

# Animal Health Monitor

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## Articles of Interest:

- ⇒ **Large Cetacean Stranding Event Along the Pacific Coast of BC**
- ⇒ **Food For Bees**

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## Animal Health Centre of British Columbia Update

by Dr. Jane Pritchard

The Animal Health Centre (AHC) is the provincial veterinary diagnostic lab for British Columbia. It is located in Abbotsford BC. It is one of only three veterinary diagnostic labs in Canada accredited by both the Standard Council of Canada and the American Association of Veterinary Laboratory Diagnosticians, and is the only one to have that accreditation that is not part of a Veterinary College. The other two labs are associated with Ontario Veterinary College and Ste. Hyacinthe College. The AHC partners provincially, nationally and internationally on projects in animal health, but our main focus is always serving the livestock, poultry and aquaculture sectors of British Columbia and supporting the health of our wildlife in the province.

Our telephone number is 604-556-3003, or Toll-Free in B.C. at 1-800-661-9903.

Our e-mail is PAHB@gov.bc.ca.

Our hours of operation are 8:30AM to 4:30PM Monday to Friday, with the exclusion of STAT holidays.

If you are bringing the whole body of an animal in, it is best to contact the lab ahead of time to assure proper arrangements are in place for unloading.

We have a strong web presence: <http://www.gov.bc.ca/animalhealthcentre> where you will find information on tests and what samples to submit for the tests, how to submit your samples for testing, forms required to accompany your samples, fees for the tests and many other interesting and useful pieces of information. Reading and following the information on submitting samples ahead of time will help us to be able to answer exactly the questions you have.

A few of the new services, developed in response to user needs are listed.

- A package for calf scours at a reduced cost that includes testing for bacterial culture and sensitivity, which includes *Salmonella* sp. culture, polymerase chain reaction (PCR)-based typing of *E. coli* to detect enterotoxigenic and enteropathogenic strains, smear for *Cryptosporidium* spp., and PCR for rotavirus and coronavirus. The cost of the package is \$110.00, which represents a 36% savings over ordering these tests individually. You can order the package by indicating "Calf Scours Package" in the "Other" section under "Services Requested" in the



Mammalian Submission Form.

- Return of remains service is new. This service provides preparation and packaging of remains after necropsy (<40kg) for private cremation. This service needs to be requested at the time of presentation. Under certain circumstances, it may not always be possible, but we make every effort to make this service available whenever it is possible.

We are not the largest veterinary diagnostic lab in Canada, but our service provides outstanding quality and we are small enough to be able to rapidly address the needs of the livestock, poultry and aquaculture sectors in British Columbia.

## Large Cetacean Stranding Event Along the Pacific Coast of British Columbia

Heindrich N. Snyman<sup>1</sup>, Paul Cottrell<sup>2</sup>, Kathy A. Burek-Huntington<sup>3</sup>, Kate Savage<sup>4</sup>, Kathi Lefebvre<sup>5</sup>, Lisa Spavin<sup>2</sup>, Deborah Fauquier<sup>6</sup>, and Stephen Raverty<sup>1</sup>

<sup>1</sup>Animal Health Center, Abbotsford, Canada; <sup>2</sup>Department of Fisheries and Oceans, Vancouver, Canada; <sup>3</sup>Alaska Veterinary Pathology Services, Eagle River, United States; <sup>4</sup>National Oceanic and Atmospheric Administration, Anchorage, United States; <sup>5</sup>National Oceanic and Atmospheric Administration, Seattle, United States; <sup>6</sup>National Oceanic and Atmospheric Administration, Silver Spring, MD

Between April 2015 and May 2016 there were sudden large increases in whale strandings along the British Columbia coastline. In total, 17 dead whales were reported, including seven humpback whales (*Megaptera novaeangliae*); five fin whales (*Balaenoptera physalus*) (three simultaneously stranded on a beach); three grey whales (*Escherichius robustus*); one sperm whale (*Physeter macrocephalus*); and a minke whale (*Balaenoptera acutorostrata*). The mortalities occurred as distinct pulses and coincided with an anomalous warming of water (blob) and associated proliferation of harmful algal blooms (HAB's) in the region. Under United States National Oceanic and Atmospheric (NOAA) legislation, the National Marine Fisheries Service (NMFS) declared an Unusual Mortality Event (UME) in Alaska with a total of 45 dead whales documented. In British Columbia, post mortem examinations were conducted on eight beach caste whales with tissues collected for histopathology, molecular, bacterial, radionuclide and ancillary diagnostic testing. For some whales, carcasses were inaccessible, presented in advanced autolysis, or field conditions were unsafe and post mortem examinations could not be undertaken. For these cases, examination was often restricted to documentation

of external lesions by photography and standard measurement. Sampling was limited to collection of skin for genetics and feces for HAB toxin analyses. Of those animals that were examined, three whales presented with signs of ship strike and microscopically, fat emboli were identified within blood vessels throughout the lung and there were degenerative changes in select sections of skeletal muscle, consistent with injuries incurred by ship strike. Stomach, small intestine and colonic contents were submitted to an outside reference laboratory to screen for Domoic acid (ng/ml) and Saxitoxin (ng/g) by ELISA. Colonic contents or urine from six whales had detectable levels of either Domoic or Saxitoxin, suggesting a potential role for HAB's in this unusual stranding event. Due to ongoing concerns with nuclear fall-out from the Fukushima Plant disaster, tissues were tested for radionuclides with no detectable levels in any of the examined animals. The precise cause of the increased stranding of whales along the coasts of Alaska and British Columbia could not be readily defined; currently, there is little understanding of the impact of Domoic acid and paralytic shellfish poisoning on whales.

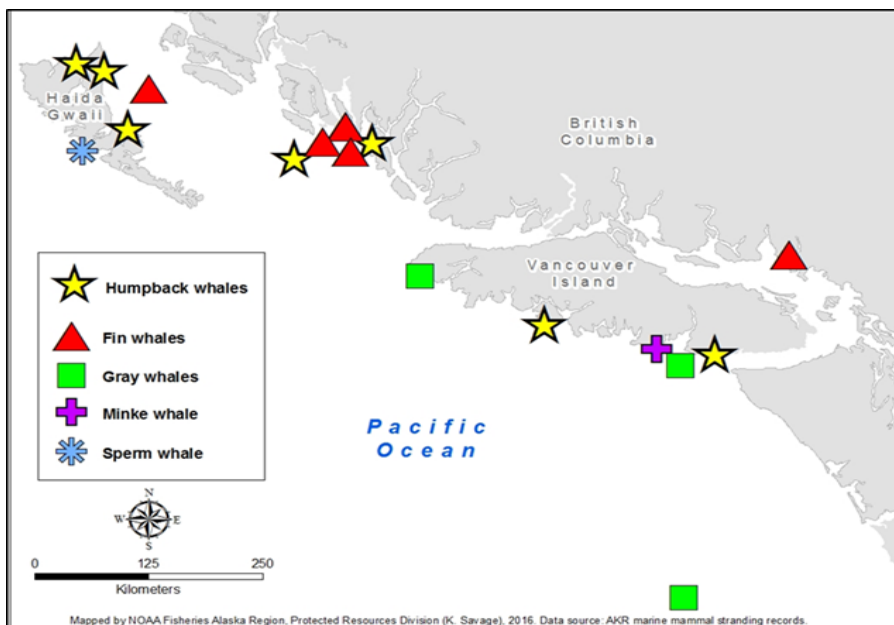


Figure 1. Location of BC large whale strandings, April 2015-2016 (compliments of Dr. K Savage, NOAA)

**Cont'd—Large Cetacean Stranding Event Along the Pacific Coast of British Columbia**

*Figure 2. Necropsies being conducted on three fin whales (Balaenoptera physalus) simultaneously stranded on the same beach, Bella Bella, BC.*

**15<sup>th</sup> BC Zoonoses Symposium by Dr. Brian Radke**

The 15<sup>th</sup> BC Zoonoses Symposium was held November 17, 2016 in Langley, BC at the Langley Golf Centre in BC's Fraser Valley. This collaborative, interdisciplinary symposium provides an opportunity for professionals from across BC to gather, network and learn about disease issues affecting animals and humans. The symposium is a partnership of the BC Ministry of Agriculture and the BC Centre for Disease Control. The BCCDC Foundation for Population and Public Health was a gracious sponsor of the 15<sup>th</sup> symposium.

The symposia consist of short presentations on a wide variety of One Health Topics. The 15<sup>th</sup> symposium included information on BC's reportable animal zoonoses, influenza in skunks and birds, disease surveillance in bats, Echinococcus infections in Western Canada, Zika virus and antimicrobial resistance. A raw pet food case study was well-received as a way to stay awake following the free lunch.

Following its successful reception last year, the webinar option was again offered for those unable to attend in person. The webinar was well received and again reached its maximum of sixty participants. Over one hundred people attended in person, maintaining the symposia's history of strong attendance. The audience included public health inspectors, public health physicians, public health researchers, students and veterinarians. Most of the veterinarians are engaged in public practice and a goal is to increase attendance by private practitioners and animal health technicians. There typically is no registration fee for the symposia, but registration is required for planning purposes, including webinar attendance. Historically, the symposia have been held in November in the lower mainland. It is expected the webinar option will be offered for the 16<sup>th</sup> Symposium in 2017. Details of the 16<sup>th</sup> BC Zoonoses Symposium will be included in a future edition of the Animal Health Monitor.

The agenda and webinar broadcasts of the presentations from the 15<sup>th</sup> Symposium are available at [http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-\(zoonoses\)](http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-(zoonoses)) (The agendas and presentations from the previous symposium are also available at that website.)

## Food for Bees by Paul van Westendorp

The honeybee, *Apis mellifera*, is the most widely researched insect in the world. This is not surprising as this single species is responsible for the pollination of more crops worldwide than any other insect. Without its involvement, many crop production systems would not exist or be seriously compromised with increased potential of food shortages.

Even though the honeybee's role is important, it is far from being the only pollinator species of importance. Many local habitats rely on wild pollinators for their sustainability and health. British Columbia harbours some 450 different species of "bees" while in North America over 3,000 species have been recorded. Over 20,000 bee species are found worldwide in many different habitats and climates. The vast majority of wild pollinators are solitary species where the female provisions a nest with food and lays a single egg or multiple eggs. Only very few species are social insects that form seasonal or perennial nests comprised of dozens or up to thousands of individuals. Social insects include the most advanced arthropods in evolutionary development because of cast differentiation and pheromonal communication.

The pollinator fauna is extraordinarily diverse; some are pollination generalists, while others are highly specialized and associated with a single floral source; many solitary bee species have unique nesting and climatic requirements, while others may have broad distribution in different habitats. Even so, all insect pollinators play a key ecological role in local habitats. Their life cycles and reproductive success is inexorably linked to the reproduction of flowering plants, an association of co-evolutionary development that began some 90 million years ago. Many plants can't accomplish fertilization of the ovules without the involvement of bees to transfer pollen grains. A decline in the abundance and species diversity of bees jeopardizes the long-term sustainability of local habitats. In fact, pollinators are considered 'indicator' species where their decline or disappearance signals that the local environment is under stress and no longer ecologically sustainable.

In recent decades, wild pollinator declines have been reported in many areas. The causes are multi-factoral and include monocultural farm practices, pesticides, landscape alterations, destruction of undisturbed nesting habitat, habitat fragmentation, introduction of exotic pests and diseases, and landscape management practices. While many of these causes may be inevitable or difficult to eliminate, one of the principal

causes responsible for wild pollinator declines can easily be addressed through the planting of nectar and pollen bearing plants.

In many areas, nectar and pollen bearing plants are only available for a limited time during the spring and summer season. Natural, undisturbed habitats mostly offer a variety of bee forage sources throughout the season. Modern practices in agriculture, habitat fragmentation and landscaping practices in rural and urban areas have often led to reduced forage availability. Unlike honeybees that communicate with each other which enable them to extend their foraging range, non-communicating bees including bumble bees and solitary bees have restricted foraging range. An overabundance of food availability because of a flowering crop during spring may be followed by a prolonged period without bee forage. Such periodic food shortages often lead to reproductive failure of wild pollinators and may even lead to starvation. The introduction of patches of bee pastures in rural and urban landscapes have proven to successfully support pollinator abundance and species diversity over time.



In recognition of the importance of wild pollinators, the BC Government has introduced a bee forage initiative under the "Food For Bees" banner by promoting the planting of bee forage in public and private lands, mining reclamation projects, agricultural lands and the urban landscape. This multi-year initiative is intended to see a gradual transformation of the BC landscape towards greater pollinator abundance and species diversity. For more information, please visit [www.gov.bc.ca/foodforbees](http://www.gov.bc.ca/foodforbees).

## CAHSN Endemic Diseases Project by Dr. Nancy de With

Animal health laboratories amass information on many diseases from a variety of animal species during the course of routine diagnostic work or targeted research and surveillance projects. Although results from single laboratories may be aggregated and summarized to provide information on specific local issues, seldom is data on non-reportable diseases collated and analyzed from multiple laboratories. The Canadian Animal Health Surveillance Network (CAHSN) Endemic Diseases Project was initiated as a way to develop disease surveillance using existing laboratory data on both a provincial and a national level. The project scope is endemic diseases—animal health infections and issues of concern in Canada.

The main objective is to produce animal health reports on selected animal

diseases, providing industry and government with intelligence on selected diseases that can be used to inform on disease occurrence and management over time. The project currently includes representation from three major farmed animal production groups (poultry, swine and bovine). The target diseases were proposed by industry representatives and selected by a BC-based industry/government steering committee in consultation with laboratories and disease specialists in other provinces and the Canadian Food Inspection Agency (CFIA).

The poultry component commenced in 2013 with infectious laryngotracheitis virus (ILT), *Mycoplasma gallisepticum* (MG), and reovirus as the diseases selected for surveillance. Beginning in 2016, the cattle and swine components were added, with three diseases of interest selected for each

species. The cattle diseases are: bacterial pneumonia due to *Mycoplasma bovis* and *Mannheimia haemolytica*, mastitis caused by *Klebsiella* spp., and bovine virus diarrhea. The swine diseases selected are: salmonellosis, porcine reproductive and respiratory syndrome (PRRS), and swine influenza.

The Centre for Coastal Health has been engaged as a contractor to create the case definitions and produce the reports that summarize laboratory data. For further information, or to receive copies of the reports, please contact Dr. Nancy deWith of the BC Ministry of Agriculture (project lead) at [Nancy.deWith@gov.b.c.ca](mailto:Nancy.deWith@gov.b.c.ca) or Stefan Iwasawa of the Centre for Coastal Health at [Stefan.Iwasawa@viu.ca](mailto:Stefan.Iwasawa@viu.ca).

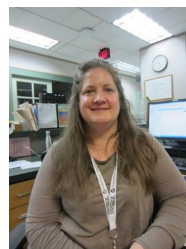
This project is supported by *Growing Forward 2*, a federal-provincial-territorial initiative.

## Welcome to 3 Front Office Staff at the Animal Health Centre

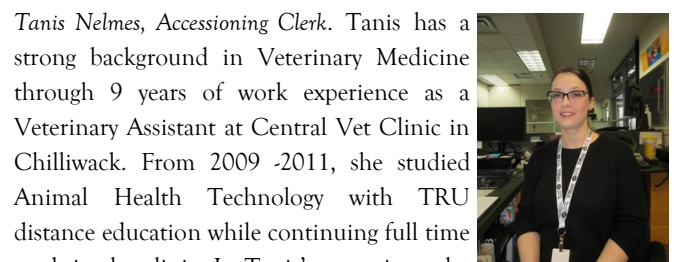
The Animal Health Centre (AHC) employs a wonderful team of front line administrative staff. You may have seen their smiling faces when you have dropped off samples, or you may have spoken to them on the phone when inquiring about a case report or an invoice you received. There have been some recent changes of staff who have moved on to other endeavors, and we would like to say good-bye and best wishes to them —Melanie Morrison, Nonie-Green and Shawnee Landsiedel.

We would like to welcome the following new staff to our team.

*Claire Smid, Accounts Clerk.* Claire has a strong accounting background working the past 12 years for cancer research fundraising efforts of the Terry Fox Foundation in the position of office manager, purchaser, and accounts payable. She is enthusiastic about joining the administration team at the Animal Health Center and working directly with the clients to build therapeutic relationships. Claire is looking forward to working and living in the Fraser Valley. In her spare time she enjoys spending time with her family, cycling, reading, and design.

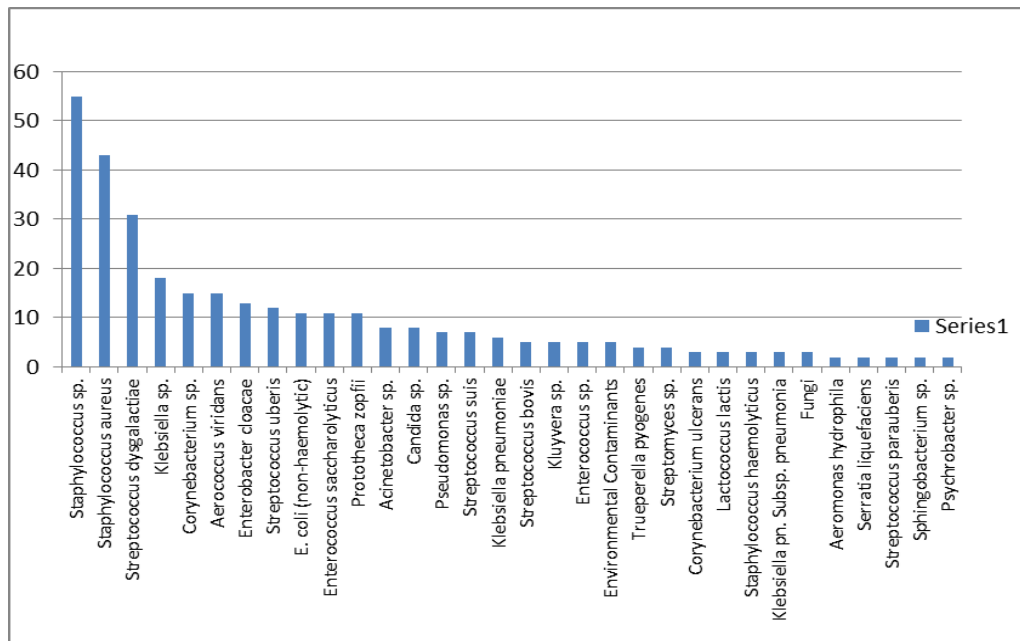


*Genevieve Rottluff, Accessioning Clerk.* Gen is one of two new accessioning clerks that started with the lab on February 13, 2017. Gen has a diverse work history dabbling in food production, medical and veterinary facilities.



*Tanis Nelmes, Accessioning Clerk.* Tanis has a strong background in Veterinary Medicine through 9 years of work experience as a Veterinary Assistant at Central Vet Clinic in Chilliwack. From 2009 -2011, she studied Animal Health Technology with TRU distance education while continuing full time work in the clinic. In Tanis' spare time, she helps on her family's hobby farm where they grow seasonal produce and participate as vendors at weekly Farmers' Markets around the Lower Mainland and at many community events in Chilliwack. She was born and raised in Chilliwack, and loves being surrounded by our mountains and river. She enjoys staying active and heading to those mountains and rivers for hikes on the weekends.

## Milk Culture Results by Dr. Jane Pritchard



\* The following isolates were single occurrences during the period of January 1-December 31, 2016, and not included in the chart above: Acinetobacter baumannii, Aerococcus sp., Brevibacterium sp., Candida albicans, Chryseobacterium sp., Corynebacterium accolens, Cryptococcus sp., E. coli (haemolytic), Empedobacter brevis, Enterobacter amnigenus, Enterobacter cancerogenus, Enterobacter gergoviae, Enterococcus faecalis, Enterococcus faecium, Lactococcus sp., Macrocococcus sp., Pasteurella multocida, Pseudoxanthomonas sp., Rothia sp., Serratia marcescens, Streptococcus anginosus, Streptococcus equinus, Streptococcus oralis, and Trichosporon sp.

Between January 1 and December 31, 2016, 333 milk samples (87 submissions) were received for culture and sensitivity at the Plant and Animal Health Centre. Out of the 333 samples submitted, no bacteria was isolated in 73 samples.

Resistance by Isolate	amp	kf	ob	e	xnl	p10	pyr	sxt	tet	# of isolates tested
Staphylococcus sp.	9%	0%	7%	2%	0%	11%	13%	0%	5%	55
Staphylococcus aureus	5%	0%	0%	2%	0%	5%	2%	0%	9%	43
Streptococcus dysgalactiae	0%	0%	0%	0%	3%	0%	3%	3%	26%	31
Klebsiella sp.	89%	39%	94%	94%	28%	94%	94%	6%	17%	18
Corynebacterium sp.	13%	0%	33%	7%	0%	13%	27%	7%	0%	15
Aerococcus viridans	7%	7%	73%	7%	0%	7%	20%	40%	40%	15

amp - ampicillin	ob - cloxacillin	xnl - excenel	pyr - pirlimycin	sxt - sulfamethoxazole/trimethoprim
kf - cephalothin	e - erythromycin	p10 - penicillin	tet - tetracycline	

# Calendar of Events

## *“Keeping Your Sheep & Goats Healthy Workshop”*

*Session will focus on basic nutrition, biosecurity, and disease and parasite management related to small flock sheep and goat production.*



*For more information contact:*

*[Glenna.McGregor@gov.bc.ca](mailto:Glenna.McGregor@gov.bc.ca) or [Lori.Vickers@gov.bc.ca](mailto:Lori.Vickers@gov.bc.ca)*

QUESNEL–Mar 18/17, Sandman Hotel, 8:30-4:30pm

This project is supported by *Growing Forward 2*, a federal-provincial-territorial initiative.



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<http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-health/animal-health-centre/newsletter>

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