

JAN 23 2014

A BILL FOR AN ACT

RELATING TO THE STATE MICROBE.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that there are sixteen
2 adopted, designated, and established official symbols of the
3 State of Hawaii. This number increases to thirty-one when
4 designated flowers and colors of the individual islands are also
5 included. From the state motto, "ua mau ke ea o ka aina i ka
6 pono," which, translated, means "the life of the land is
7 perpetuated in righteousness," to the state plant, kalo
8 (*Colocasia esculenta* (L.) Schott), these designated symbols are
9 representative of all things unique to Hawaii and its individual
10 islands. Missing from this group of symbols is an official
11 state microbe.

12 *Vibrio fischeri* is deserving of being Hawaii's official
13 state microbe because of its broad reputation as among the best-
14 studied beneficial microbes. These bacteria live in a symbiotic
15 relationship with the Hawaiian bobtail squid, giving the animal
16 the power to produce bioluminescence, or light from a living
17 organism. The squid is endemic to Hawaii. This tiny creature
18 is only two inches long and hunts at night on reef flats.



1 However, moonlight casts a shadow onto the sea floor, which
2 alerts predators to the squid's presence. To counter this
3 effect, the Hawaiian bobtail squid cultures luminescent *Vibrio*
4 *fischeri* in a special light-emitting organ, which allows it to
5 become stealthy by projecting light that minimizes the dark
6 shadow of its body.

7 Researchers have found that *Vibrio fischeri* make chemical
8 signals to communicate with each other in a process known as
9 "quorum sensing". Quorum sensing allows the bacterium to
10 monitor how many cells are present in the light organ and adjust
11 its bioluminescence accordingly. The study of this chemical
12 reaction has numerous medical and practical applications, such
13 as testing for toxic compounds in water.

14 Therefore, the purpose of this Act is to designate *Vibrio*
15 *fischeri* as the official microbe of the State.

16 SECTION 2. Chapter 5, Hawaii Revised Statutes, is amended
17 by adding a new section to be appropriately designated and to
18 read as follows:

19 "§5- State microbe. The *Vibrio fischeri*, a bacterium
20 that commonly creates bioluminescence in a symbiotic
21 relationship with the Hawaiian bobtail squid, is established and
22 designated as the official microbe for the State."



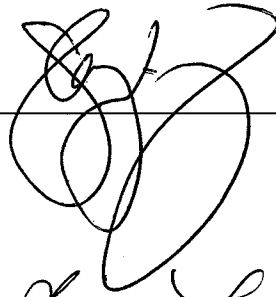
S.B. NO. 3124

1 SECTION 3. New statutory material is underscored.

2 SECTION 4. This Act shall take effect upon its approval.

3

INTRODUCED BY: _____



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S.B. NO. 3124

Report Title:

State Microbe

Description:

Establishes and designates *Vibrio fischeri* as the official microbe of the State.

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