

2011 Draft Prioritization of Pathogens

Marine Mammal Health and Stranding Response Program Office of Protected Resources NOAA/National Marine Fisheries Service

Numerous microbes have been isolated from and reported in marine mammals. These reports have varied from the isolation of a bacterial species once in one animal, to the association of a virus, to numerous mass mortality events. During 2009-2010, the Working Group for Marine Mammal Unusual Mortality Events (WGMMUME) undertook the task of prioritizing marine mammal pathogens.

The WGMMUME reviewed journal publications and conference abstracts related to pathogens isolated from marine mammals. Information from these publications was categorized by pathogen category (bacterium, fungus, parasite, protozoan, or virus). Further, information about each pathogen and marine mammal group was divided into evidence of marine mammal exposure, morbidity (illness), mortality (death), and epizootics (outbreaks). To assess the relevance of marine mammal pathogens to public health, the pathogen list was compared to the Centers for Disease Control's lists of important zoonoses, U.S. reportable diseases, and emerging/reemerging infectious diseases. This Draft marine mammal high priority pathogen list is a result of the WGMMUME's pathogen prioritization efforts.

For additional information, please see:

Venn-Watson, S., A. Stamper, Working Group on Marine Mammal Unusual Mortality Events, and T. Rowles. 2010. Pilot Pathogen Prioritization Survey Results for Cetaceans. Report to the Scientific Committee of the International Whaling Commission, SC/62/E4.
http://iwcoffice.org/documents/sci_com/SC62docs/SC-62-E4.pdf

Draft high priority pathogens among cetaceans, otariids, and phocids: Geographical U.S. locations, syndromes & public health relevance

Pathogen	Pathogen category	Marine mammals & geographic locations of interest	Syndrome by organ systems affected*	Zoonotic
Adenovirus	Virus	otariid, northwestern US	G +/-B,C,D	Unknown
<i>Brucella</i> species	Bacterium	cetacean, global; otariid, western US; phocid, global;	F +/- A,D,G	Yes
Calicivirus	Virus	otariid, western US; cetacean, global	B, C	Yes
<i>Coccidioides immitis</i>	Fungus	cetacean, global; otariid, northwestern US	F, G	Yes
<i>Coxiella burnetii</i>	Bacterium	phocid, northwestern US	A,C,F,G	Yes
<i>Cryptococcus gatii</i>	Fungus	cetacean, global; epizootic-outbreak in Pacific NW	G	Yes
Herpesvirus	Virus	beluga, northeastern US; otariid, western US; phocid, global; small cetacean, southeastern US	B	No
Influenza A or B	Virus	phocid, northeastern US	G, C	Yes
<i>Klebsiella</i> species	Bacterium	otariid, phocid, northwestern US	B, D, G	Yes
<i>Leptospira interrogans</i>	Bacterium	phocid, northwestern US	E +/- B, C, D, F, G	Yes
Morbillivirus	Virus	cetaceans and phocids, global	G +/- D	No
<i>Mycobacterium</i> species	Bacterium	otariid, phocid, global	G	Yes
Otostrongylus	Parasite	otariid, phocid, northwestern US	G	No
Parapoxvirus	Virus	otariid, global; cetaceans, global	B	No
<i>Pasteurella</i> species	Bacterium	otariid, phocid, northwestern US	G	Yes
<i>Pseudomonas</i> species	Bacterium	cetacean, global; otariid, northwestern US	G, B	Yes
Rhabdovirus	Virus	phocid, only reported once, Europe	D	Yes
<i>Salmonella</i> species	Bacterium	cetacean, global; otariid, phocid, northwestern US	C	Yes
Sarcocystis	Protozoan	cetacean, phocid, otariid, global	C, D, G	Yes
<i>Streptococcus</i> species	Bacterium	cetacean, northwestern US; phocid, global		Yes
<i>Toxoplasma gondii</i>	Protozoan	cetacean, global; otariid, phocid, northwestern US	D	Yes
<i>Uncinaria</i>	Parasite	otariid, northwestern US	C	No
West Nile virus	Virus	phocid, northeastern US	D +/-B,C	Yes

*Organ systems typically affected in mammals: A=Cardiac, B=Cutaneous, C=Gastrointestinal, D=Neurological, E=Renal, F=Respiratory