# EXAMPLESearch for Alternatives to Painful/Distressful Procedures

**This form must be completed if the pain classification from Question #8 was D or E**

Please read the background information on the [United States Department of Agriculture USDA policy for painful and distressful procedures](https://umaine.edu/research-compliance/resource/pain-categories/) before completing this form.

The written narrative should include adequate information for the Institutional Animal Care and Use Committee (IACUC) to assess that a reasonable and good faith effort was made to determine the availability of alternatives or alternative methods. **The narrative should not be a description of the selected proposed methods but should explain the alternative methods that were identified in the search for alternatives and why those methods are not acceptable for the proposed project.**

The following information is required:

1. The names(s) of the database(s) searched (due to the variation in subject coverage and sources used, one database is seldom adequate).

**Web of Science, Google Scholar, PubMed, Science Direct, vendor websites (e.g., www.mermaidtags.com**)

2) The date the search was performed.
 **2/21/2018**

3) The time period covered by the search.
 **1900-February 21, 2018**

4) The search strategy (including scientifically relevant terminology) used.

**tagging, marking, surgery, implant, stress, survival, methods, alternatives, stress, mermaid tagging, growth**

5) Did your database search (or other source) identify a bona fide alternative method (one that could be used to accomplish the goals of the animal use proposed)? Yes/No

**No**.

 If yes, please explain why the alternative found was not proposed. (*Note:* The IACUC will consider this explanation but may determine it is not adequate to justify not using the bona fide alternative.)

 If no, the IACUC would like a description of the results of the database search (or other source) to document the lack of relevant alternatives.

## Narrative: Search for Alternative to Painful or Stressful Procedures

**SURGICAL IMPLANTATION OF MERMAID TAGS**

**The use of implanted tags is essential to identify or track individuals through time. The implantation of tags described in this form is envisioned to cause some level of extended pain and stress. Successful surgical implantation of tags relies on proficiency of those performing the surgery. When done properly, the surgical wound heals quickly and with minimal long term behavioral and physiological interference. Two general types of alternatives are available; alternatives to tag type and alternatives to surgical implantation. These are discussed below.**

**Alternatives to surgical implantation are limited to non-surgical internal implants or non-surgical external attachments. These alternatives would also need to be examined for radio tagging.**

1. **Gastric implantation requires the forceful insertion of tags into the gut of subject animals. Problems with this methodology include expulsion through regurgitation, variable retention based on the tag size (fixed) relative to subject size (variable), internal damage to the subject during implantation or by barbs used to hold tag in place, concerns for altering basic behavior (feeding) of subjects.**
2. **External attachment has the advantage over peritoneal implant of not requiring insertion into the peritoneal cavity. However, there are considerable drawbacks that make this method more appropriate to other situations. Thread or wire must be used to attach a tag and this subjects the tissue to tearing and infection. External attachment is best when it involves affixing to a bony plate or hard surface- features that are not (for example) found in mermaids. Tags attached in this manner can also be shed by the subject through abrasion and encumber the mermaid with hydrodynamic drag. External tagging may also affect the interaction behavior of conspecifics (e.g., schooling) and encourage others to pull on tags.**

**In many cases, these alternatives risk the quality of data or risk greater pain and stress to the subject. Given the small size of the internal tag, neither of these techniques (gastric implantation, external attachment) is expected to be effective with regard to retention and are expected to be a greater risk for tissue damage and infection.**

### Sources

*Magic, I.M. (2003) Development of a tagging technique for mermaids. Sea Research 282, pp. 13-14.*

*Zee, X.Y., and A.B. Sea. (2018). Effects of surgically and gastrically implanted tags on growth and feeding behavior of migrating mermiads. Trans. Intern. Res. Myth. Creat. 111: 188-192.*