National Fish and Wildlife Foundation
Final Programmatic Report

Project Name and Number:	Derelict Fishing Net Removal in Puget Sound (2008-0043-005)
Recipient Organization/Agency:	Northwest Straits Marine Conservation Foundation
Recipient Contact:	Ginny Broadhurst
Recipient E-mail:	foundation@nwstraits.org
Recipient Phone:	360-733-1725
Recipient Web Address:	www.nwstraits.org

1) Summary

In four to five sentences, provide a brief, cumulative summary of the project.

Thirty-one days of derelict fishing gear removal operations were conducted from October, 2008 through August, 2009. Removals were conducted in the San Juan archipelago at Lawson's Reef and off of Lummi, Lopez, and San Juan Islands. One hundred twenty-three (123) derelict gillnets, 8 purse seines, and four crab pots were removed. Nets measured 16.2 acres. More than 8,000 animals were found entangled in the removed gear, including eight dead marine birds and 29 fish. Five days of derelict fishing gear surveys were conducted in the San Juan archipelago. Fifty-eight derelict net sites were identified with approximately 77 nets documented for future removal.

2) Introduction

Describe the original conservation need and objectives.

Derelict fishing gear includes nets, lines, crab and shrimp pots and other equipment that is abandoned or lost in the marine environment. Nets can be lost when entangled with underwater pinnacles and rocks and may continue to fish for years, causing the unobserved death of thousands of marine animals, including migratory marine birds.

The United States Fish and Wildlife Service (USFWS) identified derelict fishing gear removal as a conservation need during the 2005 Puget Sound Seabird and Seaduck Research Meeting. The WDFW recognized that derelict fishing gear is a significant problem in state waters and developed a Derelict Fishing Gear Reduction Plan. The Puget Sound Partnership identified derelict fishing gear removal as an immediate, priority action to restore marine habitat in Puget Sound in its final recommendations to the Governor, Sound Health, Sound Future: Protecting and Restoring Puget Sound in 2006. The Northwest Straits Initiative established a goal of eliminating harm from derelict gear in Puget Sound by removing 80-90% of gear from high priority areas by 2012. This project was a step toward achieving that goal, by removing gear from priority migratory marine bird habitat.

The deadly effects of derelict fishing gear in the Puget Sound are well documented and the effects on migratory marine birds in Puget Sound are alarming. In our previous derelict gear removal efforts, we had found thousands of carcasses and bones of over 55 different marine species, including hundreds of migratory birds. Bird species represented include: Brandt's cormorant, pelagic cormorant, double crested cormorant, common loon, great blue heron, grebe,

merganser, and Pigeon Guillemot (all covered under the Migratory Bird Treaty Act). Other species found dead included: sea lions, harbor porpoise, harbor seals, otters, salmonids (including listed Chinook, chum and bull trout), sixgill shark, rockfish, lingcod, octopus, and crab.

In areas surrounding the San Juan archipelago, bird carcasses and bones regularly made up 20% of the animals killed in derelict fishing nets. Recent results of an ongoing net mortality research project indicated that one net lost for twelve years may have killed hundreds, perhaps a thousand birds, over the years. In another location in the San Juan archipelago, three feet of bird bones were found adjacent to a derelict net, indicating the long-term mortality that derelict gear causes to birds. Thirty per cent of Puget Sound seabird populations are in serious decline. Western grebes and marbled murrelets have declined 95% in the last 20 years. Derelict fishing nets are a recognized factor in these declines.

The Northwest Straits Initiative has successfully implemented an ongoing derelict fishing gear removal program since 2002. At the time of this project proposal, we had removed 223 derelict nets from waters of the San Juan archipelago including areas around the Maritime Refuge Complex. Nevertheless, there remained 67 identified derelict gear sites (most representing multiple nets) in the area. There were likely hundreds more. These nets represented a significant threat to migratory marine bird species.

We proposed to remove 45 acres of derelict fishing nets from marine waters in and around the Washington Maritime National Wildlife Refuge Complex, which was created to protect marine birds and mammals by protecting nesting and haul out sites. The complex includes 82 sites (islands) in the San Juan archipelago and Protection Island in Puget Sound, Washington. Removing these nets would eliminate a source of mortality for hundreds of migratory marine birds and would restore approximately 34.5 acres of marine habitat. We had the full support for our project from the manager of the Maritime Refuge Complex and USFWS. The project area was near the Ferndale Conoco Phillips refinery and includes areas where the facility's ships travel. The Ferndale Conoco Phillips refinery was also very supportive of this project.

Project Objectives:

1. Eliminate mortality of migratory marine birds.
2. Restore approximately 34.5 acres of marine habitat.
3. Quantify the impact of derelict fishing nets on marine species.
4. Improved management of marine species in Puget Sound.

3) Methods

Describe all activities and methods. Give a yearly breakdown if this is a multi-year grant.

The Northwest Straits Foundation follows state-approved guidelines for the safe and environmentally-sensitive removal of derelict fishing gear, which were adopted by the Washington Department of Fish and Wildlife (WDFW) after a cooperative process with the Northwest Straits Initiative to develop the guidelines. For removal operations, the foundation contractor develops a removal plan and submits it to WDFW for review and approval.

For each removal operation, which focuses on a particular location and may last up to five days, state guidelines require the following notifications prior to removal operations:

- 3 days notice to the U.S. Coast Guard's Notice to Mariners system
- 3 days notice to the local WDFW fisheries enforcement office

- 3 days notice to tribal fisheries departments if the removal operation occurs in an area with frequent tribal subsistence or commercial fishing
- 3 days notice to the local naval environmental officer if the derelict fishing gear removal occurs in an area frequented by the U.S. Navy
- Request for permission from refuge manager if removal operations are planned in the vicinity of USFWS Washington Maritime National Wildlife Refuge Complex
- 3 days notice to city and county marine police and vessel transit control systems
- 7 to 10 days notice to security offices of sensitive areas such as oil or natural gas terminals if work is planned around such facilities
- Under Washington State Abandoned Property Law, the local county sheriff's office must be contacted and informed that derelict fishing gear is going to be removed, stored in a secure location and the owners contacted if they can be identified and allowed an opportunity to recover their lost gear.

After approval and appropriate notifications occur, removal operations begin. Typically the removal operation involves one vessel. The dive operation usually entails three or more trained divers using surface supplied air, bailout bottles and a two-way voice communication system. One diver removes the gear (the work diver) while a second diver stands by as a safety backup (backup diver) and a dive supervisor monitors all aspects of the dive operation. Nets are removed from the habitat by hand and, if necessary, cut loose where buried or encrusted. Dead and live animals are returned to the sea after identification and counting unless specimens are requested by federal or state agencies. Our removal contractor, Natural Resources Consultants (NRC), has current scientific collection permits from NMFS, USFWS, and WDFW.

The onboard project manager/biologist typically manages the removal operation, assures the guidelines are being followed, records the data and is available to meet with the media or the project proponent and explain what has been accomplished. Established contacts with public and private disposal companies are used to dispose of the non-recyclable net materials.

Surveys are conducted by towing a camera behind the survey vessel at slow speeds. Images are shown on a screen on board the vessel. When nets are sighted, the GPS location is documented. Later, the vessel returns to those locations and divers visually locate nets and locations are registered on a portable GPS unit for later input into a database. The number of nets is estimated and type of habitat is noted.

Removal and survey operations for this project began in October, 2008 and were completed in August, 2009. Thirty-one days of derelict fishing gear removal operations were conducted in the San Juan archipelago at Lawson's Reef and off of Lummi, Lopez, and San Juan Islands. One hundred twenty-three (123) derelict gillnets, 7 purse seines, and four crab pots were removed. Nets measured 16.2 acres. More than 8,000 animals were found entangled in the removed gear, including eight dead marine birds and 29 fish. Five days of derelict fishing gear surveys were conducted in the San Juan archipelago. Fifty-eight derelict net sites were identified with approximately 77 nets documented for future removal.

Bones and carcasses from nine birds were collected during removal operations. They were stored and transported to a freezer at the Northwest Fisheries Science Center and retrieved from there by Michael Etnier, of Applied Osteology, for identification. Dr. Etnier successfully identified all bird remains to species level. Table 1 is a full list of all species found in the removed gear.

Fig. 1: Logic framework table with indicators. *For additional guidance and examples, see http://www.nfwf.org/evaluation/*

Activities →	Project Outputs →	Post-Project Outcomes →	Indicator →	Baseline Value →	Predicted Value of Project Output →	Actual Value of Project Output →	Predicted Value of Post-Project Outcome
Remove 45 acres of derelict fishing nets*	Cessation of mortality of migratory birds and other species*	Increased number of migratory birds and other species*	birds/net	10%/net	10%/net	NA (see notes below)	<10%/net
Remove 45 acres of derelict fishing nets*	34.5 acres of marine habitat free from debris*	34.5 acres of marine habitat restored to full service functions*	acres uncovered	0	34.5 acres	16.2 acres	34.5 acres
Identify all species found in and around removed derelict nets*	Improved understanding of impact of derelict nets on marine species*	Improved marine species management*	% birds identified	<10%	50%	89%	50%
Identify all species found in and around removed derelict nets*	Improved understanding of impact of derelict nets on marine species*	Improved management of derelict gear in Puget Sound*	% birds identified	<10%	50%	89%	50%
Disseminate project results to USFWS and other resource managers*	Improved understanding of derelict net impacts on species in Maritime Refuge Complex*	Improved marine species management*	Distribution of report to USFWS	no	yes	yes	yes
Disseminate project results to USFWS and other resource managers*	Improved understanding of impact of derelict nets on marine species*	Improved marine species management*	distribution of results to WDFW, NWSC	no	yes	yes	yes

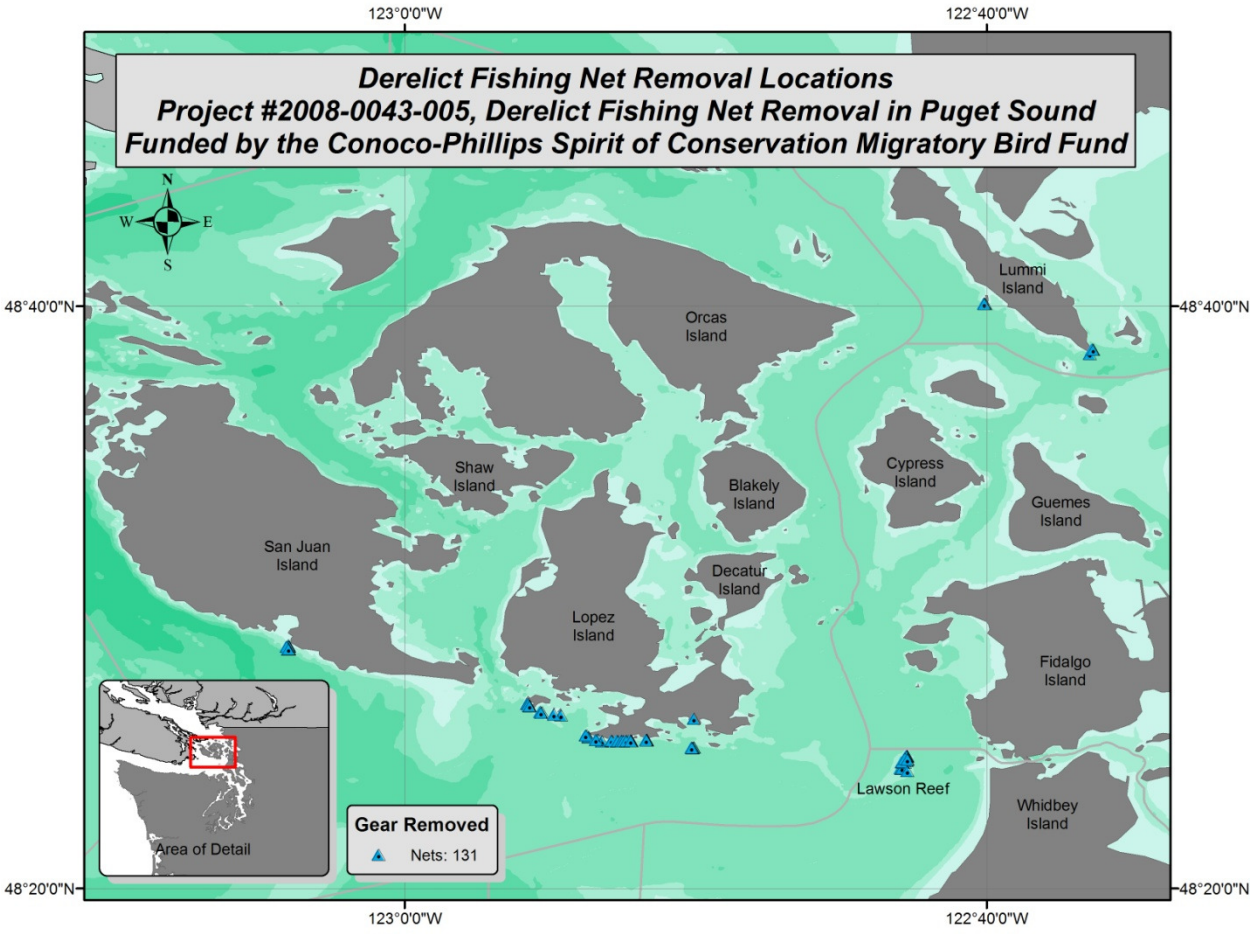
4) Results

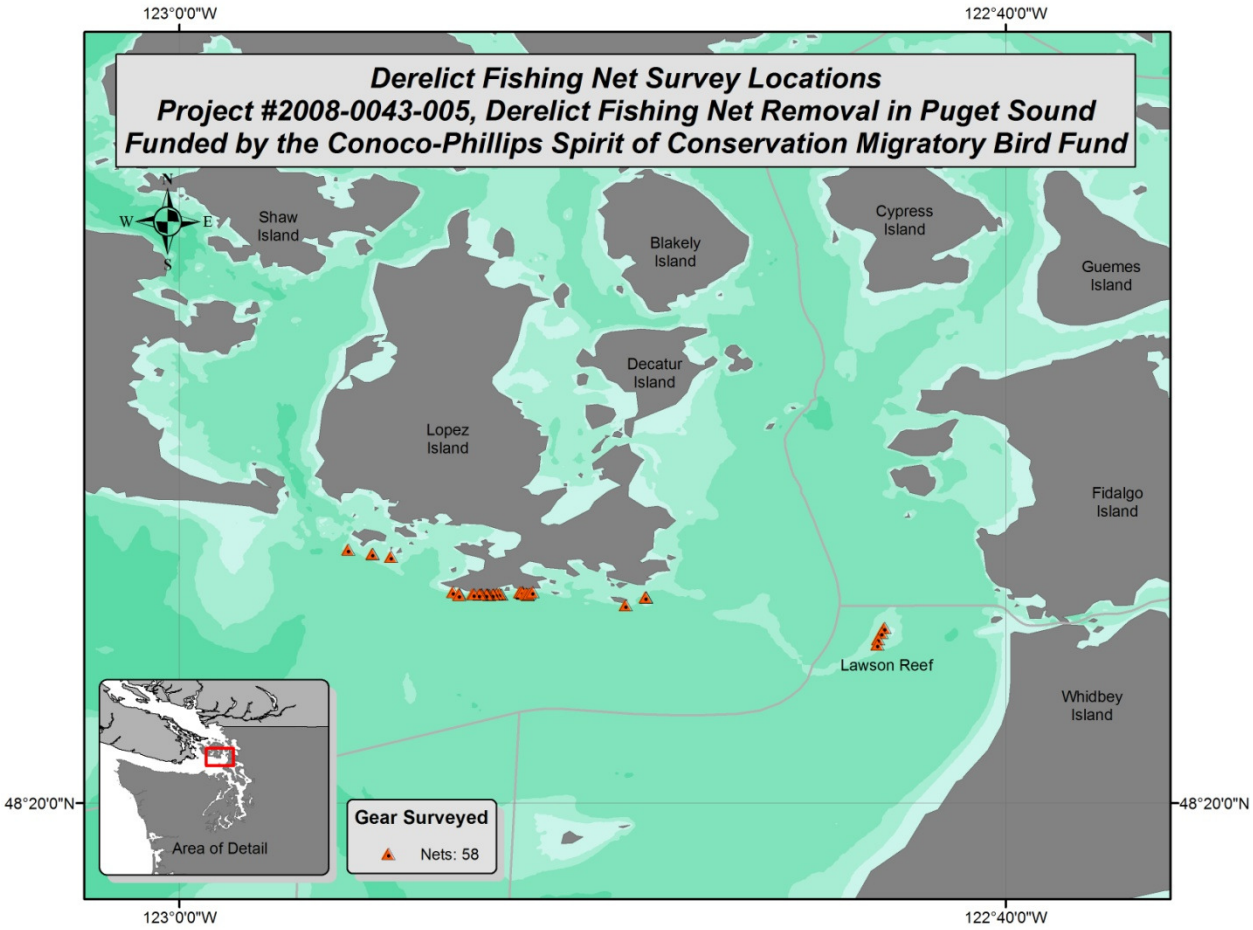
a) Outputs

i) *Using the logic framework model presented with your application (Fig. 1), enter in actual values of short-term outputs. Enter in any additional indicators not included in the full proposal used in the analysis. If your application did not include the logic framework, describe project outputs, any realized post-project outcomes and quantify the results using indicators and baselines.*

Please see completed logic model above.

ii) *Attach any supplemental graphs, maps, photos and other types of analytical output for the project evaluation.*





Bird skull found in derelict net.

Cormorant found drowned in derelict net, October 2008.

Puget Sound King Crab found alive in derelict net, February 2009.

Table 1. List of species found in removed derelict gear

Group	Common Name	Scientific Name	# Dead	# Alive	Total
Bird	Brandt's Cormorant	*Phalacrocorax penicillatus*	2		2
	Cormorant Unid.	*Phalacrocoracidae sp.*	1		1
	Pelagic Cormorant	*Phalacrocorax pelagicus*	5		5
		Subtotal Bird	8		8
Fish	Cabezon	*Scorpaenichthys marmoratus*	1		1
	Fish Unid.	*(blank)*	6		6
	Great Sculpin	*Myoxocephalus polyacanthocephalus*	1		1
	Kelp Greenling	*Hexagrammos decagrammus*	1	3	4
	Lingcod	*Ophiodon elongatus*	11	2	13
	Longfin Sculpin	*Jordania zonope*		2	2
	Pacific Staghorn Sculpin	*Gymnocanthus tricuspis*		1	1
	Red Irish Lord	*Hemilepidotus hemilepidotus*		1	1
	Rockfish Unid.	*Scorpaenidae sp.*	2		2

Group	Common Name	Scientific Name	# Dead	# Alive	Total
Fish		*Sebastes sp.*	1		1
	Sailfin Sculpin	*Nautichthys oculofasciatus*		1	1
	Sculpin Unid.	*Cottidae sp.*	1		1
		Subtotal Fish	24	10	34
Inver-tebrate	Blood Star	*Henricia leviuscula*		241	241
	Blue Mussel	*Mytilus trossulus*	33	139	172
	Blue Topsnail	*Calliostoma ligatum*	2	44	46
	Blunt Gaper	*Mya truncata*	1		1
	Bread Crumb Sponge	*Halichondria sp.*		1	1
	Brittle Star Unid.	*Ophiuroidea sp.*		10	10
	Butter Clam	*Saxidomus giganteus*	1,570	83	1,653
	California Sea Cucumber	*Parastichopus californicus*		132	132
	Clown Dorid	*Triopha catalinae*		2	2
	Common Pacific Octopus	*Octopus dolfleini*		2	2
	Cryptic Kelp Crab	*Pugettia richii*		308	308
	Cushion Star	*Pteraster tesselatus*		1	1
	Daisy Brittle Star	*Ophiopholis aculeata*		60	60
	Dungeness Crab	*Cancer magister*	2		2
	Fat Henricia	*Henricia sanguinolenta*		8	8
	Geoduck Clam	*Panopea abrupta*	10	1	11
	Giant Barnacle	*Balanus nubilus*	1,139	1,136	2,275
	Golfball Crab	*Rhinolithodes wosnessenski*		2	2
	Green False-Jingle	*Pododesmus macroschisma*	58	2	60
	Green Sea Urchin	*Strongylocentrotus droebachiensis*	9	234	243
	Hairy Cancer Crab	*Cancer oregonensis*	4	39	43
	Hairy Lithodid	*Hapalogaster mertensii*		2	2
	Heart Crab	*Phyllolithodes papillosus*		3	3
	Hermit Crab Unid.	*Paguridae sp.*		4	4
	Horse Clam	*Tresus sp.*	12	2	14
	Horseshoe Ascidian	*Chelysoma productum*		40	40
	Lampshell	*Terebratalia transversa*		99	99
	Leafy Hornmouth	*Ceratostoma foliatum*	4	38	42
	Lined Chiton	*Tonicella lineata*		2	2
	Longhorn Decorator Crab	*Eualus avinus*		228	228
	Morning Sunstar	*Solaster dawsoni*		7	7
	Mossy Chiton	*Mopalia muscosa*		3	3
	Mottled Star	*Evasterias troschelii*		1	1

Group	Common Name	Scientific Name	# Dead	# Alive	Total
Inver-tebrate	Northern Kelp Crab	*Pugettia producta*		11	11
	Nuttall's Cockle	*Clinocardium nuttalli*	20		20
	Ochre Star	*Pisaster ochraceus*		1	1
	Orange Sea Cucumber	*Cucumaria miniata*		10	10
	Oregon Triton	*Fusitriton oregonensis*	22	114	136
	Pacific Littleneck Clam	*Protothaca staminea*	45	15	60
	Painted Star	*Orthasterias koehleri*		8	8
	Porcelain Crab	*Petrolisthes sp.*		77	77
	Puget Sound King Crab	*Lopholithodes mandtii*	2	6	8
	Purple Ring Topsnail	*Calliostoma annulatum*	7	20	27
	Red Rock Crab	*Cancer productus*	26	24	50
	Red Sea Urchin	*Strongylocentrotus franciscanus*		33	33
	Ribbon Worm	*Tubulanus polymorphus*		1	1
	Rock Scallop	*Crassedoma giganteum*	6		6
	Scaly Lithodid	*Placetron wosnessenskii*		2	2
	Sharp-nosed Crab	*Scyra acutafrons*		82	82
	Slender Cancer Crab	*Cancer gracilis*		6	6
	Slender Decorator Crab	*Oregonia gracilis*		7	7
	Slender Kelp Crab	*Pugettia gracilis*		32	32
	Smooth Pink Scallop	*Chlamys rubida*	1,329	469	1,798
	Spiny Pink Shrimp	*Pandalus borealis eous*		2	2
	Stalked Hairy Sea Squirt	*Boltenia villosa*		797	797
	Sunflower Star	*Pycnopodia helianthoides*	1	14	15
	Tanner Crab	*Chionoecetes sp.*	1	1	2
	Tennis Ball Sponge	*Craneilla villosa*		2	2
	Transparent Sea Squirt	*Corella willmeriana*		4	4
	Umbrella Crab	*Cryptolithodes sitchensis*		1	1
	White Sea Cucumber	*Eupentacta quinquesemita*		8	8
	Yellow Margin Dorid	*Cadlina luteomarginata*		11	11
		Subtotal Invertebrate	4,303	4,645	8,948
		Grand Total	4,335	4,655	8,990

iii) *Identify and briefly explain discrepancies between what actually happened compared to what was predicted to happen in the grant proposal using information presented above.*

Our first project output was to increase the number of migratory birds by removing a direct source of mortality (derelict nets). We anticipated measuring this output by the per cent composition of birds in each net removed. This proved to be an inadequate way to measure the benefits of net removal on birds. A better way to measure this is to estimate the bird mortality caused by the removed gear and to estimate the long-term benefit to birds by removing this gear.

We recently completed a research study looking at the rate of species mortality in derelict fishing nets. This research was funded in part by the National Fish and Wildlife Foundation/NOAA Marine Debris Program grant partnership. The final report of that research, *Rates of Marine Species Mortality Caused by Derelict Fishing Nets in Puget Sound, Washington*, is available at http://www.nwstraits.org/uploadBibliography/DG-MortalityRates.pdf.

The development of modeled catch rates for birds, fish, and invertebrates allows us to estimate the long-term impacts of derelict fishing gear on species. While these rates were developed with data from just four nets, care was taken to vary the size of nets monitored and type of habitats in order to better average catch rates. Nevertheless, when predicting impacts to specific animal groups, we feel it is prudent to apply those projections only to the per cent of nets that have shown impacts to that group in the past. Using this approach, we project that the 123 nets removed during this project annually captured approximately 1,326 birds, 4,404 fish, and more than 137,000 invertebrates. Table 2 illustrates these projections.

Table 2. Estimated annual impact of 123 derelict gillnets on marine species

Animal group	Annual catch rate	% removed nets impacting group	Annual catch (est.) of 123 nets removed
birds	77	14	1,325.94
fish	153	23.4	4,403.65
invertebrates	1,117	78.1	137,487.06

Our second project output was to restore marine habitat to full service functions. Derelict net removal operations are designed to remove the source of ongoing species mortality and obstruction of habitat. The Northwest Straits Foundation recently completed a post-removal monitoring project to assess the rate of recovery of marine habitats after derelict net removals. Monitoring results showed that marine habitat dominated by kelp achieved 90% recovery over one growing season through natural ocean processes. The report can be found at http://www.nwstraits.org/uploadBibliography/Marine%20Habitat%20Recovery%20Monitoring%20report.pdf.

The nets we removed during this project were covering 16.2 acres of vital marine habitat, including kelp beds, high relief rocky substrate, and mud and boulder habitat. We are confident that this uncovered habitat will recover through natural ocean processes. We anticipated uncovering almost twice as much habitat than we did. The nets removed during this project tended to be smaller in size, perhaps because of their age and placement in areas with high current action. They also tended to be folded over onto themselves, covering less acreage than their actual area of netting. In our other removal operations, nets cover an average of approximately .2 acres, so the acreage affected by these 123 nets is somewhat lower than our most recent average.

All other project outputs were met or exceeded.

b) Post-project Outcomes

i) *The logic framework presented in the full proposal additionally included a final column where predicted values of post-project outcomes were to be provided. If your application did not include a logic framework, please identify any medium- to long-term results that may occur after the project ends.*

Please see logic framework above.

ii) *Describe any progress towards achieving these post-project outcomes at this time.*

Our first, second, third and fourth post-project outcomes mirrored the project outputs. Please see the discussion of these outputs above in section 4.a.*iii*.

The fifth and sixth post-project outcomes relate to increasing the understanding of the impacts of derelict fishing gear on marine birds and other marine species. Much progress has been made on that front.

As a result of our work, including the variety of research projects we have undertaken, there is a much greater understanding of the impacts of derelict nets on both species and habitats. Results of our research and our removal work have been disseminated widely to resource managers. The section below, on dissemination, will give a good example of the variety of forums we have targeted with our information.

Additionally, a number of articles about the impacts of derelict fishing gear in Puget Sound have been published in reviewed journals. Most recently, an article titled, 'Ghosts of the Salish Sea: Threats to marine birds in Puget Sound and the Northwest Straits from derelict fishing gear,' was published in *Marine Ornithology, 37: 67-76*. An article titled, 'Marine species mortality in derelict fishing nets in Puget Sound, WA and the cost/benefits of derelict net removal,' will soon appear in the *Marine Pollution Bulletin*.

The culmination of this outreach was the awarding of a $4.6 million grant by NOAA through the American Recovery and Reinvestment Act (ARRA) to the Northwest Straits Foundation to complete 90% removal of legacy derelict nets in Puget Sound. That project began in July, 2009 and will be completed in December, 2010. The grant will also fund refinement of the statewide derelict fishing gear reporting system and database. This will set the stage for an ongoing derelict fishing gear maintenance removal program whereby newly lost nets will be promptly reported and removed before they can do a lot of damage.

iii) *Will there be continued monitoring of post-project outcomes beyond the life of this grant? Are there adequate resources (staff and funding) for continued evaluation and monitoring? If not, briefly describe the additional resources needed.*

While the long-range plan is to have in place a maintenance program to respond promptly to newly lost fishing nets, currently there is no dedicated funding for such a program. The Northwest Straits Foundation will continue to work toward this goal through outreach and disseminating results of our ARRA project.

iv) *Describe any revisions in the indicators, methods and data that may be needed for post-project monitoring.*

None anticipated.

5) Discussion & Adaptive Management

a) Lessons Learned and Transferability

i) *Describe the lessons learned about effective and ineffective conservation practices associated with this project. Which of these key lessons should be shared with other conservation organizations?*

This project contributed to our overall understanding of the long-term impacts of derelict fishing nets on marine species.

ii) *To what extent did the evaluation and monitoring activities for this project inform your organization about effective conservation practices, and what lessons were learned from an evaluation perspective?*

We learned the importance of effectively communicating impacts of derelict gear to a wide audience of resource managers.

iii) *Based on these lessons learned, what are your organization's next steps?*

We will continue to share the results of our removal operation to as wide an audience as possible. And we will work to set the stage for funding for an ongoing maintenance removal program after our ARRA project is completed.

b) Dissemination

i) *Describe the extent of information communicated to the general public, key partners, other practitioners, scientific experts. Wherever possible estimate the extent of the outreach using appropriate quantifiable indicators such as meeting attendance, publication circulation figures etc.*

Date: August 25, 2008
Location: Seattle, WA
Group: Corinthian Yacht Club
Topic: Derelict Fishing Gear in Puget Sound
Duration: PowerPoint Presentation and Q&A
People: 15

Date: October, 2008
Group: Joint Trout Unlimited/Puget Sound Anglers Meeting
Topic: Derelict Gear Project.
People: 47.

Date: October, 2008
Group: Action Coordination Teams Meeting for the West Coast Governors Agreement on Ocean Health
Topic: Derelict Fishing Gear in Puget Sound
People: 20

Date: December, 2008
Location: Seattle, WA
Group: Puget Sound Harbor Safety Committee Meeting
Topic: Derelict Fishing Gear in Puget Sound
People: 25

Date: January, 2009
Location: Friday Harbor, WA
Group: Salmon Recovery Workshop in WRIA 2
Topic: Derelict Fishing Gear Removal in WRIA2
#People: 100

Date: February, 2009
Location: Seattle
Group: Georgia Basin/Puget Sound Research Conference
Topic: Session on Derelict Fishing Gear
#People: 100

Date: March 8, 2009
Location: Mount Vernon
Group: Coastal Conservation Association
Topic: Derelict Fishing Gear Removal Program
#People: 30

Date: August, 2009
Group: Harbor Safety Committee
Topic: Derelict Fishing Gear Removal Program
#People: 30

Date: October 8, 2009
Location: Bremerton
Group: NW Pacific Harbormasters Annual Conference
Topic: Derelict Fishing Gear Removal Program
#People: 50

In addition, presentations about the Northwest Straits Derelict Gear Program were made to: the Washington State Legislature Select Committee on Environmental Health; the Pacific Seabird Group annual conference; Lummi Nation/BP Tribal Gear Loss Forum; National Academy of Sciences Marine Debris Advisory Council; joint meeting of Puget Sound Anglers and Trout Unlimited, Boeing Dive Club, Marker Buoy Dive Club, and the Puget Sound Partnership Leadership Council.

Demonstrations of ongoing removal operations were also provided to staff of the Washington Governor's office, members of the USFWS Invasive Species Task Force, Northwest Indian Fisheries Commission, King County Metro and a news teams from Discovery Canada, *Seattle Times*, KOMO TV News, CNN, the *New York Times*, and NBC Nightly News.

In October, 2009, the Northwest Straits commission hosted a transboundary workshop with Canadian officials. The purpose of the workshop was to provide information to Canadian officials about derelict fishing gear and our program. The workshop was funded by the Office of

the Governor of Washington and the USEPA. More than 40 people attended from Canada's Department of Fisheries and Oceans, British Columbia's Ministry of the Environment, members of Canadian First Nations, Puget Sound Tribes, USEPA, NOAA, Washington Departments of Natural Resources and Fish and Wildlife, Puget Sound Partnership, and the Northwest Straits Initiative, among others.

The workshop included one day of presentations and discussions and a second day of removal demonstration onboard a chartered vessel. Subsequent to this workshop, the Northwest Straits Foundation is working with Ministry of the Environment to organize a derelict fishing gear removal operation and training in Canadian waters.

ii) *Attach any publications, brochures, videos, outreach tools, press releases and other appropriate "products" that resulted from this project.*

The joint press release issued by Conoco-Philips Ferndale Refinery and the Northwest Straits Foundation is attached. The press release garnered articles in the *San Juan Journal*, the *Skagit Valley Herald*, and the *Anacortes American*.

Press coverage about the Northwest Straits Initiative's derelict fishing gear program was provided by the *The Seattle Times*, *Seattle Post-Intelligencer*, *Island Guardian*, Padilla Bay National Estuarine Research Reserve newsletter, and *The Reel News* (newsletter of the Coastal conservation Association).

Northwest Straits Initiative's project training US Army divers to remove derelict gear was aired on Discovery Channel Canada ten times from December 3-19, 2008.

The Northwest Straits Initiative's derelict gear removal program was a featured story on Seattle's KIRO TV News In November, 2008, http://www.kirotv.com/video/18025879/index.html.

The news of the Foundation's ARRA funding award was covered in August and September, 2009 by CNN http://www.nwstraits.org/default.aspx?pageID=243, NBC Nightly News http://www.msnbc.msn.com/id/3032619/#33079803, the New York Times http://www.nytimes.com/2009/08/25/us/25fishnets.htm?_r=1, as well as local venues.

c) NFWF Adaptive Management

i) *Offer any suggestions for NFWF to help guide improvement of our project administration.*

I have no suggestions. We appreciate the way NFWF administers its funding programs and always feel like there is support there if needed.

6) References

i) Attach a list of secondary references used in conducting the project, including the evaluation.

Carr H.A., E. H. Amaral, A. W. Hulbert, and R. Cooper. (1985) Underwater survey of simulated lost demersal and lost commercial gill nets off New England.
In: R. S. Shomura and H. O. Yoshida (eds). Proc. Workshop on the Fate and Impact of Marine Debris, 26–29 November 1984, Honolulu, Hawaii. IEEE Oceanic Engineering Society. 1985; 438–447.

Erzini K, C. C. Monteiro, J. Ribeiro, M. N. Santos, M. Gaspar, P. Monteiro and T. C.Borges. (1997) An experimental study of gill net and trammel net 'ghost fishing' off the Algarve

(southern Portugal). Mar. Ecol. Prog. Ser. 1997; 147: 257–265.

Kaiser M. J., B. Bullimore, P. Newman, K. Lock and S. Gilbert (1996). Catches in 'ghost fishing' set nets. Mar. Ecol. Prog. Ser. 1996; 145: 11–16.

Northwest Straits Marine Conservation Initiative. (2008) Rates of marine species mortality caused by derelict fishing nets in Puget Sound, Washington. http://www.nwstraits.org/uploadBibliography/DG-MortalityRates.pdf

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Approved: _____ Date: _____
Signature

_Ginny Broadhurst, Secretary_____
Print name and title

ConocoPhillips

NORTHWEST STRAITS
marine conservation initiative

ConocoPhillips and Northwest Straits Foundation Announce Grant to Remove Lethal Derelict Fishing Nets from Wildlife Refuge Area

Marine birds recovered from a derelict net being prepared for identification. June, 2008

MOUNT VERNON, WA, September 25, 2008 – ConocoPhillips and the Northwest Straits Foundation announced a $20,375 grant from ConocoPhillips to remove derelict gillnets that entangle marine animals and smother underwater habitat. Derelict fishing nets needlessly kill fish, shellfish, marine birds and mammals, and pose a safety threat to recreational divers.

The ConocoPhillips donation will be leveraged by funds from the US Fish and Wildlife Service and other sources to increase the scope of the project, allowing the Foundation to remove 45 acres of derelict fishing nets. Removal operations will focus on the marine waters in and around the Washington Maritime National Wildlife Refuge Complex (73 sites mostly in San Juan county), created to protect marine birds and mammals by protecting nesting and haul out sites.

Quote here from ConocoPhillips?

"ConocoPhillips support comes at an important time. We need to clean the nets off these important bird refuge areas," said Ginny Broadhurst, secretary of the Northwest Straits Foundation. "This funding will save thousands of marine animals and restore many acres of habitat."

The Northwest Straits Initiative has an ongoing derelict fishing gear removal program. To date, over 900 derelict nets have been removed from Puget Sound waters including hundreds around the Washington Maritime National Wildlife Refuge Complex. An estimated 4,000 nets remain.

About ConocoPhillips
ConocoPhillips is an international, integrated energy company with interests around the world. In Whatcom County, ConocoPhillips employs more than 400 people at its Ferndale Refinery. For more information, go to www.conocophillips.com.

About the Northwest Straits Foundation
The Northwest Straits Foundation serves to protect and restore the marine resources of the Northwest Straits region by supporting research, monitoring, restoration, stewardship, conservation and education programs. The Foundation has established a goal of eliminating harm from derelict gear in Puget Sound by removing 80-90% of gear from high priority areas by 2012. For more information, go to www.nwstraits.org.

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CONTACTS:
ConocoPhillips Jeff Callender 360-384-8550
Northwest Straits Foundation Ginny Broadhurst 360-428-1085

To see a removal operation in progress, please contact Ginny Broadhurst at the Northwest Straits Foundation.