OMB APPROVED
0579-0036
Exp.: 10/31/2018

This report is required by law (7 U.S.C. 2143). Failure to report according to the regulations can result in an order to cease and desist and to be subject to penalties as provided for in Section 2150.

Interagency Report Control No. 0180-DOA-AN

Fiscal Year 2017

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

ANNUAL REPORT OF RESEARCH FACILITY

(TYPE OR PRINT)

1. REGISTRATION NUMBER
54-G-0001

2. HEADQUARTERS RESEARCH FACILITY *(Name, address, and telephone number as registered with USDA, include ZIP Code)*

USDA ARS Natl Center Cool / Cold Water Aquaculture
11861 Leetown Road

KEARNEYSVILLE, WV 25430

3. REPORTING FACILITY *(List all locations where animals were housed or used in actual research, testing, teaching, or experimentation, or held for these purposes. Attach additional sheets, if necessary.)*

FACILITY LOCATIONS *(Sites)*

[redacted]

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY *(Attach additional sheets, if necessary, or use APHIS FORM 7023A.)*

A. Animals Covered By The Animal Welfare Regulations	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. *(An explanation of the procedures producing pain or distress on these animals and the reasons such drugs were not used must be attached to this report.)*	F. TOTAL NUMBER OF ANIMALS **(Cols. C + D + E)**
4. Dogs	0	0	0	0	0
5. Cats	0	0	0	0	0
6. Guinea Pigs	0	0	0	0	0
7. Hamsters	0	0	0	0	0
8. Rabbits	0	0	0	0	0
9. Non-human Primates	0	0	0	0	0
10. Sheep	0	0	0	0	0
11. Pigs	0	0	0	0	0
12. Other Farm Animals					
13. Other Animals					

ASSURANCE STATEMENTS

1.) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.

2.) Each principal investigator has considered alternatives to painful procedures.

3.) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). **A summary of all such exceptions is attached to this annual report.** In addition to identifying the IACUC approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.

4.) The attending veterinarian for this research facility has appropriate authority to ensure the provisions of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL

(Chief Executive Officer (C.E.O.) or Legally Responsible Institutional Official (I.O.))

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

[redacted]

DATE SIGNED
14-FEB-2018

APHIS FORM 7023
JUL 2013

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 6,486

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Juvenile fish were infected with *Flavobacterium psychrophilum*, the causative agent of bacterial cold water disease. During the 21-day post-challenge observation period, some fish experienced typical signs of disease, including decreased appetite, altered ventilation and swimming, loss of equilibrium, discoloration, and lesions at the injection site. Most fish were humanely euthanized prior to the development of severe disease, although some died before euthanasia could be performed. We are reporting those fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   Few data are available regarding the use of analgesics in fish, and protocols tested to date only pertain only to alleviation of acute pain and distress (Sneddon, 2012, J. Exotic Pet Medicine, 21:32-43). Furthermore, the effects of anesthetics, analgesics, and tranquilizers on disease resistance mechanisms are unresolved and may have interfered with the normal course of disease progression and host response, and thus could not be used in these studies for long-term periods. Tricaine is currently the only anesthetic/analgesic agent approved for use in fish in the U.S., and its long term use for the duration of this study was not feasible.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 24

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Juvenile fish were infected with *Aeromonas salmonicida*, the causative agent of furnuculosis disease. During the 21-day post-challenge observation period, some fish experienced typical signs of disease, including decreased appetite, altered ventilation and swimming, loss of equilibrium, and discoloration. Most fish were humanely euthanized, although some died before euthanasia could be performed. We are reporting those fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   Few data are available regarding the use of analgesics in fish, and protocols tested to date only pertain only to alleviation of acute pain and distress (Sneddon, 2012, J. Exotic Pet Medicine, 21:32-43). Furthermore, the effects of anesthetics, analgesics, and tranquilizers on disease resistance mechanisms are unresolved and may have interfered with the normal course of disease progression and host response, and thus could not be used in these studies for long-term periods. Tricaine is currently the only anesthetic/analgesic agent approved for use in fish in the U.S., and its long term use for the duration of this study was not feasible.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 48

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Fish were infected with *L. garvieae* the causative agent of Lactococcosis. During the 28-day post-challenge observation period, some fish experienced typical signs of disease, including decreased appetite, altered ventilation and swimming, loss of equilibrium, discoloration, exophthalmia, and lesions at the injection site. Most fish were humanely euthanized prior to the development of severe disease, although some died before euthanasia could be performed. We are reporting those fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   Few data are available regarding the use of analgesics in fish, and protocols tested to date only pertain only to alleviation of acute pain and distress (Sneddon, 2012, J. Exotic Pet Medicine, 21:32-43). Furthermore, the effects of anesthetics, analgesics, and tranquilizers on disease resistance mechanisms are unresolved and may have disrupted the normal course of disease progression and host response, and thus could not be used in these studies for long-term periods. Tricaine is currently the only anesthetic/analgesic agent approved for use in fish in the U.S., and its long term use for the duration of this study was not feasible.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 260

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Fish were infected with *Y. ruckeri*, the causative agent of Enteric Redmouth Disease. During the 28-day post-challenge observation period, some fish experienced typical signs of disease including, decreased appetite, altered ventilation and swimming, loss of equilibrium, discoloration, exophthalmia, and lesions at the injection site. Most fish were humanely euthanized prior to the development of severe disease, although some died before euthanasia could be performed. We are reporting those fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   Few data are available regarding the use of analgesics in fish, and protocols tested to date only pertain only to alleviation of acute pain and distress (Sneddon, 2012, J. Exotic Pet Medicine, 21:32-43). Furthermore, the effects of anesthetics, analgesics, and tranquilizers on disease resistance mechanisms are unresolved and may have interfered with the normal course of disease progression and host response, and thus could not be used in these studies for long-term periods. Tricaine is currently the only anesthetic/analgesic agent approved for use in fish in the U.S., and its long term use for the duration of this study was not feasible.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 9,930

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Juvenile fish were infected with *Flavobacterium columnare*, the causative agent of columnaris disease. During the 21-day post-challenge observation period, some fish experienced typical signs of disease including, decreased appetite, altered ventilation and swimming, loss of equilibrium, and discoloration. Most fish were humanely euthanized prior to the development of severe disease, although some died before euthanasia could be performed. We are reporting those fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   This experiment is to determine the broad-based resistance to *F. columnare* in rainbow trout that are selectively bred for resistance to a single strain of the pathogen. Thus, accomplishment of the research goals requires the disease to progress naturally without interference, resulting in relatively high rates of mortality due to natural causes and/or euthanasia of moribund animals. Throughout the course of this study, fish will be observed at least once daily and closely monitored. Any fish that are found to be moribund will be immediately euthanized to minimize pain and discomfort. Few data are available regarding the use of analgesics in fish, and protocols tested to date only pertain to alleviation of acute pain and distress (Sneddon, 2012, J. Exotic Pet Medicine, 21:32-43). Furthermore, the effects of anesthetics, analgesics, and tranquilizers on disease resistance mechanisms are unresolved and may have interfered with the normal course of disease progression and host response, and thus could not be used in these studies for long-term periods. Tricaine is currently the only anesthetic/analgesic agent approved for use in fish in the U.S., and its long term use for the duration of this study was not feasible.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 54-G-0001

2. Number of animals used in this study: 59

3. Species (common name) of animals used in the study: rainbow trout

4. Explain the procedure producing pain and/or distress.

   Fish were temporarily exposed to moderately crowded conditions for 4 hours (20% higher than the recommended density to support maximum growth). Fish were continuously monitored throughout the procedure to allow prompt removal of any that showed signs of excessive stress (i.e., reduced activity, abnormal swimming, gulping at the water surface, etc.). No fish had to be removed, and dissolved oxygen levels were maintained within acceptable levels the entire time. We are reporting the subpopulation of fish that experienced more than momentary discomfort in Column E.

5. Attach or include an explanation with the reason(s) for why anesthetics, analgesics and tranquillizers could not be used. (For Federally mandated testing, see Item 6 below)

   The nature of the study is to monitor the stress response. Treatment methods to alleviate distress would have inhibited the stress response and interfered with the objectives of the study. Although crowding may have caused some short-term, mild distress, the effects were reversible and did not lead to any associated physical pain or other adverse health effects

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

   N/A