

## STAFF SUMMARY FOR JUNE 22-23, 2016

**19. UC MERCED PERMIT AMENDMENT-TRANSGENIC ZEBRAFISH****Today's Item**Information Action 

Approve the addition of Transgenic Zebrafish to U.C. Merced's Restricted Species Permit

**Summary of Previous/Future Actions**

- **Today's application review** Jun 22-23, 2016; Bakersfield

**Background**

UC Merced currently possesses a DFW-issued Restricted Species Permit (No. 3054). U.C. Merced has requested to include possession of transgenic zebrafish (*Danio rerio*) under the authorization of that permit.

DFW has reviewed the application submitted and DFW staff determined that the request should be granted.

Pursuant to Section 671.1(a)(8)(H), Title 14, when DFW determines that a Restricted Species permit for transgenic aquatic animals should be issued, that decision must be reviewed by FGC. FGC may deny the issuance of a permit if it determines that the applicant is unable to meet the regulatory requirements for the importation, transportation, possession, and confinement of transgenic aquatic animals. DFW has reported that U.C. Merced has agreed to comply with all containment and security conditions (Exhibit 1).

**Recommendation**

**FGC staff:** Approve U.C. Merced request to add transgenic zebrafish to its Restricted Species Permit as recommended by DFW, under a motion adopting the consent calendar.

**DFW:** Approve U.C. Merced request to add transgenic zebrafish to its Restricted Species Permit No. 3054.

**Exhibits**

1. [UC Merced renewal application with Department cover memo, received Jun 6, 2016](#)

**Motion/Direction**

Moved by \_\_\_\_\_ and seconded by \_\_\_\_\_ that the Commission adopts the Consent Calendar, items 19 -23.

2016 JUN -6 PM 3: 39

## Memorandum

Date: May 23, 2016

To: Valerie Termini  
Executive Director  
Fish and Game Commission

From: Charlton H. Bonham  
Director



**Subject: Consent Item for the June 22-23, 2016, Fish and Game Commission Meeting:  
Request to add Transgenic Zebrafish to U.C. Merced's Restrict Species Permit**

U.C. Merced is requesting to add transgenic zebrafish (*Danio rerio*) to their Restricted Species Permit (No. 3054). According to Title 14, Section 671.1(a)(8)(H), all applications approved by the Department must be reviewed by the Commission at a regularly scheduled meeting. The Commission may deny the issuance of a permit if it determines that the applicant is unable to meet the regulatory requirements for the importation, transportation, possession, and confinement of transgenic aquatic animals.

The transgenic zebrafish will be used for bio-medical research and teaching. U.C. Merced has agreed to comply with containment and security conditions as specified in Title 14 of the California Code of Regulations. Fisheries Branch has coordinated with the regional staff responsible for this area and the Fish Health Lab. The Department recommends issuing U.C. Merced a Restricted Species Permit to possess transgenic zebrafish.

If you have any questions or need additional information on this matter, please contact Kevin Shaffer, Chief (A), Fisheries Branch, at (916) 327-8841 or at [Kevin.Shaffer@wildlife.ca.gov](mailto:Kevin.Shaffer@wildlife.ca.gov).

Attachment

ec: Stafford Lehr, Deputy Director  
Wildlife and Fisheries Division  
[Stafford.Lehr@wildlife.ca.gov](mailto:Stafford.Lehr@wildlife.ca.gov)

Kevin Shaffer, Chief (A)  
Fisheries Branch  
Wildlife and Fisheries Division  
[Kevin.Shaffer@wildlife.ca.gov](mailto:Kevin.Shaffer@wildlife.ca.gov)

Roger Bloom, Fisheries Program Manager  
Fisheries Branch  
Wildlife and Fisheries Division  
[Roger.Bloom@wildlife.ca.gov](mailto:Roger.Bloom@wildlife.ca.gov)

Valerie Termini, Executive Director  
Fish and Game Commission  
May 23, 2016  
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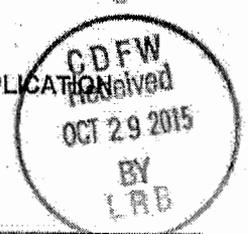
Mark Adkison, Ph.D.  
Research Scientist Supervisor  
Fisheries Branch  
Wildlife and Fisheries Division  
[Mark.Adkison@wildlife.ca.gov](mailto:Mark.Adkison@wildlife.ca.gov)

Brian Beal, Environmental Scientist (Supervisor)  
Central Region (Region 4)  
Wildlife and Fisheries Division  
[Brian.Beal@wildlife.ca.gov](mailto:Brian.Beal@wildlife.ca.gov)



California Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE

RESTRICTED SPECIES PERMIT NO. 3054  
2015 RESTRICTED SPECIES PERMIT RENEWAL APPLICATION  
PERMITTEE TYPE:  
PERMIT TYPE(S): RESEARCH - DETRIMENTAL SPECIES



PERMITTEE'S BUSINESS NAME U. C. MERCED	CONTACT PERSON ROY HOGLAND	CONTACT TITLE DIRECTOR	BUSINESS PHONE/EXT. (209) 228-4189	EMAIL ADDRESS rhogland@ucmerced.edu
MAILING ADDRESS 5200 N LAKE RD	CITY MERCED	STATE CA	ZIP CODE 95343	COUNTRY USA
STREET ADDRESS (IF DIFFERENT THAN ABOVE)	CITY	STATE	ZIP CODE	COUNTRY

I HAVE CONTINUOUSLY RESIDED IN CALIFORNIA FOR THE LAST SIX MONTHS. YES  NO   
Resident is defined as any person who has resided continuously in the State of California for six months or more immediately prior to the date of this application for a permit, any person on active military duty with the Armed Forces of the United States or auxiliary branch thereof, or any person enrolled in the Job Corps established pursuant to Section 2665 of Title 29 of the United States Code.

APPLYING FOR PERMIT AS (CHOOSE ONE):  
 An Individual  Both an Individual and a Business  
 A Business

PERMITTEE'S NAME (IF APPLYING AS AN INDIVIDUAL) \_\_\_\_\_ GO ID NUMBER 1025773814 DATE OF BIRTH \_\_\_\_\_ DAYTIME PHONE \_\_\_\_\_

**CHECK TYPE(S) OF PERMIT**

- ANIMAL CARE - DETRIMENTAL SPECIES \$475.75 \_\_\_\_\_
- ANIMAL CARE - WELFARE SPECIES \$57.68 \_\_\_\_\_
- AQUACULTURE \$475.75 \_\_\_\_\_
- AZA - DETRIMENTAL SPECIES \$475.75 \_\_\_\_\_
- BREEDING \$475.75 \_\_\_\_\_
- FISH \$475.75 \_\_\_\_\_
- NATIVE SPECIES EXHIBITING \$475.75 \_\_\_\_\_
- NONRESIDENT BROKER/DEALER \$944.00 \_\_\_\_\_
- NONRESIDENT EXHIBITING \$944.00 \_\_\_\_\_
- NONRESIDENT NUISANCE BIRD ABATEMENT \$944.00 \_\_\_\_\_
- RESEARCH - DETRIMENTAL SPECIES \$475.75 \$ 475.75
- RESIDENT BROKER/DEALER \$475.75 \_\_\_\_\_
- RESIDENT EXHIBITING \$475.75 \_\_\_\_\_
- RESIDENT NUISANCE BIRD ABATEMENT \$475.75 \_\_\_\_\_
- SHELTER \$57.68 \_\_\_\_\_
- SINGLE EVENT BREEDING FOR EXHIBITOR \$67.88 \_\_\_\_\_

STANDARD INSPECTION FEE IS BASED ON THE NUMBER OF ENCLOSURES  
CHECK NUMBER OF ENCLOSURES AND RECORD THE CORRESPONDING  
STANDARD INSPECTION FEE BELOW:

- 1-5 Enclosures ..... \$233.65
- 6-25 Enclosures ..... \$327.75
- 26-50 Enclosures ..... \$532.50
- 51-100 Enclosures ..... \$836.25
- 101-500+ Enclosures ..... \$3,076.75

PERMIT(S) FEE SUBTOTAL \$ 475.75  
 NONREFUNDABLE APPLICATION FEE \$58.20 \$ 58.20  
 STANDARD INSPECTION FEE \$ \_\_\_\_\_  
 AQUACULTURE INSPECTION FEE \$1,544.75 \$ \_\_\_\_\_  
Applicants for aquaculture permits shall pay this inspection fee.  
 ELE/MOU NEW FEE \$451.50 \$ 451.50  
Applicants for research permits may pay the ELE/MOU fee in lieu of the standard inspection fee

PERMIT(S) FEE SUBTOTAL \$ 475.75 GRAND TOTAL \$ 985.45

WILL ANIMALS BE IMPORTED INTO CALIFORNIA?  YES, COMPLETE IMPORTATION SECTION  NO, EXPLAIN \_\_\_\_\_

**IMPORTATION ONLY - COMPLETE THIS PORTION OF THE APPLICATION IF YOU ARE IMPORTING ANIMALS INTO CALIFORNIA.**

List Species to be Imported <u>Danio rerio</u>	No. of Animals <u>20</u>	Origin (State or Country) <u>Oregon USA</u>
Person/Business Shipping Animals <u>Zebrafish International Resource Center (ZIRC)</u>	Day Phone <u>(541) 346-6028</u>	
Address <u>5274 University of Oregon</u>	City <u>Eugene</u>	State <u>OR</u>
Name of Carrier <u>FEDEX</u>	Zip Code <u>97403-5274</u>	Point of Entry into California <u>Oakland CA</u>

Applicant's Certification: I certify under penalty of perjury under the laws and regulations of the State of California that all information on this application is true and correct and I am not violating any city or county laws. I agree to comply with the provisions of Section 671, Title 14, of the California Code of Regulations. I understand it is unlawful to use or possess a permit which was obtained by fraud or deceit (Fish and Game Code Section 1052b). I understand that in the event that this information is found to be untrue or incorrect, the permit will be considered invalid and must be surrendered where purchased and I will be subject to criminal prosecution. I further understand that failure to comply with the terms and conditions of a permit may result in revocation of current permit and/or denial of future permits. Violation of this section is a misdemeanor, punishable by a fine of not more than \$1,000.00, imprisonment in the county jail for not more than six months, or both the fine and the imprisonment. In addition, I may be subject to civil penalties as stated in Fish and Game Code.

APPLICANT'S SIGNATURE (MUST BE IN INK) X Roy Hogland Date 9/29/15

**FOR DEPARTMENT OF FISH AND WILDLIFE USE ONLY**

REVIEWED BY/DATE <u>RA 10-30-15</u>	TRANSACTION # <u>11692460</u>	ISSUED BY/DATE <u>RA</u>
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2015 INVENTORY OF ANIMALS RENEWAL



ATTN: ROY HOGLAND, DIRECTOR  
U. C. MERCED  
5200 N LAKE RD  
MERCED CA 95343

**LOCATION(S) OF ANIMALS** NOTE: Animals being held at multiple locations require inspection certification by the Department that each of those facilities meet minimum applicable housing requirements as set forth in Sections 671.1(a)(8)(A-F), 671.2, 671.3 - 671.4, 671.4(e) and/or 671.7, Title 14, of the California Code of Regulations (CCR).

ADDRESS 5200 N LAKE RD	CITY MERCED	STATE CA	ZIP 95343	COUNTY MERCED
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**INSTRUCTIONS:** Listed below are the animals you are currently authorized to possess. REVIEW AND EDIT: make any necessary changes (i.e. deaths, number of animal(s), age of animal(s), acquisitions, transfers, etc.) by crossing out and writing in changes, prior to submitting your renewal application. **UNIQUE IDENTIFIERS AND METHOD** (see Section 671.1(c)(3)(J), Title 14, of the CCR): Specify the number, letter or any combination thereof in the Unique ID field and use the following to denote identifying method in the ID Method field for required species: M=Microchip; T=Tattoo; or A=Alternative Method. The Department may approve an alternative method if the permittee provides written verification from a veterinarian accredited by the USDA explaining why it would be detrimental to the health of an animal to microchip or tattoo the animal and what alternative method of unique identification would be suitable. **FACILITY IDENTIFICATION:** Required for permittees whose permit conditions specify animal identification required other than those species specifically requiring animal identification. This identification may include but is not limited to the animals given name (i.e. Sally, Duke), Intake ID, studbook ID, band number, or government or institution (i.e. AZA, USFWS) ID. **AQUACULTURE AND FISH PERMITTEES:** Identify the actual number in the No. field and identify either W=Weight; V=Volume; or C=Count in the Method field. **IMPORTATION ONLY SECTION:** Remember to complete this section of your renewal application for all animals being imported into California. **ANIMAL CARE AND, NATIVE SPECIES EXHIBITING AND OTHER DESIGNATED PERMITTEES** (see permit conditions): You are not authorized to obtain any new species or new animals without prior written approval from the Department.

UNIQUE ID	IDENTIFYING METHOD	COMMON NAME	SCIENTIFIC NAME	FACILITY ID	NO.	SEX	AGE		TBA*	NS**
							YRS	MOS		

I certify under penalty of perjury under the laws and regulations of the State of California that all information on this Restricted Species Permit Inventory of Animals form is true and correct. I understand that false or incomplete information may result in denial or revocation of a permit and/or criminal prosecution.

APPLICANT'S SIGNATURE (MUST BE IN INK)

Date

X *Roy Hogland*

9/29/15

**UC Merced Emergency Action Plan  
Per CDFG 671.1(c)(2)(j)1. a-f**



Class Amphibia (frogs – *Xenopus laevis* )  
Class Osteichthyes (Bony Fishes) Transgenic Aquatics : Zebrafish

*The University of California, Merced (UCM) is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International, a process that includes a rigorous inspection and evaluation of facility security. All re-capture equipment and immobilization drugs, all lethal dispatch methods for various animals and personnel who are trained to carry out the lethal dispatch methods, all medical supplies/first aid kits and locations, all mobile transport cages and equipment, and all written plans of action for emergencies have been reviewed and approved by AAALAC.*

**a. List of the re-capture equipment available, including but not limited to darting equipment, nets, traps, and chemical immobilization drugs for animals listed on our inventory:**

All frogs and fish are housed in primary enclosures (caging, tanks, etc.) within secure, indoor, IACUC approved housing as specified by PHS Policy, the ILAR *Guide for the Care and Use of Laboratory Animals*, and the USDA Animal Welfare Act. As such, the escape of these animals is unlikely. Should an animal escape its primary enclosure nets are available for recapture.

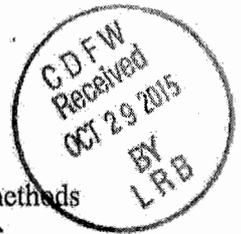
A frog that escapes its primary caging will seek protective shelter within its secondary enclosure (locked rooms within locked buildings). Chemical immobilization and darting is not appropriate for this species.

Frogs and fish are captured by bare hand or with nets as appropriate. Drains for rooms containing *Xenopus* and zebrafish are screened. Water from fish tanks is discharged into municipal sewage systems. The vivarium housing frogs and fish maintains the appropriately sized nets, buckets, caging/tanks for the species and number of animals housed.

**b. Description of humane lethal dispatch methods for various animals and a list of qualified personnel who are trained to carry out the methods:**

Chemical euthanasia agents are available through the UC Merced Department of Animal Research Services and the Attending Veterinarian. The most common methods of euthanasia employed are carbon dioxide anesthesia in small animals, barbiturate overdose in both small and large animals, and MS222 overdose in aquatic animals. Trained personnel may perform physical methods of euthanasia such as cervical dislocation and decapitation on some species.

Species-specific methods of euthanasia are clearly described in all IACUC approved individual animal care and use protocols. Unless the investigator scientifically justifies an exception in his or her protocol, methods must be compatible with the AVMA's Panel on Euthanasia.



The vivarium or research staff performs euthanasia. Training in appropriate euthanasia methods is provided to investigators through the Department of Animal Research Services and the Attending Veterinarian.

**c. List of medical supplies/first aid kits and where they are located:**

The campus department housing live vertebrate animals at UC Merced must maintain an Injury and Illness Prevention Program (IIPP). The authority and responsibility for the implementation and maintenance of the Injury and Illness Prevention Program (IIPP) is in accordance with University Policy and California Code of Regulations (8 CCR, Section 3203). A first aid kit and a comprehensive, departmental specific, copy of the IIPP is available in the vivarium.

Additionally UC Merced has a contract with a local Occupational Health clinic that offers treatment for work-related injuries and illness, work-related preventive medicine and injury & illness prevention services, and OSHA and medical surveillance programs. Physicians experienced in Occupational Medicine provide medical care.

**d. Description of mobile transport cages and equipment on hand:**

Within the institution, animals are transported in university or personal vehicles providing air-conditioned space. Personnel carry animals in approved transport cages or carriers between buildings or rooms. All animals are transported in appropriate transport conditions and carriers, as specified by PHS policy, the *ILAR Guide for the Care and Use of Laboratory Animals* and the USDA Animal Welfare Act.

Small animals are transported in a primary container (crate/box) within the passenger area of vehicles (i.e., in the cab of a pickup truck). Climate control is achieved via the vehicle's air conditioning and heating unit. Animals may be transported to other facilities on campus within walking distance by investigators. In this case, the animals are moved in a covered cage or cart.

**e. List of emergency telephone numbers that includes the local department regional office, 911, and animal control agencies:**

Local CDFG Departmental regional office - Region 2 – 916-358-2900

Local CDFG Departmental regional office - Region 3 – 707-944-5500

Campus Police – Emergency – 9-911

Campus Police – Emergency calls from cell phones – campus – 209-228-2677

Attending Veterinarian (office) – 530-757-3321

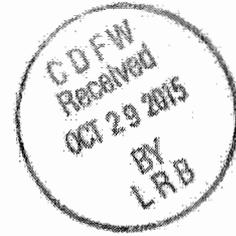
Attending Veterinarian (cell) – 530-304-5954

Director, Department of Animal Research Services (office) – 209-228-4189

Director, Department of Animal Research Services (cell) – 209-631-8193

Local Animal Control Agencies

Merced County Animal Control – 209-385-7436  
City of Chowchilla Animal Control – 209-665-8600  
City of Turlock Animal Control – 209-668-5500 x6301  
Merced County Animal Services Facility – 209-385-7436



**f. Written plan of action for emergencies**

Please see included document titled: "Master Emergency Program Plan, Department Operations Center, Animal Care Program."

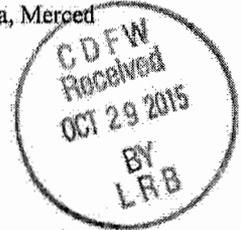
# UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

Office of Research  
University of California, Merced  
5200 North Lake Rd  
Merced, CA 95343



September 30, 2015

To Whom It May Concern,

On September 17, 2015, I inspected the newly installed Tecniplast ZebTEC™ zebrafish housing system. This is located in the Science and Engineering Building 1 Vivarium, on the campus of the University of California, Merced. It will be used to house both wild type and transgenic zebrafish (*Danio rerio*). Once an approved animal care and use protocol is in place, these fish will be obtained from the Zebrafish International Resource Center (<https://zebrafish.org>). Fish will be used for teaching purposes only, and will be cared for and disposed of as follows:

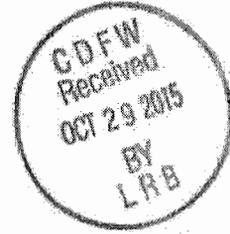
1. All fish will be held and raised in this species-appropriate, closed-water system. If needed, animals will be transported in small, static, closed containers from the vivarium to teaching laboratories. Fish will not be transported or used for exhibition purposes.
2. Access is restricted through the use of electronic key cards (to the vivarium), and door keys (animal room) issued only to personnel who have completed appropriate training and are listed on the animal care and use protocol.
3. Fish will remain in the vivarium with the exception of those needed to be transported to student teaching labs.
4. Fish and their progeny will be disposed of as medical waste.
5. Transgenic and nontransgenic fish will not be mingled. However, all fish will be treated as though genetically engineered, and will be disposed of as medical waste.
6. UC Merced has an assurance on file with the Public Health Services, is registered with the USDA, and is fully accredited through the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), International. This institution also has an active and properly constituted Institutional Animal Care and Use Committee (IACUC). This institution follows the requirements of the Federal Animal Welfare Regulations contained in 9 Code of Federal Regulations (CFR), and cited by the Federal Animal Welfare Regulations and the "Guide for the Care and Use of Laboratory Animals, 8th edition" (National Academies Press, 2011).
7. A program of veterinary care (including fish procurement and transportation, preventative medicine, clinical care and management, and euthanasia) is in place to provide humane care and optimal treatment standards.
8. A commercial animal colony database system will be used to log pertinent information, including health care, for all fish.
9. As Attending Veterinarian for UC Merced, I will work with the vivarium and laboratory staff to insure appropriate veterinary care is available at all times, and is properly documented.

Please do not hesitate to contact me if there are additional questions.

Sincerely,

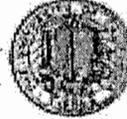
*Katherine Wasson Clark, DVM*

Katherine Wasson Clark, DVM, PhD, DACLAM  
Attending Veterinarian



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Office of Research  
University of California, Merced  
5200 North Lake Rd  
Merced, CA 95343

California Dept. of Fish and Wildlife  
License and Revenue Branch  
1740 North Market Blvd.  
Sacramento, CA 95834

November 20, 2015

To Whom It May Concern,

I, Katherine Wasson Clark, am an accredited USDA Veterinarian certifying that the animals and their housing have been inspected at least twice during the year, at six month intervals and that the animals are being cared for and housed in accordance with applicable requirements in subsection 671.1(a)(8)(A)-(F), and sections 641.2 through 671.4 to satisfy the inspection requirement.

Sincerely,

A handwritten signature in black ink that reads "Katherine Wasson Clark, DVM". The signature is written in a cursive style with a long horizontal line extending to the right.

Katherine Wasson Clark, DVM  
Attending Veterinarian  
University of California, Merced

Cc: UCM RCI