Written Testimony Of

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Southern California Oil Leak: Investigating the Immediate Effects on Communities, Businesses, and the Environment

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Misters Chairmen, members of the committees, and members of Congress, thank you very much for the invitation to speak with you today. My name is Dr. Michael Ziccardi and I am the Director of the Oiled Wildlife Care Network (OWCN), a program of the Karen C. Drayer Wildlife Health Center, and Executive Director of the One Health Institute – both programs within the School of Veterinary Medicine at UC Davis (UCD).

Before I get into the specifics of our response, I would like to provide a brief background of the program. In 1990, the California Department of Fish and Wildlife – Office of Spill Prevention and Response (CDFW-OSPR) was formed with the charge of ensuring "best achievable protection of coastal and marine resources". The OSPR was also charged with:

- Establishing rescue and rehabilitation stations for seabirds, sea otters and other marine mammals,
- Ensuring that these facilities are in a constant state of preparedness,
- Providing best achievable treatment for wildlife oiled in the marine environment, and
- Considerations of all feasible management alternatives for operation of the network.

These priorities were established to address different needs identified during both the 1989 Exxon Valdez oil spill as well as the 1990 American Trader incident here in Huntington Beach:

- To develop substantial readiness for wildlife efforts prior to a spill occurring (thereby decreasing response time and initial start-up costs),
- To standardize the care and response structure throughout the state no matter where a spill might occur,
- To bring all interested parties (from academic institutions to zoos and aquaria to rehabilitation organizations) into the readiness and response structure through strategic partnerships, and
- To base care decisions on the best available science.

In 1994, the OWCN was established directly by the OSPR Administrator to implement these provisions, with the operations shifting to UCD in 1997 when technological development and research into the effects of oil on wildlife was added to the mission. Since that time, because of the success of the program, additional responsibilities have been given to the OWCN, expanding from animal care to also incorporate proactive capture in 2008 (following Cosco Busan), hazing in 2009, field stabilization of affected animals in 2012, and inland response in 2016.

The structure of the OWCN was (and is) based more on a successful business model than a standard University program, with an extensive Business Plan and an Advisory Board made up of industry, academic, affiliated agency and rehabilitation representatives assisting in the vision of the Network on behalf of the Administrator. Since its inception, accomplishments of note for the OWCN include:

- Inclusion of 44 Member Organizations throughout the state that agree to work cooperatively and under a single management structure during spills;
- Construction of 12 Primary Care facilities (which have the ability to care for, clean and release wildlife) and 14 stabilization facilities staged in areas of greatest risk to wildlife;
- Effective response to more than 80 spills, successfully caring for more than 10,000 oiled birds and marine mammals in California, as well as assisting in a number of Nationally and Internationally significant responses (including the *Deepwater Horizon* incident);
- The training of more than 2,500 animal capture and care staff and volunteers to immediately respond to spills should they occur – of that, 16,000 are currently available in our responder database; and
- Allocating more than $4.5 million towards more than 200 research projects specifically aimed at better understanding the effects of oil on wildlife, and better ways to treat those animals.

The effects of oil on wildlife (specifically on vertebrate species) can be both acute and chronic in nature, can be multifactorial, and depend on species affected and the dynamics of the spill (e.g., product, time of year). Due to the extent of this topic, I will limit my testimony to effects on birds – those higher vertebrates that are typically impacted in the greatest numbers in temperate spills. In birds, the primary acute effect of oiling is the elimination of the insulative air layer beneath their feathers via disruption of the feather's structure. This disruption causes water to seep under the feathers next to the skin, leading to hypothermia, loss of buoyancy, and a reduced flight capability. Hypothermia requires birds to both increase their metabolic rate to maintain normal body temperature, as well as haul out of the aquatic environment. As such, they lose the ability to forage, thus become dehydrated, lose body stores quickly, and can die in a matter of days unless the feather disruption is corrected. Additionally, they can become predated upon, thereby creating a source of secondary contamination to scavengers. Significant internal effects to birds can also be seen either through the preening of oil from the feathers (or through eating of contaminated food items) or through inhalation of fumes. In short, every internal organ system can, and has been proven to be, negatively affected by petroleum exposure – central nervous system, respiratory tract, gastrointestinal system, hormonal balance, toxin excretory mechanisms (e.g., liver and kidneys), and reproductive output.

When the OWCN initiates oiled wildlife response, there are a number of discrete, organized tasks and functions that we lead on behalf of the incident:

- **Hazing/Deterrence:** This is the active or passive process of scaring animals away from an oil spill, or attracting animals to a safer area. We use a variety of methods, from easy-to-set-up reflective tape, to more intensive measures such as propane cannons.
- **Recovery:** Highly trained response staff are deployed into the "hot zone" to collect oiled wildlife. A number of different techniques can be employed – from hand nets to passive traps to on-water capture, depending on conditions, species at risk, and safety. Once oiled animals are captured, they are then transported to a field stabilization location or a medical facility for care.

- **Field Stabilization:** When a medical facility is far from where the animals are getting captured, an intermediate step is often necessary to provide initial "first aid" to help increase their chances of survival.
- **Intake & Processing:** When the oiled animals get to the facility, trained biologists first collect evidence from each - both live and dead. Oil samples and a picture are taken for each animal and stored in a secure location in case they are needed for a future legal case. Live animals undergo a full physical exam, including collection of a small amount of blood to determine internal health. A medical record for each animal is started which tracks how the animals are progressing through the rehabilitation process.
- **Pre-Wash Care:** After oiled animals have gone through intake, and before they can be cleaned, initial care is necessary to ensure they are strong enough for cleaning. During pre-wash care, the animals are warmed, hydrated, and given nutrition for at least 48 hours before cleaning. Working with mammals adds additional complexity since most must be anesthetized.
- **Cleaning:** Birds are washed in tubs of warm, soapy water until fully de-oiled, then are rinsed completely, as soap can also act as a contaminant. Other species have other specific protocols used. Birds may take over an hour to wash and rinse, and marine mammals may take several hours.
- **Conditioning:** Once cleaned, a bird usually takes 5 to 7 days of conditioning to be a candidate for release. Animals are placed in outdoor pens or pools, where they are given high quality nutrition and watched carefully for abnormal behavior or signs of injury.
- **Release:** Once an animal is completely waterproof, healthy, and is acting and eating normally, then it can be released to a safe and clean environment.

For the current Orange County oil spill, the OWCN was activated on the evening of Sat 2 October by CDFW-OSPR to begin oiled wildlife operations the next day. We deployed mobile equipment and field personnel from our Davis base beginning at 0400 Sun, had two initial recovery teams made up of local staff surveying the region at first light, transferred our Oiled Wildlife Hotline over to a live attendant to take reports from the public and convey them to our field teams, and had the lead Management Team on the first flight out that morning.

We initially assessed the extent of our operational needs, and quickly determined that, because of initial volume estimates and the sensitivity of the region, a major deployment would be necessary. We immediately established a field stabilization and recovery staging site for birds at the Wetlands and Wildlife Care Center in Huntington Beach and placed the Los Angeles Oiled Bird Care and Education Center, Pacific Marine Mammal Center (Laguna Beach), and SeaWorld (San Diego) facilities on stand-by to receive birds and marine mammals. We continued to cascade resources into the area to conduct full search and recovery from north of Long Beach to as far south as South Carlsbad State Beach. In all, we have deployed more than 90 staff and volunteers from more than 14 of our member organizations to provide the necessary recovery and rehabilitation of animals affected during this event.

To date, as of 14 Oct at 1630 hrs, we have collected 31 live oiled birds, 53 dead birds, three mammals, and 14 fish throughout the region. Each of the live birds was collected oiled, but only a subset of dead birds and the other species was found to be externally oiled. We have successfully release two of the most heavily oiled birds back into a clean environment, expect to release an additional 8 birds on 15 October, and will continue to release animals when they have returned

to normal. We will continue recovery operations until all moderate- to heavily-coated animals observed by our teams or reported by the public are captured, and continue rehabilitation efforts until the last animal is released.

The most notable recoveries so far have been the successful capture of seven Federally-threatened Western Snowy Plovers – a small shorebird that currently are estimated to number at 1,600 breeding animals in California – and a live Northern Right Whale Dolphin which stranded at Cabrillo Point in Long Beach and was humanely euthanized due to poor body condition. Determination of whether animals found dead or that were humanely euthanized during the event was due to oil exposure or due to background mortality is not a primary function of our efforts during the active response. Instead, our samples and data are handed to experts involved in the Natural Resources Damage Assessment process – an activity separate from response that attempts to establish the overarching impacts to the environment and long-term damage from incidents such as these.

One question that has been asked frequently of the Wildlife Branch during this incident is whether the relatively small numbers of collected animals has been a surprise. While we were initially very concerned about the potential impacts to birds, marine mammals, and other wildlife in the region due to the reported release volume, in my experience, every oil spill incident is different, and the acute impacts do not necessarily equate to volume released. For example, the Cosco Busan oil spill that occurred in San Francisco Bay in November 2007 – a period of high bird density in the area - released approximately 53,000 gallons and resulted in over 1,000 live birds collected and more than 6,800 estimated killed. This current incident, with a release estimate of 24,600 gallons in the month of October, has resulted in 30 live birds collected to date. This is not to say that substantial effects have and will not occur – just that we have been pleased to see the relatively low numbers of live birds seen affected by our teams.

In closing, I want to thank you for the opportunity to speak with you today on the current response in Orange County, how oil can impact animals from such incidents, and the prominent role that Oiled Wildlife Care Network plays in the effort. The OWCN is largely considered the world's model for oiled wildlife preparedness and response – a program formed through the vision of the people of California and the efforts of our Legislature. During this, as well as all, response efforts, the OWCN collects an enormous amount of information (both biomedical data and response processes), and we use that information to both further improve our already excellent program, but also to better scientifically determine the effects of oil on wildlife through a One Health lens – where human, animal, and environmental health are inextricably linked.

Thank you, and I would be happy to answer any questions or concerns you may have.