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Reducing Injury to Brown Pelicans in Northern California Harbors
Final Report: (prepared by Monte Merrick, mm@birdallyx.net)

Bird Ally X' (BAX) initial contract with U.S. Fish and Wildlife Service on behalf of the Kure/Stuyvesant Trustee Council (KSTC) was accepted at the end of the fishing season 2012, although it had been proposed earlier in the year. The proposed monitoring at these locations was hoped to discover that changes made in 2011 had reduced injuries to Brown Pelicans. In that proposal, we planned to monitor numbers and species of birds impacted by fish waste.

While the reasons for the lengthy process for finalizing the contract are understood by all parties, the contract was not in place for the 2012 fishing season and no weekly monitoring could be undertaken. However, 9 July 2012 BAX was made aware through citizen reports that Brown Pelicans in Trinidad Harbor were apparently contaminated by fish waste. This led to the largest wildlife response in California in 2012 within a single region attributable to a single cause - 260 birds (246 BRPE, 14 gull spp) were rescued and treated by BAX/HWCC in Bayside.

The large number of injured pelicans observed required a monitoring program without a contract in place, driven by the needs of the crisis. Our monitoring method for fish waste impacted birds differed from our proposal in these ways:

Rather than visit each site every 14 days for the duration of the season, BAX staff visited sites as needed, in some cases more than once per day and in no cases less than weekly between 9 July and 31 July, 2012.

After 20 July, Pelicans were no longer observed in Shelter Cove and visits were discontinued.

In the Humboldt Bay area, Trinidad, Klamath, and Crescent City we continued making visits through the end of the Salmon season, and, in the case of Woodley Island and the commercial fish processing operations at the Eureka waterfront, observations ran through 19 October 2012.

The tables that follow on the next few pages contain the numbers of injured Brown Pelicans observed and rescued at the different harbors of the North Coast throughout this time frame. An overview of the rescue efforts undertaken by BAX independent of the agreement with the U.S. Fish and Wildlife Service is presented in the appendix.

Table 1: Number of BRPE seen and/or rescued at Shelter Cove in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
13 Jul	BRPE	N/A	N/A	5	member of public transported to Bayside	N/A	N/A
15 Jul	BRPE	N/A	35+	11		DC/LO	1600- 1900
17 Jul	BRPE	N/A	unk	3	late arrival, poor visibility	DC/LO	1600- 1900
17 Jul	HEEG	N/A	unk	1	late arrival, poor visibility	DC/LO	1600- 1900
18 Jul	BRPE	N/A	20+	13		DC/LO	1600- 1900
18 Jul	HEEG	N/A	8+	8	not all HEEG were able to be captured.	DC/LO	1600- 1900
18 Jul	CAGU	N/A	unk	1		DC/LO	1600- 1900
20 Jul	BRPE	N/A	4	4	these were the only BRPE observed.	DC/LO	1600- 1900
22 Jul	BRPE	0	0	0	no BRPE observed.	DC	1300-1400

key to abbreviations:

TO - total observed
TC - total observed contamination
TR - total contaminated/rescued
N/A – not applicable; no observations made
unk - unknown

observers:

DC= Daniel Corona, LK= Lisa Kennedy,
MM= Monte Merrick, JM= Jim Moore,
LO= Lena Orozco, MS= Mark Sinclair

Table 2: Number of BRPE seen and/or rescued at Eureka Waterfront/Woodley Island in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
9 Jul	BRPE	N/A	N/A.	2	hotline call	N/A	N/A
10 Jul	BRPE	N/A	N/A	2	hotline call	N/A	N/A
11 Jul	BRPE	N/A	N/A	1	hotline call	N/A	N/A
12 Jul	BRPE	N/A	N/A	2		JM	1200-1300

Table 2: Number of BRPE seen and/or rescued at Eureka Waterfront/Woodley Island in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
15 Jul	BRPE	N/A	6+	4		JM	1100-1200
19 Jul	BRPE	N/A	4	4			1100-1400
20 Jul	BRPE	N/A	5	3	* Oyster farmers on Humboldt Bay reported 140 BRPE not previously seen - 25 of which described as “contaminated”	DC	1100-1400
22 Jul	BRPE	N/A	5+	3		LK	1100-1300
24 Jul	BRPE	N/A	1	1		MS	1000-1200
27 Jul	BRPE	N/A	7	7	3 BRPE rescued at Pacific Choice	MM, DC	1300-1900
29 Jul	BRPE	N/A	12	11		DC	1300-1500
5 Aug	BRPE	N/A	4	4		MS	0900-1200
6 Aug	BRPE	N/A	2	2		MS	0900-1200
11 Aug	BRPE	N/A	2	2		MS	0900-1200
14 Aug	BRPE	N/A	1	1		MS	0900-1200
1 Sep	BRPE	N/A	3	2		MS	0900-1200
2 Sep	WEGU	N/A	4	4	Pacific Choice	MS	0900-1200
13 Sep	BRPE	N/A	5	3		MM	0800-1000
19 Oct	BRPE	N/A	1	1	Pacific Choice	LK	1800-1900

Table 3: Number of BRPE seen and/or rescued at Trinidad in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
7 Jul	BRPE	N/A	N/A	2		N/A	N/A
9 Jul	BRPE	45	45	18	first notice of significant contaminations, 5 carcasses also present	MM	1600-1900
10 Jul	BRPE	N/A	30+	4		MM	!700-1800
11 Jul	BRPE	N/A	30+	12		JM	1700-1800
12 Jul	BRPE	N/A	N/A	9		JM	1100-1200

Table 3: Number of BRPE seen and/or rescued at Trinidad in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
13 Jul	BRPE	N/A	17	7	10 birds on rock away from floating dock	JM	1700-1800
15 Jul	BRPE	N/A	10	10		JM	1000-1100
18 Jul	BRPE	N/A	4	4		LK	1700-1800
20 Jul	BRPE	N/A	1	1		uk	N/A
22 Jul	BRPE	N/A	7	7		JM	1500-1600
29 Jul	BRPE	N/A	4	4		JM	1500-1600
1 Aug	BRPE	N/A	2	2		DC	1200-1800
4 Aug	BRPE	N/A	3	3		DC	1200-1800
10 Aug	BRPE	N/A	1	1		LK	1200-1800

Table 4: Number of BRPE seen and/or rescued at Crescent City in 2012							
date	**species**	**TO**	**TC**	**TR**	**notes**	**observer**	**time (approx)**
10 Jul	BRPE	N/A	N/A	1	transported by public	N/A	N/A
12Jul	BRPE	N/A	40-60	10		JM	1200-1600
14 Jul	BRPE	N/A	N/A	1	transported by public	JM	1200-1600
16 Jul	BRPE	N/A	30+	12	BAX staff met PEL and Cal DFW	JM	1200-1600
18 Jul	BRPE	N/A	12+	9		JM	1200-1600
24 Jul	BRPE	N/A	15+	10		JM	1200-1600
4 Aug	BRPE	N/A	6	6		DC	1200-1600
7 Aug	BRPE	N/A	1	1	4 contaminated BRPE reported by Kerry Ross.	DC	1200-1600
10 Aug	BRPE	N/A	1	1		LK	1200-1600

Public Outreach - 2011-2013 (including activities outside the scope of this contract)

As a critical component of the work done in 2012 BAX reached out to the community for support rehabilitating wildlife injured by fish waste. This required a considerable amount of effort to educate citizens, representatives, trustees, and infrastructure managers on the impacts of fish waste on wildlife, specifically BRPE. A multi-faceted approach was used to reach as many stakeholders as possible.

BAX staff member hangs notice at fish cleaning station in Shelter Cove July 2012

Posters and pamphlets as educational materials for sport anglers on proper fish waste handling as we used in our 2012 response were re-designed with input from the KSTC, approved, printed and distributed to local agency representatives for broader distribution on the North Coast. Bird Ally X makes these posters available to other wildlife entities upon request.

BAX's most direct effort at public outreach in 2012 was signwork (re-designed 2013) developed for public boat launches and marinas and other locations where members of the public might encounter sick or injured BRPE. The sign was produced as a weather resistant outdoor sign that was hung at fish cleaning stations around the entire North coast. 25 signs were given to the HBHRCD to be hung around Humboldt Bay. For 2013, 200 vinyl posters and 1000 paper posters of the same design were printed and distributed.

BAX distributed a shirt-pocket-sized pamphlet (re-designed 2013) for counter tops at businesses near sport fishing infrastructure, for volunteers to distribute, and handed out directly to anglers and others at fish cleaning stations by rescue and survey teams. These pamphlets were well received. For addressing acute or chronic wildlife problems pamphlets such as these are relatively inexpensive considering their reach. BAX distributed approximately 400 throughout the North coast region. For 2013, 2000 re-designed tri-fold pamphlets were printed and distributed to agency personnel for wider distribution.

Social Networking and Media

The following links are to different sites and posts that proved effective:

Bird Ally X on Facebook was used for daily updates on the Pelican crisis, informational press releases on what subscribers to BAX could do to help pelicans, and numerous fundraising appeals and alerts.

You Tube, a video-sharing website, was used to reach a broader public. Raw footage of Pelicans and Gulls in Fish waste shower, at Shelter Cove was posted. BAX produced a 2 minute support building video to raise public awareness and rehabilitation funds.

Once educated on what had been a relatively obscure problem, many people wanted to do more than contribute money to cover the rehabilitation costs of the injured birds. Perhaps wisely, they wanted to know what was being done and what they could personally do to stop the contamination at its source. These questions and concerns were the spark for other outreach efforts.

We made an informational presentation to the Humboldt County Board of Supervisors monthly meeting 14 August 2012 (BAX presentation begins at 5:29:00).

Numerous press releases and media interviews were utilized to inform the general public on the risks Pelicans and other marine wildlife faced from improper fish waste practices and build support for the ongoing effort to rehabilitate those already injured.

These links are a sampling of stories covering the response and discussion of what can be done to protect BRPE from further injury.

The Times- Standard

The Daily Triplicate (Crescent City)

Eureka NBC TV affiliate News Channel 3

Northcoast Journal

Professional associations, National Wildlife Rehabilitators Association (NWRA) and California Council for Wildlife Rehabilitators were able to help spread information and awareness of the dangers of fish waste across the country, but importantly up and down the coast.

Other outreach efforts stem from the 2011 response. Bird Ally X presented the results and some suggestions for improvements to the HBHRCD at the 10 Nov 2011 meeting of the Harbor Commissioners.

Also, BAX presented on the issue to the annual symposium of the NWRA, held in Baton Rouge, Louisiana, March 2012 and again at the same conference in Portland, Oregon, 2013.

A shorter presentation for the general public has been given at multiple area venues, including Ocean Night, an event hosted by Humboldt Baykeeper and the Ocean Conservancy in Arcata, CA, 8 October 2011; a benefit for Bird Ally X held at Synapsis in Eureka, CA; and the annual birding festival Godwit Days held in Humboldt County, 20 April 2011.

BAX staff also gave talks on the local perils facing marine birds, including fish waste contamination, aboard the Madaket, an historic vessel now used as a tour boat on Humboldt Bay, August and September 2012.

2013 ongoing work

Right now there is an opportunity to help prevent this statewide problem by developing recommendations for fish station structures, outreach examples and signage that can be used by all coastal communities to

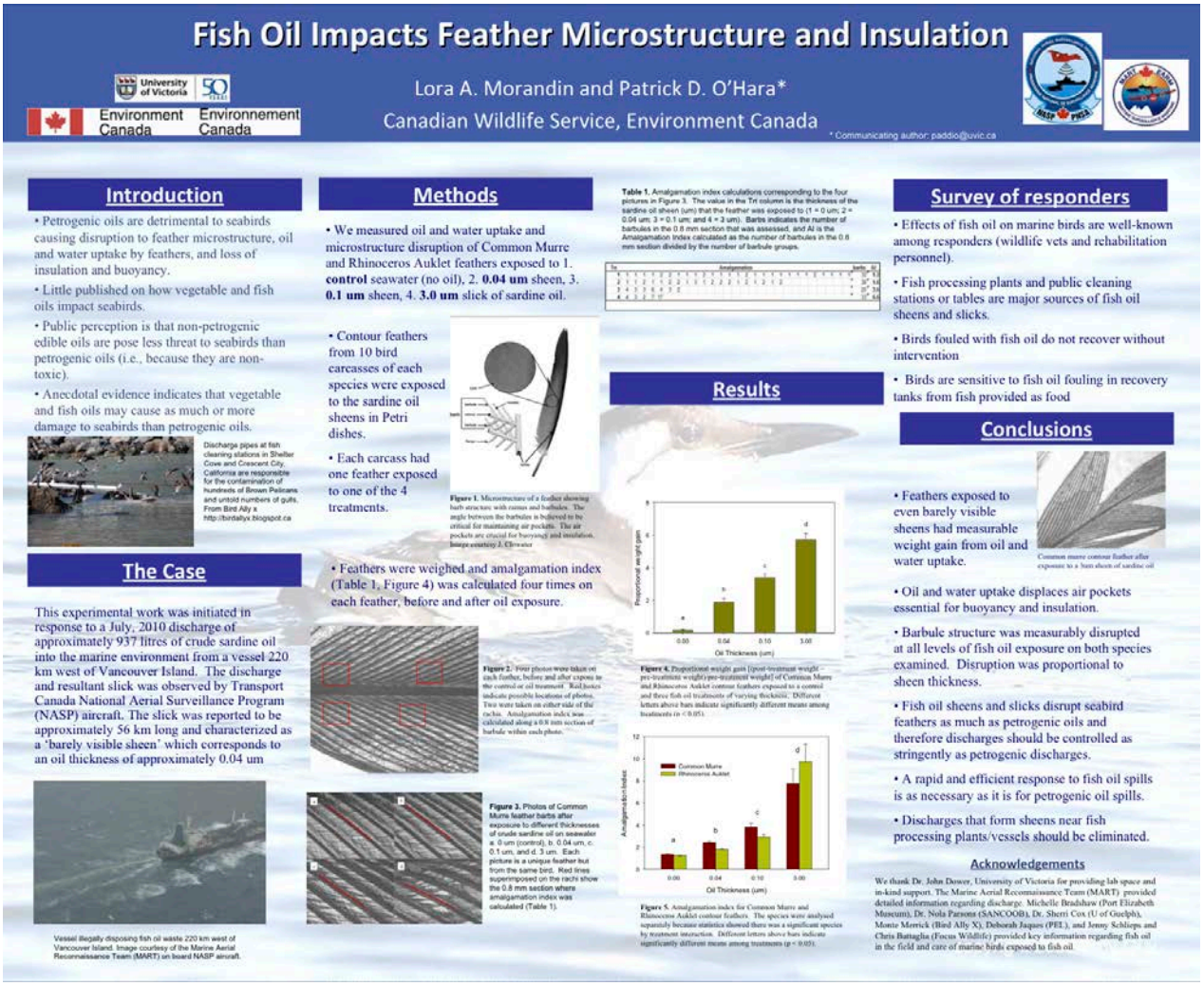
help prevent injury to Brown pelicans and other seabirds that share the environment. Working with other wildlife rehabilitation organizations, such as Pacific Wildlife Care in Morro Bay, Bird Ally X is developing plans and strategies for dealing with the various threats to wildlife, particularly marine birds, such as point source fish waste pollution, choking hazards associated with fish waste accessible to wildlife, and hook/line injuries. Bird Ally X has founded a working group toward this end with other wildlife rehabilitators along the West coast, Pelican Safe Marinas.

Concluding Observations:

The major factor in 2012's large number of injuries to Brown Pelicans was infrastructure at North Coast marinas. As has been noted, in Crescent City the fish cleaning tables that caused injuries have been removed and a new, "pelican-safe" cleaning facility is in development.

In Shelter Cove, at the time of this report, HBHRCD's CEO has stated that steps to discontinue discharging ground fish into the near shore water will be taken for the 2013 season. In personal communication, Mike Wilson, HBHRCD Board President, has stated that submerged discharge is the plan for 2013.

A complicating factor in 2012 was the lack of agreement on whether or not discharging fish waste, a point source pollutant, was a violation of code or regulations. It is our observation that local Harbor Districts



Presented: 2013 Arctic and Marine Oilspill Program, Halifax Nova Scotia, by Canadian Wildlife Service, Environment Canada

acted less promptly than they might have otherwise responded had the crisis been seen as a violation of existing regulations. It is the recommendation of Bird Ally X that fish waste be regarded as a deleterious substance that harms wildlife. In Canada, judicial precedent has defined fish oil as a deleterious substance and the company, Champion Shipping A/S, caught dumping just under 1000 liters off the coast of Vancouver Island July 2010 was fined $70,000.

BAX staff capturing pelicans at Trinidad 9 July 2012

APPENDIX: **Overview of Redwood Coast Fish Waste Response 2012**

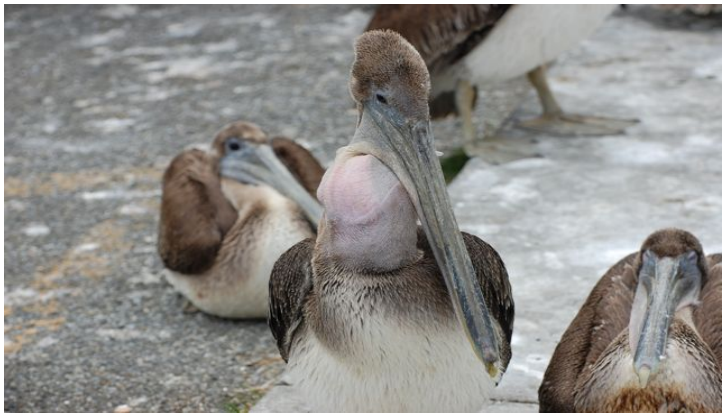
On 9 July 2012, Bird Ally X (BAX) staff received a report that several "sick" Pelicans were in the vicinity of Trinidad Pier(TP). Responding, our staff observed 35-40 contaminated Young of the Year (YY) Brown Pelican (BRPE). Carcasses of 4 similarly aged BRPE were also present. That day, 18 contaminated BRPE were rescued and taken to Humboldt Wildlife Care Center (HWCC) which BAX directs and operates. Within 3 days 40 birds would be captured.

Soon, we had reports from Crescent City (CC) of a large number of contaminated BRPE observed around the harbor there as well. Forming a skeleton crew of recovery and transport volunteers, we were soon faced with an enormous challenge.

BRPE in spray from fish cleaning table Crescent City July 2012

On 13 July, with approximately 75 BRPE in care, pelicans from Shelter Cove (SC) began to come in. Due to limited resources, we could not send crews each day to all sites where contaminated BRPE had been observed. Shelter Cove is a 2 hour drive south from our base of operations in Bayside. Crescent City is 1.5 hours north. We spent an entire week beginning 15 July making daily trips to SC, and alternating days in which trips to CC were made. Trinidad, because of its closer proximity was easier to monitor.

By July 30 we had over 200 fish waste contaminated birds admitted for care. (In 2011, BAX with HWCC treated 50 birds in total that were fish waste contaminated.)



BRPE with large obstruction in pouch, Crescent City 2012

Crescent City
In Crescent City, runoff from the fish cleaning table which spilled into the harbor was observed and documented as the primary reason for contamination. Pelicans and other birds would perch below the simple drain pipe from the table sink and be showered in oily water. Other sources of injury to birds were open fish waste bins as well as inappropriate food items offered by presumably well-intended sport fishers. There were also reports of malicious treatment of ailing pelicans by members of the public. Over 50 contaminated carcasses were found in CC with many more inaccessible. See Table 5 for total number of birds rescued in CC.

On 19 July 2012, Crescent City Harbor District removed the fish cleaning tables that were the source of the contamination and soon the numbers of live contaminated birds observed there began a steep decline.


Pelicans and gulls in the discharge of fish waste, Shelter Cove July 2012

Shelter Cove
In Shelter Cove we found a replay of the 2011 situation. The fish cleaning table at the top of the bluff above the beach where fishing boats are launched is outfitted with a large grinder that churns fish waste into a slurry discharged via an approximately 100 foot long PVC pipe into the ocean. (see photos below) Birds congregate under this pipe and become doused in this slurry.

By the end of July, Humboldt Bay Harbor Recreation and Conservation District (HBHRCD), which is responsible for the fish cleaning station in SC, had extended the discharge pipe further out and with a 90˚ elbow on the end so that the ground fish slurry spilled out below the ocean's surface. It is hard to substantiate its effectiveness as implementation coincided with a sudden absence of BRPE from the area. At this time, we saw a large local influx of contaminated pelicans in Humboldt Bay. A report from oyster farmers on Arcata Bay 20 July described a sighting of 140 BRPE not previously noted, 25+ of whom were wet, apparently struggling, roosting on the platforms between "Indian" Island and the Samoa Peninsula.

Trinidad Pier
Trinidad Pier, while a primary location for rescues, did not have any apparent infrastructure that could be the cause of contamination. Charter boats routinely clean catch off their boats, but in only a few incidences was such activity seen to directly injure Pelicans or other wildlife.

While some Charter boat practices may injure Pelicans, we concluded that many of the contaminated birds rescued in Trinidad had been injured at another location and flown in, most likely following vessel traffic, as was observed.

Humboldt Bay
Over 50 BRPE and 5 gulls were rescued along the Eureka waterfront. While some of these birds may also have flown in from CC or SC, a fish cleaning station at the far end of Dock A on Woodley Island discharged runoff via corrugated plastic tube into Humboldt Bay, which was observed attracting birds and

marine mammals. Many birds were rescued at Pacific Seafood Group on the Eureka Waterfront, where pelicans and gulls were observed foraging in open bins of fish processing waste. BRPE carcasses were also seen at this location.

As the fishing season, which was by all accounts very productive, closed, we received contaminated birds almost exclusively from the Eureka waterfront. In all 260 contaminated birds were rescued, 246 BRPE and 14 gulls of various species.

While it was not within the scope of this project, it is worth noting that the effort to wash and rehabilitate this many birds is very similar to an oil spill response. Nearly the same challenges are presented. To meet these challenges, we used an ICS as would be used in a typical spill response (although without a named responsible party and without a trustee agency).

Recently washed Pelicans in aviary 2012

BRPE release Samoa CA Aug 2012

Banding a young pelican for release Aug

The basic structure of Oiled Wildlife Response was also followed. Impacted birds were:

- Processed (identified, logged, evidence collected, and given an initial physical exam),
- Stabilized (warmth, fluid support, nutritional support, parasites treated, and basic bloodwork)
- Washed (2 wash stations were constructed, volunteers recruited and trained)
- Conditioned (nutritional support and care until ready for release)
- Released (released birds were banded under the USGS banding permit of the Oiled Wildlife Care Network (OWCN) and Wildlife Health Center at UC Davis.

Approximately 200 volunteers contributed over 4000 hours.

BAX staff managed the response in its entirety. BAX provided a response veterinarian who contributed 14 days onsite and was routinely available for offsite consultation during the course of the response.

Routine appeals to the community were necessary to fund this effort. During the height of the crisis BAX fish costs were $700/day.

Efforts were also made to halt the practices that were causing the most injury, namely the discharge of ground fish waste into adjacent waters at the various fish cleaning stations.

Results of treatment.

Of the 246 BRPE admitted for care in 2012, 196 (79%) were released, 38 (16%) died, 11 (4%) were euthanized, and 1 was dead on arrival. For wildlife rehabilitation in general, a release rate of 79% is well above average. This is a testament to the resiliency of the species and also to the value of experienced staff. With more resources and a purpose built facility, it is likely that our release rate would have been higher. Separately from this project, such improvements are part of BAX future planning.

Table 5: Disposition rescued BRPE North Coast California Harbors 2012

		Fate			
Location	Total	Released	Died	Euthanized	DOA
Shelter Cove	36	24	10	1	1
Trinidad	81	72	7	2	
Crescent City	51	41	7	3	
Eureka/Woodley Island	56	46	8	2	
Mendocino/Fort Bragg	1	1			
Humboldt (Other)	18	10	6	2	
Del Norte (Other)	3	2		1	
Total	246	196	38	11	1

Eight Heermann's gulls (*Larus heermanni*) and a California gull (*L. californicus*) were captured in SC and 4 Western gulls (*L. occidentalis*) and a Herring gull (*L. argentatus*) were captured in Eureka. Among the gull species rescued, 93% (13/14) were released. One HEEG was euthanized due to a debilitating leg injury not related to contamination. More gulls were observed contaminated but were not captured. If future responses are necessary more effort should be put toward rescuing all gulls and especially Heermann's gulls, whose conservation status is 'near threatened.'

For comparison, BAX treated 12 uncontaminated BRPE during the same time frame as the Redwood Coast Fish Waste response. Six (50%) were released, 3 died (25%), 2 were euthanized (17%), and 1 (8%) died upon arrival. While broad generalizations may not be easy to make, by this year's results, it appears that contamination by fish waste, fatal when untreated, has a higher recovery rate than more typical reasons that bring marine birds into rehabilitation, such as fish hook/line injuries, emaciation, fractures and, especially in the case of YY, inability to self-sustain.

BAX Veterinarian Dr. Shannon Riggs repairs a pelican pouch

The distribution of rescue locations likely is a reflection of several factors. The presence of fish waste is the most important attractor to wildlife, but rescue resources, movements of the injured individuals, arrival times from the breeding areas in the south, cultural influences on injured wildlife reporting all probably shape where resources for public outreach and infrastructural improvements would be best spent.

In the top 4 locations, Trinidad produced from 25- 45% more rescued birds than the next 3. As partial explanation, the injured animals may have been the "low-hanging fruit." At 20 minutes away, and with a

fairly dense number of injured birds observed, we were able to make more than one trip per day to rescue those birds in need. In the first few days of this response, we rescued 39 birds from Trinidad Pier. We also enjoyed widespread support among Charter Boat captains, tourists and the staff of the local restaurant. Concerned citizens often alerted BAX/HWCC when large numbers of BRPE were seen.

Cooperative Assistance

Throughout the fishing season, BAX/HWCC worked with other organizations, sharing staff and volunteers as the crisis was met, as well as furthering the goal of public education. CDFW staff and volunteers came from Redding. Many wildlife rehabilitation volunteers responded to our statewide call from the San Francisco Bay Area. CCWR Board members came to help from as far away as San Diego. OWCN staff each came for several days to help provide rehabilitation care for the injured birds.

Oiled Wildlife Care Network
California Council for Wildlife Rehabilitators
CDFW State Volunteer Coordinators
Nicole Carion, CDFW statewide coordinator for wildlife rehabilitation and restricted species
California Conservation Corps
National Wildlife Rehabilitators Association
Crescent City Harbor District
Humboldt Bay Harbor Recreation and Conservation District
Shelter Cove Resort Improvement District #1

Toward the future.
Of course the best action is to prevent these injuries before they occur. Our work with the Kure/Stuyvesant Trustee Council, as well as our work with other rehabilitators are steps in this direction.

During this response it was commonplace to hear that the crisis was due to an exceptionally good year for pelican breeding success, even though this was apparently not the case. 10 juveniles fledged from the pelican breeding colonies within the United States. The starvation event that was gripping the central and southern California coast last summer was primarily injuring young pelicans who had fledged in Baja. Communication between researchers aware of conditions at pelican breeding colonies with those if who respond to emergencies hundreds of miles away would better serve the process, so that we might all understand the circumstances better and be able to make more informed decisions about causes, where resources should be distributed, and steps that can be taken to mitigate or alleviate the problem.

It is our commitment that the harbors of Northern California be exemplary for reducing these injuries and implementing fish waste handling programs that serve the community, including the wild animals that live with us in this beautiful and cherished region.