opportunities for STEP hire outreach training leading up to the Youth Fisheries Academy camps.

The Youth Fisheries Academy day camps were highly successful, with 90% of the surveyed participants enjoying the programming (Figure 3 E) and 92% feeling they learned (Figure 3 B). These data on their own speaks volumes for the curriculum and staff, but are further strengthened when considering the time of year, age range of campers, and registration methods. Participating in a biology based educational camp in the heart of summer break is probably not what the typical youth considers to be fun time. Participants enjoyed the camp despite this challenge and the curriculum worked for a wide age group (10-17 years for surveyed campers) with minimal adjustments for cognitive abilities.

Due to the diversity of recruitment arrangements, only one Youth Fisheries Camp had open registration for the single day event. All other participants were lent to us for the day from week or summer long programming they were already enrolled in with a city or other partner. The fact that over three quarters of the surveyed campers did not

voluntarily register for the event, yet still enjoyed the camp, makes the positive assessment data even more meaningful.

While the assessment data for the four Youth Fisheries Academy camp modules were all positive, they do show some room for improvement. While 82% of participants felt they learned at the identification station (Figure 3 E), for example, 67% enjoyed it (Figure 3 E). This was still strong positive feedback for being the least popular module, however new ways of spicing up this as well as other modules will be brainstormed, developed and tested in the offseason.

The STEP hires were essential to the summer camp programming, as it can be a challenge for permanent staff to find time in the middle of the field season. STEP employment along with the camp director provided the consistent staffing for three of the four modules. Staffing gaps were filled with other FWS staff members, partners and volunteers. Caprice and Stephen did a fantastic job as STEP instructors and received strong assessment reviews for their assigned modules (Figures 3 C & 3 D for Caprice, Figures 3 G & 3 H for Stephen). Both STEP hires had some level of youth experience (baby sitter and camp counselor respectively), but not in as instructors for aquatic science. This experience has given them the skills and confidence needed to participate in future outreach endeavors.

There is some debate as to the strategy for hiring future STEP technicians for outreach purposes. If one of the goals is to develop future fisheries biologists who are comfortable contributing to and participating in outreach efforts, it would make sense to select future STEP hires who have limited or no experience in outreach. It can be difficult for analytical thinkers to communicate with adults let alone youth so this experience could therefore provide the training and

experience for such individuals. On the other hand, we also want to produce the highest quality outreach experience for our campers. This goal would be at risk if selecting STEP hires with weaker interpersonal skills and/or limited outreach experience. As such, finding a balance between those two goals will be a necessity.

Hiring STEP technicians with varying degrees of experience and increasing employment duration to allow for extra training are two ways to achieve this balance. Facilitating increased camp staffing from the USFWS, partners and volunteers may be another. This would allow more opportunities for module observation and assistance by the less confident STEP students, eventually culminating towards running a module on their own.

The last component of the outreach effort was the fisheries blog. This blog served as an additional route to inform the public about our outreach and field projects as well as to promote career opportunities. Caprice served as a great role model for young people as she shared her experiences through her blog page. Unfortunately we were not able to collect site visitation statistics for this pilot effort. We are currently looking into utilizing Google Analytical for this need.

Beyond their outreach efforts, Caprice and Stephen were able to assist with a number of field projects. This field work diversification has allowed them to explore potential areas of focus for higher education as well as strengthen their ability to compete for future employment opportunities. In addition to receiving field work mentoring, both Caprice and Stephen were provided with resume counseling. Appendices D through E show the difference between Caprice's STEP application resume verses her post experience resume.

## **Conclusion:**

Promoting eco literacy and positive experiences in the outdoors are necessary in order to cultivate an informed and concerned public that will support conservation efforts. Promoting careers in conservation is needed to inspire future generations of skilled and enthusiastic biologists. These broad needs were directly and successfully addressed to a large number of youth through our diverse outreach campaign. Assessment data from classroom visits and the Youth Fisheries Academy day camps, for example, showed strong positive response for both enjoyment and knowledge gained from participating in the aquatic science curriculum. Qualitative and quantitative data showed increased awareness of and interest in careers in fisheries conservation as well.

This multi-layered outreach strategy provides a strong foundation and supportive scaffolding for youth (2<sup>nd</sup> grade through college) as they gain knowledge and explore interests and career options. From single classroom visits to professional employment opportunities, each component fills an important role over a wide age range and should thus be continued and expanded upon in future years.

From a geographic perspective, target areas for expansion would include Centralia and Chehalis. Similar to Shelton, the populations of these two towns are socio-economically and culturally diverse. As our nation becomes more and more diverse, we must strive to ensure that our message of conservation and our efforts to connect people with nature reaches an audience equally diverse as our general population. Tacoma and Seattle would be other areas of interest as they would allow us to reach more youth in urban settings. These youth typically have the fewest opportunities to experience nature. We are also examining the potential viability of working with Western Washington tribes to pilot the

program in tribal communities located on the Washington Coast and in Puget Sound. The Squaxin Island tribe provided in-kind support this past year by demonstrating beach seining sampling techniques with their boats and staff for one of our camps. Perhaps we can build off this initial partnership and offer to develop a camp for the Squaxin tribal community youth this coming year. Additionally, Quinault and Makah tribes benefit from National Fish Hatchery fish production programs and thereby may be receptive to receiving our outreach program in their communities. For other tribes, we will work with the Northwest Indian Fisheries Commission to identify additional opportunities to develop camps and programs.

From a programming perspective, there are many options for expansion. Examples of simple programming additions would include after school program visits, participation in high school career day events and providing resume counseling clinics for high school and college students. Arrangements have been made for providing activities for afterschool programming in Centralia this October for example. This effort will take minimal prep work as curriculum can be pulled right from the summer camp activities. Career days and resume counseling clinics would likewise require minimal preparation.

More involved projects would include multi-visit school programming and assistance with high school senior projects. A tentative curriculum is being developed this fall for monthly classroom visits. A local school has expressed interest in piloting this curriculum with a potential for implementation in early 2011. There is also great potential for participation in the senior culminating projects. Every high school senior in the local area are required to complete a self-directed community service project with reflective papers and presentations in

order to graduate. USFWS staff can assist as project facilitators and mentors.

We are currently working to help one youth this fall with his project. Describing a fisheries biologist position as being his “dream job,” this high school senior contacted us last spring after his younger brother told him about the USFWS fisheries conservation classroom visit at his middle school. WWFRO office is working to help him find a project that will give him experience in aquatic science. Such experience could put him in a position to compete for a STEP position in the summer leading into his first year of college. This is a perfect example of the educational and professional scaffolding that we can provide for young people.

The full scope of this outreach programming over the past seven months could not have been possible without the financial and in-kind support of the USFWS Regional Office and our partners. The Youth and Careers in Nature funding provided by the Regional Office was instrumental as it provided the financial means to partially employ the outreach curriculum director and fully employ the two STEP students. Small grant funding through the Washington Fish and Wildlife Office, Region 1 Regional office and the Washington & British Columbia chapter of the American Fisheries Society allowed for the purchase of needed equipment. Support from our numerous partners and volunteers helped provide the staffing and material loans necessary to provide a high quality experience for those who participated in our programming. Maintaining such support will be critical as the WWFRO strives to continue and expand upon the aquatic conservation and education outreach efforts from this past year.

# Appendix A

## Student Assessment Questions

Fisheries Conservation Presentation

School: \_\_\_\_\_ Teacher: \_\_\_\_\_ Grade: \_\_\_\_\_

Date: \_\_\_\_\_

**1. I enjoyed this presentation.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**2. I learned about aquatic ecosystems.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**3. I learned about the importance of fisheries conservation.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**4. I learned about careers in fisheries conservation.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**5. I would like Mr. Spencer to visit my class again for fisheries related activities (classroom and/or field trip).**

Yes    No

**6. What did you like the least about the presentation?**

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**7. What did you like the most about the presentation?**

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**8. Please include any questions you have for Mr. Spencer that were not addressed during the presentation.**

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# Appendix B

## Teacher Assessment Questions

Fisheries Conservation Presentation

School: \_\_\_\_\_ Grade(s): \_\_\_\_\_ Name: \_\_\_\_\_

Date of visit: \_\_\_\_\_ Number of Students: \_\_\_\_\_

**1. Mr. Spencer's presentation was engaging.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments: \_\_\_\_\_

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**2. Mr. Spencer's presentation was age appropriate.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments: \_\_\_\_\_

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**3. My students have a better understanding of the fisheries conservation work the U.S. Fish & Wildlife Service engages in after having Mr. Spencer in our classroom.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments: \_\_\_\_\_

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**4. My students are now more aware of careers in fisheries conservation after having Mr. Spencer in our classroom.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments: \_\_\_\_\_

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**5. Would you like your students to participate in future aquatic science activities (classroom and/or field trip) with Mr. Spencer?**

Yes    No

**Please Turn the Page**

# Appendix B Continued

## Critiques by Topic

### Fisheries Conservation:

6. Please share any constructive criticism you have for this portion of the presentation:

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7. What did you like the most about this portion of the presentation?

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8. Please share any suggestions you have for improving this portion of the presentation.

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### Aquatic Ecology/Food Webs & Fish Physiology:

9. Please share any constructive criticism you have for this portion of the presentation:

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10. What did you like the most about this portion of the presentation?

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11. Please share any suggestions you have for improving this portion of the presentation.

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### Careers in Fisheries Conservation:

12. Please share any constructive criticism you have for this portion of the presentation:

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13. What did you like the most about this portion of the presentation?

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14. Please share any suggestions you have for improving this portion of the presentation.

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# Appendix C

## Camper Assessment Questions

Youth Fisheries Academy 2010

Camp Location: \_\_\_\_\_

Date: \_\_\_\_\_

### Overall Course

**I enjoyed this activity.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**I learned about fish and the many techniques used to study them.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

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### Identification Station

**I enjoyed this activity.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**I learned how to distinguish salmon and invertebrate species.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

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### Technology Station

**I enjoyed this activity.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**I learned about the many ways technology is used to locate and track fish.**

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

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# Appendix C Continued

## Camper Assessment Questions

Youth Fisheries Academy 2010

### Dissection Station

I enjoyed this activity.

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

I learned the internal and external anatomy of salmon.

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments (favorite/least favorite part, what was the most interesting?):

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### Sampling Station

I enjoyed this activity.

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

I learned about the importance of sampling habitats and populations.

Strongly Agree    Agree    Neither    Disagree    Strongly Disagree

Comments (favorite/least favorite part, what was the most interesting?):

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# Appendix D

## STEP Application – Initial Resume

CAPRICE FASANO

██████ 2<sup>ND</sup> AVE SW APT.# 3 TUMWATER, WA 98512

██████ [UN@HOTMAIL.COM](mailto:██████@HOTMAIL.COM)

(253) 970-██████

### OBJECTIVE

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My objective is to obtain an internship position with the Washington State Department of Transportation. My goal is to gain additional field sampling skills and learn more restoration monitoring methods.

### EDUCATION

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B.S., The Evergreen State College    Olympia, Washington    September 25<sup>th</sup> 2006- Summer 2010

### SKILL SUMMARY

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- Initiative, creativity, and willingness to learn.
- Maintain a pleasant demeanor, patience, a helpful attitude and professionalism when dealing with complaints.
- Completion of assigned tasks within time constraints or deadlines.
- Strong communication and networking skills.
- Strong organizational, analytical, writing and problem solving skills.
- Organized, self motivated, detailed-oriented, multi-tasker and team player.

### WORK EXPERIENCE

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**Intern,** Land & Watershed Management, USDA Forest Service, PNW Research Station  
September- December 2009

- Helped conduct a study on two debris flows in Capitol Forest.
- Participated in stream habitat surveys, electro fishing surveys, measuring stream velocity, and monitoring vegetation plot surveys.
- Gained experience in methods of analyzing data using EXCEL and methods to present data visually using PowerPoint.

**Nanny,** Lacy, Washington    November 2008 - Present

- Provide a safe, clean, and fun environment for a one year old and a three
- Prepare the children meals, get them down for naps, and clean up the kitchen and play area.
- Changing diapers and help maintain clean hygiene for the children as well.

**Note Taker,** The Evergreen State College, Olympia, Washington    September- December 2008

- Took notes for a disabled student in my chemistry class.
- Gained experience with working with diverse people groups.
- Perfected note taking skills.

# Appendix E

## Post Experience & Resume Counseling

**Caprice Fasano**

████ 4<sup>th</sup> Ave █████  
Tacoma, WA 98422

Phone: (253) 970-████  
Email: █████sun@hotmail.com

### **Objective:**

To secure a fisheries technician position and gain more field technical experience and training.

### **Education:**

**High School:** Stadium HS – June 2006, Tacoma, WA

**College:** The Evergreen State College – September 2010, Olympia WA  
**Degree:** BS; Environmental Science/Stream Ecology

### **Work Experience:**

**Biological Aid (Fisheries Technician) GS 0404 03**  
**July 7<sup>th</sup> to September 3<sup>rd</sup>, 2010**  
**40 hrs/wk, \$12.50/hr**  
**Dan Spencer (Supervisor), (360) 753-9440**

**WA Fish & Wildlife Office (USFWS)**  
**Fisheries Division**  
**510 Desmond Drive SE**  
**Lacey WA, 98503**

**Youth Fisheries Academy:** Served as an instructor and curriculum collaborator for the Youth Fisheries Academy. These day camp events were designed to teach youth (10 – 17 years of age) about fisheries science through hands on experiences.

- Planning and Implementation
- Taught children how to sample: benthic macro invertebrates, substrate, river discharge, canopy cover and riparian vegetation. Also ran team building activities.
- Taught solo and with outreach partners

**Intertidal Habitat Monitoring Project:** The purpose of the project is to provide data for the Elliott Bay/Duwamish Restoration Program (EBDRP).

- Collected field data in an estuary
- Measured length and width of habitat for significant species.

**Hoh River Project:** This project investigates the response of fish and river habitat to stabilizing techniques including riprap and engineered log jams.

- Beach/Herd Seining & Minnow trapping.
- Surgically inserting PIT tags
- Fish Identification, lengths, weights & PIT tag scans
- Data entry
- Included: strenuous work, night sampling, inclement weather, and swift water.

**WIRA 8:** This is a long term project monitoring status & trends of urban streams in King County.

- Habitat assessment (Pebble Counts, Canopy Cover, Riparian Vegetation Surveys)
- Electro-Shocking
- Fish Identification, lengths, and weights

**Social Media Project:** I was a major contributor to a pilot outreach program aimed at informing the general public about FWS projects and career opportunities.

- Authored blog postings documenting my experiences as a FWS STEP employee.
- Managed and submitted photo and video documentation of outreach and field projects.

# Appendix E Continued

## Post Experience/Resume Counseling (page 2)

**Caprice Fasano**

█████ 4<sup>th</sup> Ave █████  
Tacoma, WA 98422

Phone: (253) 970-█████  
Email: █████sun@hotmail.com

**Intern**  
September to December, 2009  
Shannon Claeson (Supervisor)  
(360) 753-7697

**Land & Watershed Management**  
USDA Forest Service Station, PNW Research  
3625 93rd Avenue SW  
Olympia, WA 98512

**Capital Forest Debris Flow Study:** Helped conduct a study on two debris flows in Capital Forest focusing on fish and animal re-colonization.

- Stream habitat surveys (identifying and measuring habitat units)
- electro fishing surveys (three pass depletion method)
- Vegetation plot surveys
- Data entry and management
- Data analysis using EXCEL
- Presented findings to peers & professors via PowerPoint

### Volunteer Experience:

**Field Volunteer**  
April – June, 2010

**Washington Department of Natural Resources**

**Northern Spotted Owl Conservation Monitoring:** This project focused on two timber sites assessing the effects of variable density riparian thinning on aquatic ecosystems.

- Water Quality Sampling (including macroinvertebrate, DO, and PH)
- Riparian Thinning Treatment techniques and Riparian Monitoring methods.
- Worked independently in the field
- Assisted with statistical analysis

### Training:

AED, CPR, and First Aid (USFWS)- July 2010  
Defensive Driving (USFWS)- July 2010

### Other interests:

Camping, hiking, photography, swimming, surfing, volleyball

# Appendix F

Campers hone their radio telemetry tracking skills.



Shelton 4H Forestry Program student dissects a trout.



Campers developing their own fish identification key.



Identifying captured fish using skills learned at the fish ID station.



Caprice Fasano assists with sampling events on the Hoh River.



Caprice Fasano identifying and measuring captured fish (Hoh River).

