

California Fish and Game Commission

Wildlife Resources Committee

Meeting Binder

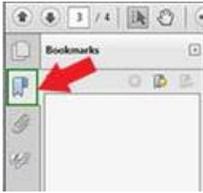


May 19, 2022

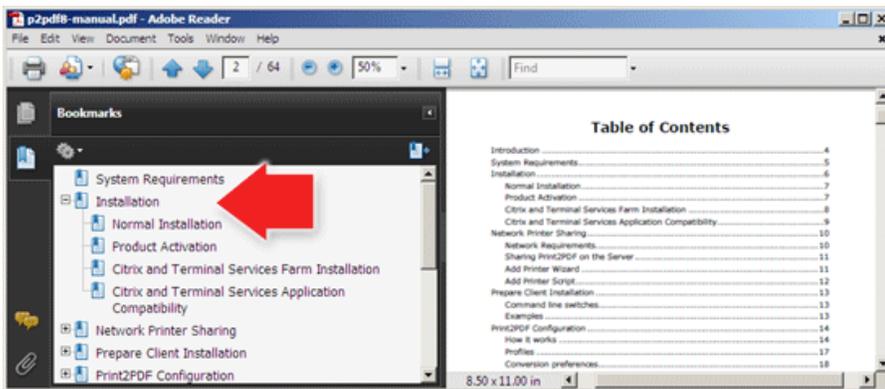
Redding

EASY GUIDE TO USING THE BINDER

1. Download and open the binder document using your Adobe Acrobat program/app.
2. If a bookmark panel does not automatically appear on either the top or left side of the screen, click/tap on the “bookmark symbol” located near the top left-hand corner.



3. To make adjustments to the view, use the Page Display option in the View tab. You should see something like:



4. We suggest leaving open the bookmark panel to help you move efficiently among the staff summaries and numerous supporting documents in the binder. It's helpful to think of these bookmarks as a table of contents that allows you to go to specific points in the binder without having to scroll through hundreds of pages.
5. You can resize the two panels by placing your cursor in the dark, vertical line  located between the panels and using a long click /tap to move in either direction.
6. You may also adjust the sizing of the documents by adjusting the sizing preferences located on the Page Display icons found in the top toolbar or in the View tab.
7. Upon locating a staff summary for an agenda item, notice that you can obtain more information by clicking/tapping on any item underlined in blue.
8. Return to the staff summary by simply clicking/tapping on the item in the bookmark panel.
9. Do not hesitate to contact staff if you have any questions or would like assistance.

OVERVIEW OF FISH AND GAME COMMISSION COMMITTEE MEETING

- Welcome to this meeting of the Wildlife Resources Committee. The Committee is comprised of up to two Commissioners who co-chair each meeting; members are assigned by the Commission annually.
- Our goal today is informed discussion to guide future decision making, and, we need your cooperation to ensure a lively and comprehensive dialogue.
- We are operating under Bagley-Keene Open Meeting Act, but it is important to note that the Committee chairs cannot take action independent of the full Commission; instead, the chairs make recommendations to the full Commission at regularly scheduled meetings.
- These proceedings may be recorded and posted to our website for reference and archival purposes.
- Items may be heard in any order pursuant to the determination of the Committee Co-Chairs.
- As a general rule, requests for regulatory change need to be redirected to the full Commission and submitted on the required petition form, FGC 1, titled “Petition to the California Fish and Game Commission for Regulation Change” (Section 662, Title 14, CCR). However, at the Committee’s discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.
- Committee meetings operate informally and provide opportunity for everyone to provide comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:
 1. Raise your hand and wait to be recognized by the Committee.
 2. Provide your name, affiliation (if any), and the number of people you represent.
 3. Time is limited; please keep your comments precise to give others time to speak.
 4. If several speakers have the same concerns, please appoint a group spokesperson.
 5. If speaking during public comment, the subject matter you present should not be related to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item).

INTRODUCTIONS FOR FISH AND GAME COMMISSION WILDLIFE RESOURCES COMMITTEE

FISH AND GAME COMMISSIONERS

Erika Zavaleta Committee Chair (Santa Cruz)

COMMISSION STAFF

Melissa Miller-Henson Executive Director
Ari Cornman Wildlife Advisor
Cynthia McKeith Staff Services Analyst

DEPARTMENT OF FISH AND WILDLIFE

Chad Dibble Deputy Director, Wildlife and Fisheries Division
David Bess Deputy Director and Chief, Law Enforcement Division
Jay Rowan Chief, Fisheries Branch
Scott Gardner Chief, Wildlife Branch
Chris Stoots Assistant Chief for Administration, Law Enforcement
Division
Brad Burkholder Environmental Program Manager, Wildlife Branch
Jonathan Nelson Environmental Program Manager, Fisheries Branch
Karen Mitchell Senior Environmental Scientist, Fisheries Branch
Melanie Weaver Waterfowl Program Biologist

I would also like to acknowledge special guests who are present:
(i.e., key DFW staff, elected officials, tribal chairpersons, other special guests)

Commissioners
Samantha Murray, President
Del Mar
Erika Zavaleta, Vice President
Santa Cruz
Jacque Hostler-Carmesin, Member
McKinleyville
Eric Sklar, Member
Saint Helena
Vacant, Member

STATE OF CALIFORNIA
Gavin Newsom, Governor

Melissa Miller-Henson
Executive Director
P.O. Box 944209
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(916) 653-4899
fgc@fgc.ca.gov
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Fish and Game Commission



*Wildlife Heritage and Conservation
Since 1870*

WILDLIFE RESOURCES COMMITTEE Committee Chair: Commissioner Zavaleta

Meeting Agenda
May 19, 2022; 10:30 a.m.
(or 15 minutes after the Commission meeting ends, whichever is later)

Central Valley Regional Water Quality Control Board
Gregory Cash Room, 364 Knollcrest Drive
Redding, CA 96002

and

Webinar and Teleconference

To participate in the meeting, you may join via Zoom or by telephone. [Click here](#) or go to <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=200468&inline> for instructions on how to join the meeting.

Note: Please see important meeting procedures and information at the end of the agenda. Unless otherwise indicated, the California Department of Fish and Wildlife is identified as Department. All agenda items are informational and/or discussion only. The Committee develops recommendations to the Commission, but does not have authority to make policy or regulatory decisions on behalf of the Commission.

Call to order

1. Approve agenda and order of items

2. General public comment for items not on agenda

The Committee may not discuss or take action on any matter raised during this item, except to consider whether to recommend that the matter be added to the agenda of a future meeting [Sections 11125, 11125.7(a), Government Code].

3. Department updates

The Department will highlight items of note since the last committee meeting.

- (A) Wildlife Branch
 - I. Bear management plan
 - II. Shared Habitat Alliance for Recreational Enhancement (SHARE) Program
- (B) Fisheries Branch
 - I. SHARE Program
- (C) Law Enforcement Division

4. Initial recommendations for regulations

Discuss potential regulatory options for 2023-24 seasons for:

- (A) Mammal hunting
- (B) Waterfowl hunting
- (C) Central Valley sport fishing
- (D) Klamath River Basin sport fishing
- (E) Inland sport fishing
 - I. Boat limits
 - II. Striped bass
 - III. Klamath above Iron Gate Dam post dam removal
 - IV. 365-day license and mobile app

5. Bullfrogs and non-native turtles

Discuss preliminary results and analysis from the American Bullfrog and Non-native Turtles Stakeholder Engagement Project.

6. Regulation Change Petition 2021-017

Vet and discuss various changes to big game hunting regulations proposed under petition 2021-017.

7. Future agenda items

- (A) Review work plan agenda topics and timeline
- (B) Potential new agenda topics for Commission consideration

Adjourn

California Fish and Game Commission Meeting Schedule

Note: As meeting dates and locations can change, please visit www.fgc.ca.gov for the most current list of meeting dates and locations.

Meeting Date	Commission Meeting	Committee Meeting
June 15-16, 2022	Los Angeles/Orange County area	
July 14, 2022		Marine Resources Santa Rosa area
August 16, 2022		Tribal Fortuna
August 17-18, 2022	Fortuna	
September 15, 2022		Wildlife Resources Los Angeles/Inland Empire area
October 12-13, 2022	Truckee	
November 17, 2022		Marine Resources San Diego area
December 13, 2022		Tribal San Diego area
December 14-15, 2022	San Diego area	

Other Meetings of Interest

Association of Fish and Wildlife Agencies

- September 18-21, 2022 – Fort Worth, TX

Pacific Fishery Management Council

- June 7-14, 2022 – Vancouver, WA
- September 7-14, 2022 – Boise, ID
- November 2-8, 2022 – Orange County, CA

Pacific Flyway Council

- August 26, 2022 – Juneau, AK

Western Association of Fish and Wildlife Agencies

- July 10-15, 2022 – Oklahoma City, OK

Wildlife Conservation Board

- May 26, 2022 – Sacramento, CA
- August 25, 2022 – Sacramento, CA
- November 17, 2022 – Sacramento, CA

Important Committee Meeting Procedures Information

Welcome to a meeting of the California Fish and Game Commission's Wildlife Resources Committee. The Committee is composed of and chaired by up to two Commissioners; these assignments are made by the Commission each year.

The goal of the Committee is to allow greater time to investigate issues before the Commission than would otherwise be possible. Committee meetings are less formal in nature and provide for additional access to the Commission. The Committee follows the noticing requirements of the Bagley-Keene Open Meeting Act. It is important to note that the Committee chairs cannot take action independent of the full Commission; instead, the chairs make recommendations to the full Commission at regularly scheduled meetings.

The Commission's goal is preserving our outdoor heritage and conserving our natural resources through informed decision-making; Committee meetings are vital in developing recommendations to help the Commission achieve that goal. In that spirit, we provide the following information to be as effective and efficient toward that end. Welcome, and please let us know if you have any questions.

Persons with Disabilities

Persons with disabilities needing reasonable accommodation to participate in public meetings or other Commission activities are invited to contact the Department's Equal Employment Opportunity (EEO) Office at (916) 653-9089 or EEO@wildlife.ca.gov. Accommodation requests for facility and/or meeting accessibility and requests for American Sign Language (ASL) Interpreters should be submitted at least two weeks prior to the event. Requests for Real-Time Captioners should be submitted at least four weeks prior to the event. These timeframes are to help ensure that the requested accommodation is met. If a request for an accommodation has been submitted but is no longer needed, please contact the EEO Office immediately.

Submitting Written Materials

The public is encouraged to attend Committee meetings and engage in the discussion about items on the agenda; the public is also welcome to comment on agenda items in writing. You may submit your written comments by one of the following methods (only one is necessary): **Email** to fgc@fgc.ca.gov; **mail** to California Fish and Game Commission, P.O. Box 944209, Sacramento, CA 94244-2090; or **deliver** to California Fish and Game Commission, 715 P Street, 16th floor, Sacramento, CA 95814; or **hand-deliver** to a Committee meeting.

Comment Deadlines

The **Written Comment Deadline** for this meeting is 5:00 p.m. on **May 9, 2022**. Written comments received at the Commission office by this deadline will be made available to Commissioners prior to the meeting.

The **Supplemental Comment Deadline** for this meeting is noon on **May 16, 2022**. Comments received by this deadline will be made available to Commissioners at the meeting.

*The Committee **will not** consider comments regarding proposed changes to regulations that have been noticed by the Commission. If you wish to provide comment on a noticed item, please provide your comments during Commission business meetings, via email, or deliver to the Commission office.*

Note: Materials provided to the Committee may be made available to the general public.

Regulation Change Petitions

As a general rule, requests for regulatory change must be redirected to the full Commission and submitted on the required petition form, FGC 1, *Petition to the California Fish and Game Commission for Regulation Change* (Section 662, Title 14, California Code of Regulations). However, at the Committee's discretion, the Committee may request that staff follow up on items of potential interest to the Committee and possible recommendation to the Commission.

Speaking at the Meeting

Committee meetings operate informally and provide opportunity for everyone to comment on agenda items. If you wish to speak on an agenda item, please follow these guidelines:

1. You will be given instructions during the meeting for how to be recognized by the Committee co-chair(s) to speak.
2. Once recognized, please begin by giving your name and affiliation (if any) and the number of people you represent.
3. Time is limited; please keep your comments concise so that everyone has an opportunity to speak.
4. If there are several speakers with the same concerns, please try to appoint a spokesperson and avoid repetitive comments.
5. If speaking during public comment for items not on the agenda (Agenda Item 2), the subject matter you present should not be related to any item on the current agenda (public comment on agenda items will be taken at the time the Committee members discuss that item). As a general rule, public comment is an opportunity to bring matters to the attention of the Committee, but you may also do so via email or standard mail. At the discretion of the Committee, staff may be requested to follow up on the subject you raise.

Visual Presentations/Materials

All electronic presentations must be submitted by the ***Written Comment Deadline*** and approved by the Commission executive director before the meeting.

1. Electronic presentations must be provided by email to fgc@fgc.ca.gov or delivered to the Commission on a USB flash drive by the deadline.
2. All electronic formats must be Windows PC compatible.

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

2. GENERAL PUBLIC COMMENT**Today's Item**Information Action

Receive public comments for items not on the agenda.

Summary of Previous/Future Action (N/A)**Background**

WRC receives two types of correspondence or comment under general public comment: requests for WRC to consider new topics and informational items. As a general rule, requests for regulation changes must be submitted to FGC on petition form FGC 1, *Petition to the California Fish and Game Commission for Regulation Change*. However, WRC may, at its discretion, request staff to follow up on items of potential interest for possible recommendation to FGC.

Significant Public Comments

The petitioner for Petition 2021-007 requests an update on the status of the petition.

Recommendation

Staff recommends any potential new agenda items — based on issues raised — be held for discussion under Agenda Item 8, *Future agenda items*.

Exhibits

1. [Email from Colin Gallagher](#), received May 5, 2022

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

3. DEPARTMENT UPDATES**Today's Item****Information** **Action**

Receive updates on DFW activities.

Summary of Previous/Future Actions (N/A)**Background**

This is a standing agenda item for DFW to provide updates on activities of interest related to wildlife and inland fisheries. Verbal updates are expected from:

- (A) Wildlife Branch
 - I. Bear management plan
 - II. Shared Habitat Alliance for Recreational Enhancement (SHARE) Program
- (B) Fisheries Branch
 - I. SHARE Program
- (C) Law Enforcement Division

Significant Public Comments (N/A)**Recommendation (N/A)****Exhibits (N/A)****Committee Direction/Recommendation (N/A)**

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

4. INITIAL RECOMMENDATIONS FOR REGULATIONS

Today's Item **Information** **Action**

Discuss potential regulatory options for 2022-23 seasons for:

- (A) Mammal hunting
- (B) Waterfowl hunting
- (C) Central Valley sport fishing
- (D) Klamath River Basin sport fishing
- (E) Inland sport fishing

Summary of Previous/Future Action

- | | |
|---|---|
| <ul style="list-style-type: none"> • Today's discussion • Potential WRC recommendations • FGC considers recommendations | <p>May 19, 2022; WRC, Webinar/Teleconference</p> <p>Sep 19, 2022; WRC, Redding</p> <p>Oct 12-13, 2022; FGC, Sacramento</p> |
|---|---|

Background

This item provides the public an opportunity to engage in initial discussions with WRC, FGC staff and DFW about proposed regulation changes for five categories of seasons:

- (A) Mammal hunting (2023-24): WRC will discuss proposed changes to hunting regulations for various big game mammals, including deer, Nelson bighorn sheep, antelope and elk.
- (B) Waterfowl hunting (2023-24): FGC annually adopts migratory waterfowl hunting regulations to conform State regulations with federal regulations. The U.S. Fish and Wildlife Service adopts federal regulations each Oct based, in part, on recommendations from four regional flyway councils. Migratory waterfowl include American coot, common moorhen, ducks, black brant and geese, among others.
- (C) Central Valley sport fishing (2023): FGC annually adopts Central Valley sport fishing regulations for the American, Feather, Sacramento, and Mokelumne rivers to conform State regulations with federal regulations. The National Marine Fisheries Service (NMFS) adopts federal Central Valley salmon escapement goals each Apr based, in part, on recommendations from the Pacific Fishery Management Council (PFMC), and then DFW proposes regulation changes for consistency with those goals.
- (D) Klamath River Basin sport fishing (2023): FGC annually adopts regulations to conform State regulations with federal regulations in the Klamath River Basin. NMFS adopts federal Klamath River Basin salmon allocations each Apr based, in part, on recommendations from PFMC, and then DFW proposes regulation changes based upon those allocations.
- (E) Inland sport fishing: Inland sport fishing regulations include a wide variety of fish species in non-marine waters throughout the state.
 - I. Inland boat limits: DFW is expected to provide a memo with its recommendation on inland boat limits (Exhibit 1).

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

- II. Striped bass slot limits: Today DFW will present its research and analyses regarding a potential slot limit regulation for striped bass (exhibits 2 through 4).
- III. Klamath River above Iron Gate Dam, post-dam removal: WRC will discuss potential sport fishing regulations for the Klamath River anticipated to go into effect after the removal of various dams; removal is expected to begin in 2024.
- IV. A 365-day license and mobile app: WRC will discuss potential future regulations associated with implementing a 365-day sport fishing license and a potential mobile app for sport fishing licenses.

This meeting is an initial opportunity for any interested parties to make suggestions to DFW and WRC regarding potential regulation changes to consider in each of the five categories. The second opportunity for vetting and discussing ideas with WRC will be its Sep 15, 2022 meeting, before the respective notice hearings.

Significant Public Comments (N/A)**Recommendation (N/A)****Exhibits**

1. DFW memo regarding inland boat limits (to be distributed with supplemental materials)
2. [DFW Striped Bass Pilot Angler Preference Survey Results](#), received Apr 14, 2022
3. [DFW Trends in the Sacramento River Basin Striped Bass Fishery 1991-2016](#), received Apr 14, 2022
4. [DFW presentation](#): Striped bass slot limit

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

5. BULLFROGS AND NON-NATIVE TURTLES**Today's Item**Information Action

Discuss preliminary results of the American Bullfrog and Non-native Turtles Stakeholder Engagement Project.

Summary of Previous/Future Actions

- Project referred to WRC Dec 12-13, 2018; Oceanside
- Discussed preliminary project results Jan 13, 2022; WRC, Webinar/Teleconference
- **Today's discussion of draft staff analysis** **May 19, 2022; WRC, Redding**

Background

In Dec 2018, FGC referred to WRC a stakeholder engagement plan to track progress in addressing issues around non-native American bullfrogs and turtles that are imported into California for food and the pet trade. The plan involves three independent groups developing situation analyses and strategies for addressing the threats, challenges, and opportunities posed by bullfrogs and non-native turtles and their impacts on native wildlife. The fourth group identified in the plan is the California State Legislature, which will be engaged in the process upon completion of the *Conservation Standards* work (see below). WRC received three progress updates in 2020 and three in 2021.

For the situation analyses and strategies work, independent groups were formed, composed of representatives from three different spheres of California society that have a vested interest in bullfrog and non-native turtle concerns. The first group was composed of representatives from local, state, and federal government agencies, the second from environmental and animal welfare groups, and the third from various commercial sector and industry groups. The groups met separately and worked on the same task (in parallel) to analyze: (1) threats to California's environment posed by bullfrogs and non-native turtles, (2) benefits and cultural values of bullfrogs and turtles in California's communities and other intersections with human well-being values, (3) knowledge gaps in our understanding of the relevant systems and operative biological processes, and (4) opportunities for progress in addressing the issues posed by invasive bullfrogs and non-native turtles in California's environment.

The three groups used a flexible, comprehensive process called the *Open Standards for the Practice of Conservation* (see <https://conservationstandards.org/about/> for more information) to guide their analyses. Exhibit 2, first presented at the Jan 2022 WRC meeting, presents a preliminary compilation of the results of the open standards process for all three groups. Recently, the three stakeholder groups convened for an additional discussion to allow more cross-group dialogue and provide additional input.

Today, staff will present draft in-depth analyses, including a literature review, a description of Oregon's regulatory regime and major issues, and an effectiveness analysis of the different identified strategies (Exhibit 1). The draft analyses are based on the work to date, public input,

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

and the most recent stakeholder meetings. FGC staff anticipates further dialogue with the participants of the stakeholder engagement process between now and the September WRC meeting, when staff will present its final materials and will offer recommendations to WRC for its potential recommendation to FGC. Ultimately, staff anticipates that WRC will recommend a comprehensive suite of options to FGC to address the issues surrounding bullfrogs and non-native turtles in California's environment.

Significant Public Comments

The Pet Industry Joint Advisory Council writes to reiterate its concern for the well-being of animals, thanks FGC for organizing the stakeholder engagement process, and offers its continued collaboration in search of solutions (Exhibit 3).

Recommendation (N/A)**Exhibits**

1. [Draft Staff Analysis of the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process](#), dated May 12, 2022
2. [Preliminary Results from the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process](#), dated Jan 7, 2022
3. [Letter from Joshua Jones](#), Director of Government Affairs, Pet Industry Joint Advisory Council, received Jan 10, 2022

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

6. REGULATION CHANGE PETITION 2021-017**Today's Item****Information** **Action**

Vet and discuss various changes to big game hunting regulations proposed under petition 2021-017.

Summary of Previous/Future Actions

- | | |
|----------------------------------|---|
| • FGC received petition 2021-017 | Oct 14, 2021; Webinar/Teleconference |
| • FGC referred petition to WRC | Dec 15-16, 2021; Webinar/Teleconference |
| • Petition workshop | Jan 27, 2022, WRC; Webinar/Teleconference |
| • Today's discussion | May 19, 2021; WRC, Redding |

Background

At its Dec 2021 meeting, FGC referred petition 2021-017 to WRC for discussion and recommendation. At its Jan 2022 meeting, WRC approved a workshop to discuss the petition, which was held on Jan 27, 2022.

The petition (Exhibit 1) requests a number of changes to the big game hunting program, that fall broadly into five categories: general regulations, bear, elk, bighorn sheep, and deer. Today's meeting continues a process in which WRC will vet these proposals with DFW, stakeholders, and the public; this item is for discussion only. Recommendations from DFW on the petition are expected at the Sep 15, 2022 WRC meeting.

Significant Public Comments

Two individuals support various proposals in (or similar to) the petition, including a second bear tag, new premium hunt tags, and increased elk hunting opportunities (Exhibit 2).

Recommendation (N/A)**Exhibits**

1. [Petition 2021-017](#), received Sep 2, 2021
2. [Emails from Alexander Schaefer and Michael Costello](#), received May 10, 2022

Committee Direction/Recommendation (N/A)

COMMITTEE STAFF SUMMARY FOR MAY 19, 2022 WRC

7. FUTURE AGENDA ITEMS**Today's Item**Information Action

Review upcoming agenda items scheduled for the next and future WRC meetings, hear requests from DFW and stakeholders for future agenda items, and identify new items for consideration.

Summary of Previous/Future Actions

- | | |
|--|---|
| • Today's discussion | May 19, 2022; WRC, Redding |
| • FGC potentially approves WRC recommendations | Jun 15-16, 2022; Los Angeles |
| • Next WRC meeting | Sep 15, 2022; WRC, Los Angeles/Inland Empire area |

Background

Committee topics are referred by FGC and scheduled as appropriate. FGC-referred topics and the current schedule are shown in the WRC work plan (Exhibit 1). The committee has placed emphasis on issues of imminent regulatory importance.

WRC Work Plan

Draft agenda topics anticipated to be proposed for the Sep 2022 WRC meeting are shown in the work plan in Exhibit 1.

Discuss and Recommend New WRC Topics

Today is an opportunity to identify any potential new agenda topics to recommend to FGC for referral to WRC. Two new topics have been identified for potential referral to WRC at this time: Wildlife rehabilitation regulation updates and upland game hunting draws, which will be described in more detail during today's meeting.

Significant Public Comments (N/A)**Recommendation**

FGC staff: Review the list of topics identified for the Sep 2022 WRC meeting in the WRC work plan and the current FGC rulemaking timetable (Exhibit 2), determine if any work plan topics should be revised, and identify any new topics to recommend to FGC for WRC evaluation.

Exhibits

1. [WRC work plan](#), updated Apr 8, 2022
2. [FGC Perpetual Timetable for Anticipated Regulatory Actions](#), updated May 12, 2022

Committee Direction/Recommendation

The Wildlife Resources Committee recommends that the Committee work plan be updated with the changes as reflected in Exhibit 1.

From: Colin Gallagher [REDACTED]
Sent: Thursday, May 5, 2022 3:30 PM
To: FGC <FGC@fgc.ca.gov>
Cc: Cornman, Ari@FGC [REDACTED]
Subject: WRC May 19 2022 Comments on Agenda Item 6 - REGULATION CHANGE PETITION 2021-017 and Comments on Agenda Item 3(c) - Dept Updates, Law Enforcement Division

WARNING: This message is from an external source. Verify the sender and exercise caution when clicking links or opening attachments.

From: Colin Gallagher
[REDACTED]

Re.: My written comments on WRC May 19 2022 Agenda Item 6 - REGULATION CHANGE PETITION 2021-017 and my Comments on Agenda Item 3(c) - Dept Updates, Law Enforcement Division

---- see below for my comments here submitted in writing for the record for WRC May 19, 2022. Please forward these comments to Commissioners and to Captain Stoots of the DFW as I do not have his email.

--

As I understand it there will be consideration of REGULATION CHANGE PETITION 2021-017 at the Wildlife Resources Committee on May 19, 2022.

I noticed this had no mention of wild pig in that particular petition, but it seemed every other imaginable big game animal was covered.

If it is possible to do so, please provide an update for status from DFW on Petition 2021-007 during part of Item 6, as 2021-007 does have to do with wild pig.

If that is not possible, then please note the above as my comment on item 6, that I am requesting status on Petition 2021-007 from DFW be provided so we understand when it will be coming back to the FGC.

As my comment on item 3(c) of the May 19, 2022 agenda of the WRC, Dept Updates, Law Enforcement Division, I am requesting that Captain Stoots provide an update during 3(c) on the status of Petition 2021-007 to inform the Committee when the DFW will provide a recommendation on the petition back to the FGC, as I was informed he was the assigned person within DFW.

Thank you

Respectfully,

Colin Gallagher

California Department of Fish and Wildlife Striped Bass Pilot Angler Preference Survey Results

The California Department of Fish and Wildlife conducted a pilot Striped Bass Angler Preference Survey to solicit public input on the current Striped Bass fishing regulations as well as determine if there is interest in making changes to the size limit portion of the fishing regulations. Surveys were conducted opportunistically by Central Valley Angler Survey (CVAS) staff beginning in November 2021 and are currently ongoing. This summary covers surveys conducted in November and December of 2021. The survey is in direct response to a Striped Bass regulation change petition submitted by the NorCal Guides and Sportsman's Association in Fall 2020. Data summarized in this summary are based on responses provided by the angling public when encountered by CVAS staff.

Methods

Striped Bass surveys were conducted by CVAS staff. Surveys took place opportunistically during regularly scheduled CVAS surveys, or when staff were free to conduct foot surveys in targeted locations. Anglers encountered were then asked nine questions (Table 1). Staff did not mention the petition, the proposed slot limit, or NorCal Guides during the interview, and stuck to the listed questions so as not to influence the responses from the public. If anglers provided desired minimum and maximum sizes, slot limits, or other information (bag limits, etc.), those responses were recorded in the comments section of the datasheet. If anglers countered staff questions with questions pertaining to size, we asked for their opinion without offering any size response (e.g., from an angler: "What would be the maximum size limit?", our response: "I'm not sure, what do *you* think it should be?" or "What size do *you* consider a trophy sized Striped Bass?"). The date of the survey, location where interviews took place, and survey clerk were also recorded on the datasheet.

Moving forward, anglers will be asked why they fish for Striped Bass. Responses are expected to vary widely (eat, catch and release, etc.), so the actual response (as opposed to a list of options) will be recorded on the updated datasheet.

Table 1. Anglers encountered by CVAS staff were asked nine questions. Responses were recorded on a datasheet.

Question Number	Survey Question	Potential Response
1	Do you fish for Striped Bass?	Yes or No
2	Do you support the current minimum size and bag limit?	Yes or No
3	Would you like to see the minimum size limit lower?	Yes or No
4	Would you like to see the minimum size limit higher?	Yes or No
5	Would you like to see a maximum size limit applied?	Yes or No
6	Do you support a catch and release fishery for trophy Striped Bass?	Yes or No
7	Are you associated with any professional fishing associations?	Yes or No
8	Are you associated with any state natural resource agency?	Yes or No

9	What method do you use to catch Striped Bass?	Lure, Bait, Fly, Spear, Any
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Results

A total of 124 interviews took place between November 13th and December 28th, 2021. Surveys took place on the Sacramento River between Benicia and Redding, the Feather River between Verona and the Feather River Hatchery, and the Mokelumne River in the Walnut Grove area. Survey metrics are summarized in Table 2.

Table 2. Striped Bass survey metrics.

Number of Interviews	124
Number of Shore Anglers	86
Number of Boat Anglers	38
Number of Fishing Guides	11
Survey Date Range	November 13- December 28, 2021
Waters Covered	Sacramento River – Benicia to Redding Feather River – Verona to Feather River Hatchery Mokelumne River – Walnut Grove

Results of the surveys conducted to date indicate that anglers are generally in support (56% yes, 44% no) of the current minimum size and bag limit for Striped Bass (Table 3). More than two-thirds of anglers are not in favor of lowering the minimum size or raising the minimum size from 18 inches. Anglers are evenly split (50% yes, 50% no) on whether a maximum size limit should be applied to Striped Bass harvest (i.e., implement a slot). However, more two-thirds of anglers (66%) are in-favor of a catch-and-release fishery for trophy sized Striped Bass, though the size definition of “trophy” varies. Roughly half of all anglers surveyed use bait as their primary terminal tackle/method when targeting Striped Bass. These results are summarized in Table 3.

Table 3. Striped Bass survey results.

Questions	Percent of Respondents						
	Yes	No					
1 Do you fish for Striped Bass?	100	0					
2 Do you support the current minimum size and bag limit?	55.6	44.4					
3 Would you like to see the minimum size limit lower?	31.5	68.5					
4 Would you like to see the minimum size limit higher?	18.5	81.5					
5 Would you like to see a maximum size limit applied?	50	50					
6 Do you support a catch and release fishery for trophy Striped Bass?	66.1	33.9					
7 Are you associated with any professional fishing associations?	12.9	87.1					
8 Are you associated with any state natural resource agency?	3.2	96.8					
			Any	Bait	Lure	Fly	Spear
9 What method do you use to catch Striped Bass?	12.1	54.8	24.2	2.4	0.0		

If anglers had suggestions on minimum size, maximum size, or a slot limit, their response was recorded in the comment section of the datasheet. Desired size limits ranged from 11 to 25 inches minimum length (Figure 1) to 24 to 50 inches maximum length (Figure 2).

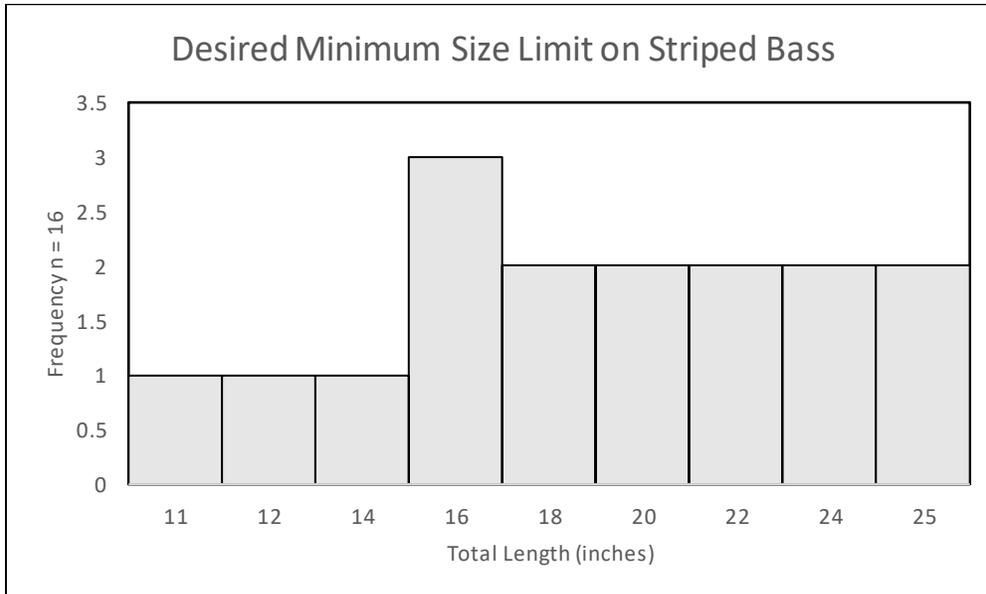


Figure 1. Anglers reported that they would like to see the minimum size allowed for harvest of Striped Bass to fall within the range of 11 to 25 inches total length.



Figure 2. Anglers reported that they would like to see the maximum size allowed for harvest of Striped Bass to fall within the range of 24 to 50 inches total length.

Conclusion

Anglers contacted by CVAS staff (n=124) were generally in-favor of the current size and bag limit regulations for Striped Bass. However, anglers interviewed were overwhelmingly in-favor of implementing a catch-and-release fishery for trophy sized Striped Bass, though size preferences ranged. This information is helpful when formulating an initial response to the NorCal Guides and Sportsman's Association regulation change petition for Striped Bass. This information can be used to design and conduct a more formal angler preference survey which will reach more of the angling public if that survey is desired. The CVAS will continue to opportunistically survey anglers through the survey range in order to compile a larger data set

and collect more size preference data.

California Department of Fish and Wildlife

Trends in the Sacramento River Basin Striped Bass Fishery 1991-2016

Background

The purpose of this report is to summarize basic attributes of the Striped Bass sport fishery in the Sacramento River basin. Data compiled and summarized in this report will be used to guide the California Department of Fish and Wildlife's (CDFW) initial response to a Striped Bass regulation change petition submitted by the Nor-Cal Guides and Sportsmen's Association (NCGASA) to the Fish and Game Commission in 2020. The proposed regulation change consists of introducing a slot limit whereby only Striped Bass from 20 to 30 inches would be available for harvest in the sport fishery. Currently, any Striped Bass 18 inches or greater may be harvested. The intent of the NCGASA proposal is to reverse a perceived decline in the Striped Bass population and to enhance catch-and-release opportunities for very large, or trophy-sized, Striped Bass.

Data used for this report were collected by the CDFW's Central Valley Angler Survey (Survey). The Survey has monitored angler effort, catch, and harvest rates of anadromous sport fishes in the Sacramento River and Delta system during 19 of the last 30 years, including the Striped Bass fishery. The geographic scope of the Survey has not changed significantly since 1991, with survey coverage focused on the Sacramento, American, Yuba, and Feather rivers, as well as Suisun Bay (Table 1).

Table 1. Survey areas used for Striped Bass analyses, including geographic descriptions, as defined by the Central Valley Angler Survey (Survey).

Waterbody Name	Survey Section Description (Downstream to Upstream)
Suisun Bay	Carquinez Bridge (I-80) to Pittsburg, including Suisun Cut Off to Middle Grounds
Sacramento River	Pittsburg to Keswick Dam
American River	Confluence with the Sacramento River to Hazel Avenue Bridge
Feather River	Confluence with the Sacramento River to Table Mountain Bicycle Bridge
Yuba River	Confluence with the Feather River to 1 mile upstream of HWY 20 Bridge

Because of the spatial and temporal scale, as well as the long-term nature of the Survey, CDFW has been able to collect complete fishing data from anglers targeting Striped Bass for 16 years, resulting in thousands of data points per year.

Methods

The survey area is sampled using a random-stratified design, which is described in detail by Wixom et al. (1995). Data collected from anglers as they are intercepted by the Survey crew include fishing location (approximated to river mile), fishing method (boat, shore, guided trip, etc.), number of anglers in the fishing party, how long they have been fishing, target species, zip code (for economic impact and other human dimensions analyses), and catch (kept and released for each species). If an angler has the following fish — Chinook Salmon, Striped Bass,

steelhead, Rainbow Trout, American Shad, White Sturgeon, or Sacramento Splittail—then the Survey crew will collect biological data on the catch. Biological data include fork length (millimeters), weight (kilograms), and sex (when possible). Additionally, scale samples are collected from salmonid species for ageing, and since 2007 the head of any Chinook Salmon that is missing its adipose fin is removed and retained for coded-wire tag recovery.

Data collected by the Survey since 1991 were compiled for this analysis. Data were available for survey years 1991–1994 (Wixom et al. 1995), 1998–2000 (Murphy et al. 1999, Murphy et al. 2001a, Murphy et al. 2001b), 2006–2011 (Titus and Brown 2007, Titus et al. 2008, Titus et al. 2009, Titus et al. 2010, Titus et al. 2011), and survey years 2012–2016 (CDFW, Fisheries Branch, unpublished data). Survey years where all 12 months were not consistently monitored were omitted from the analysis. Data were normalized by geographic area so that only survey sections that were sampled in all included years were used in the analysis. Compiled data included estimated angler effort targeting Striped Bass (in hours) and estimated catch of Striped Bass, from which catch-per-unit-effort (CPUE) was estimated. Catch-per-unit-effort (CPUE) is an indirect measure of species abundance and is commonly used as a metric to gage fishery performance (Yadav et al. 2016). For instance, a decreasing CPUE indicates overexploitation, an increasing CPUE indicates an increasing population, and a sustainable harvest is indicated by an unchanged CPUE (Puertas and Bodmer 2004). The CPUE for Striped Bass in the Sacramento River basin was assessed to characterize the long-term trends in fishery performance.

Angler catch was broken into estimated number of Striped Bass harvested and released for each report year (Table 2). Length data were omitted from survey years where less than 400 Striped Bass were measured, or where reports indicated that Striped Bass were not consistently measured during the surveys. Length data from Striped Bass were used from survey years 1998–2000, and 2007–2016, for a total of 19,440 measurements. Length measurements were converted from fork lengths to total lengths using the conversion equation in Karpov and Kwiecien (1988), and then converted from millimeters to inches using standard conversion equations. From these data, trend analyses on angler effort, catch, CPUE, and size were analyzed using linear regression. Additionally, a length frequency histogram was constructed using data from angler harvest collected by the Survey in years 1998–2000 and 2007–2016 (data from all years combined). The histogram was then used to compare historical angler harvest to the slot limit proposed by the NCGASA in their 2020 regulation change petition to the Fish and Game Commission.

Table 2. Striped Bass data used by Fisheries Branch staff for assessment of the Striped Bass fishery in the Sacramento River Basin during 1991–2016 (not inclusive).

Survey Year	Angler Effort (Hours)	Total Catch	CPUE	Kept	Released	Retention (%)
1991	985,837	184,281	0.187	27,503	156,778	14.9
1992	909,757	184,828	0.203	26,865	157,963	14.5
1993	879,787	207,098	0.235	33,672	173,426	16.3
1994	874,131	192,590	0.220	30,331	162,259	15.7
1998	1,002,646	290,961	0.290	75,355	215,606	25.9
1999	1,003,266	282,692	0.282	56,356	226,336	19.9
2000	942,496	248,230	0.263	48,033	200,197	19.4
2008	1,004,285	241,634	0.241	37,376	204,258	15.5
2009	1,106,222	359,482	0.325	42,695	316,787	11.9
2010	1,058,929	364,044	0.342	51,862	312,181	14.2
2011	1,017,388	349,377	0.341	59,155	290,222	16.9
2012	995,321	266,108	0.271	65,620	200,488	24.7
2013	1,003,245	256,890	0.257	53,489	203,401	20.8
2014	819,031	231,939	0.289	29,882	202,057	12.9
2015	1,031,459	331,114	0.320	32,131	298,982	9.7
2016	899,703	313,669	0.347	39,727	273,943	12.7

Results

Angler Effort

The trend in angler effort targeting Striped Bass has not significantly increased or decreased between 1991 and 2016 ($p = 0.329$; Figure 1), with the long-term average number of angler hours targeting Striped Bass estimated at 970,844 hours per year.

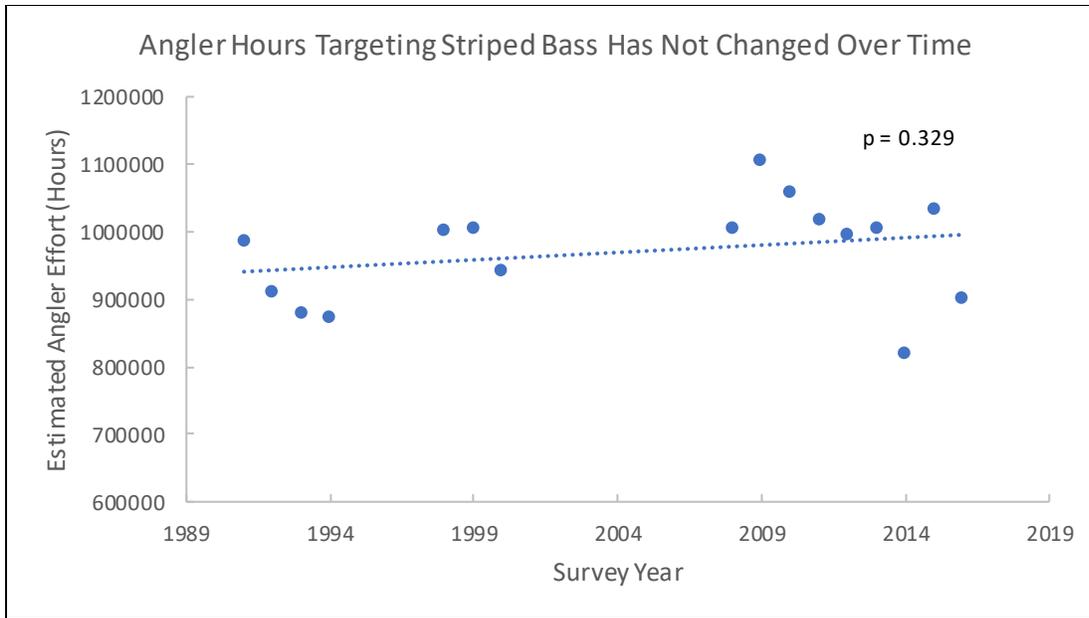


Figure 1. The trend in estimated total annual angler hours targeting Striped Bass as estimated using data collected by the Central Valley Angler Survey. The slope of the trend line is not significantly different than 0 ($p = 0.329$) over the sampling period 1991–2016.

Angler Catch

Trends in angler catch data were analyzed for 1) total estimated Striped Bass caught (total catch), 2) total estimated Striped Bass harvested, and 3) total number of Striped Bass released. Total estimated catch is comprised of two components: total number of Striped Bass harvested, and total number of Striped Bass released. Results indicate that the total estimated number of Striped Bass caught by anglers has significantly increased over time (Figure 2). Although the total number of Striped Bass harvested has remained steady ($p = 0.399$), the total number of Striped Bass released on an annual basis has significantly increased ($p = 0.004$) between 1991 and 2016 (Figure 3).

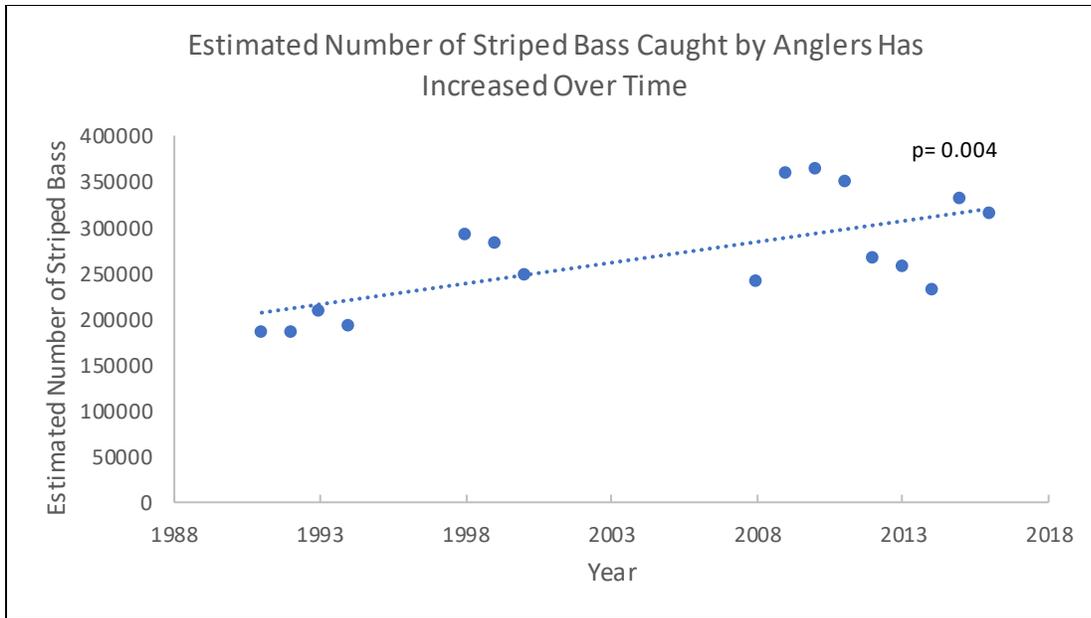


Figure 2. Estimated total number of Striped Bass caught annually by anglers during 1991– 2016. The estimated total number of Striped Bass caught by anglers significantly increased over time ($p = 0.004$).

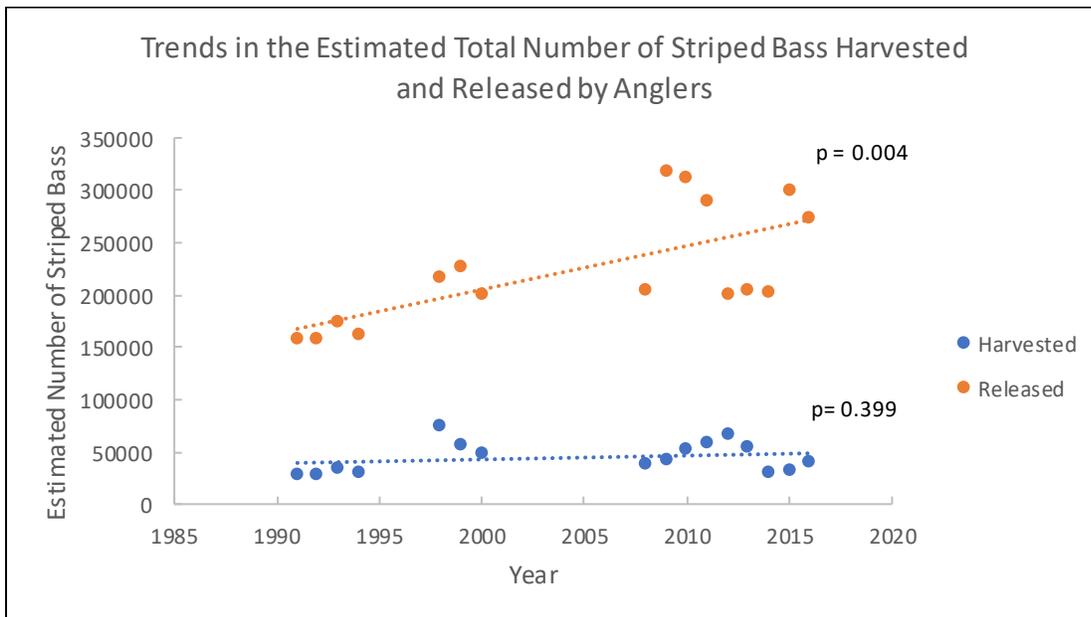


Figure 3. Estimated total number of Striped Bass harvested or released annually by anglers during 1991– 2016. The estimated total number of harvested Striped Bass did not significantly change over the sampling period ($p = 0.399$), while the estimated total number of Striped Bass that were released significantly increased ($p = 0.004$).

Catch-Per-Unit-Effort (CPUE)

Striped Bass CPUE significantly increased ($p = 0.001$) during 1991–2016 as estimated using data collected by the Survey (Figure 4). Based on the information provided earlier in Methods, this result suggests that the Striped Bass population has increased over the last 30 years.

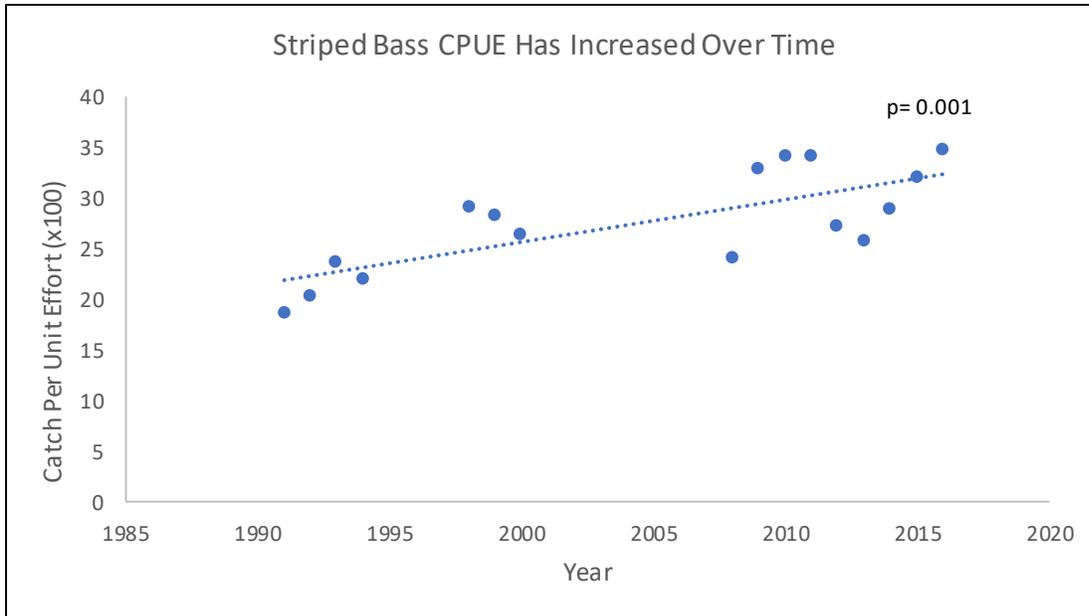


Figure 4. Estimated annual catch-per-unit-effort for anglers targeting Striped Bass. The CPUE has significantly increased ($p = 0.001$) over the sampling period 1991–2016 as estimated using data collected by the Survey.

Size of Striped Bass in the Catch

A total of 19,440 Striped Bass length measurements was compiled for the trend analysis. The average length of Striped Bass observed by the Survey in angler catch varied annually from 21.8 to 24.3 inches total length, with the long-term average being 23.1 inches (Table 3). Although the trend line suggests a positive increase in the size of Striped Bass harvested by anglers over time, the increase was not significant ($p = 0.161$; Figure 5).

A length-frequency histogram for Striped Bass harvested by anglers was constructed to determine the distribution and proportionate breakdown of harvested Striped Bass in various size classes (Table 4, Figure 6), relative to the proposed 20–30 inch slot limit proposed by the NCGASA. An estimated 74% of Striped Bass harvest occurred within the proposed slot limit, while another 20% of harvest occurred in the 18–19 inch interval just below the proposed slot. About 5% of harvest occurred among Striped Bass greater than 30 inches.

Table 3. Annual Striped Bass length statistics used by Fisheries Branch staff for assessment of the Striped Bass fishery in the Sacramento River Basin during 1998–2016.

Survey Year	Sample Size	Average Total Length (In.)	Standard Deviation	Variance	Coefficient of Variation (x100)
1998	576	23.0	4.1	16.5	17.7
1999	1,284	22.0	3.7	13.5	16.7
2000	457	21.8	3.8	14.4	17.4
2007	1,303	23.6	4.1	17.2	17.6
2008	1,843	24.3	4.3	18.4	17.7
2009	2,044	23.5	4.3	18.5	18.3
2010	2,241	22.5	3.4	11.8	15.3
2011	2,252	22.6	3.4	11.7	15.1
2012	2,023	22.5	3.6	12.6	15.8
2013	1,880	23.3	3.8	14.7	16.5
2014	1,365	23.8	4.5	20.0	18.8
2015	1,146	23.4	4.6	21.3	19.9
2016	1,026	22.7	4.6	21.4	20.3
All Years	19,440	23.1	2.0	4.0	17.5

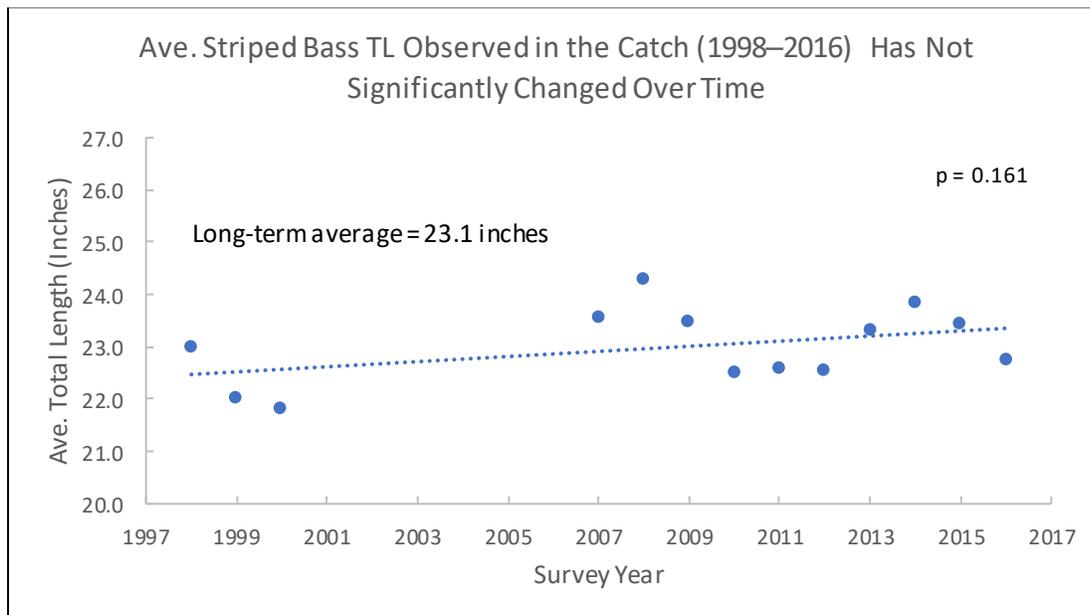


Figure 5. The average size of Striped Bass observed in angler catch by the Survey. The slope of the trend line is not significantly different than 0 ($p = 0.161$) over the sampling period 1998–2016.

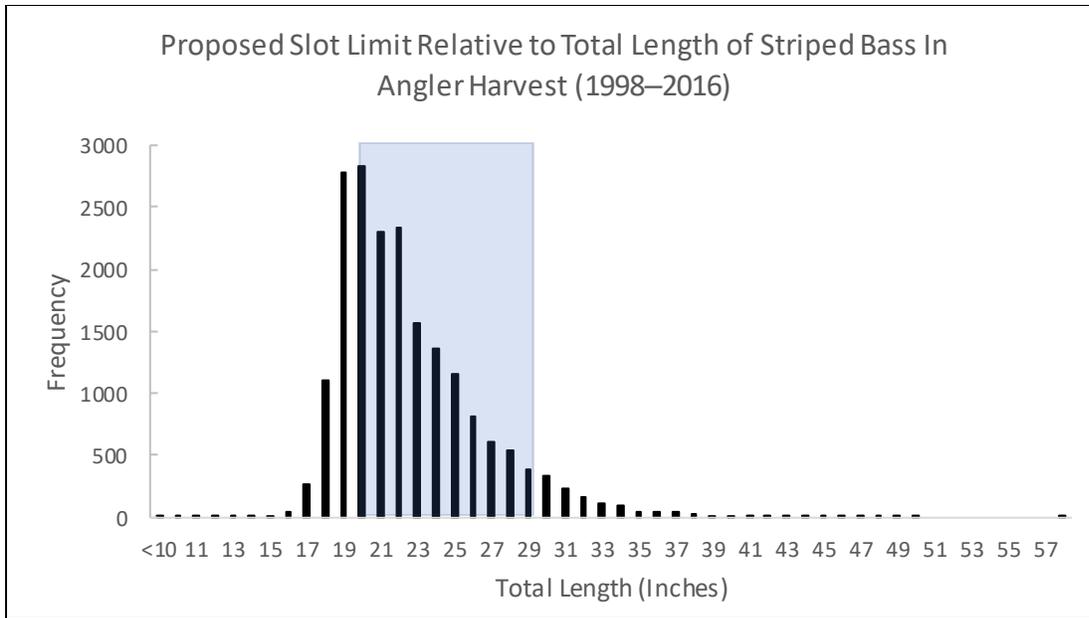


Figure 6. Length-frequency distribution of Striped Bass observed in angler harvest during 1998–2016. Proposed NCGASA slot limit highlighted in blue (74% of harvest falls within this range).

Table 4. Number of Striped Bass measured in each of four major size classes and proportion of each size class represented in the harvest. Proposed NCGASA slot limit highlighted in blue.

Size Class (Total Length [In.])	Sample Size	% Harvest
<18	367	1.9
18 & 19	3,886	20.0
20-30	14,267	73.4
31+	920	4.7

Assessment of Current and Proposed Striped Bass Size Limit Regulations

Sacramento River Basin Striped Bass Fishery Trends

The Striped Bass fishery in California’s Sacramento River Basin is one of the largest fisheries (as measured in angler effort) monitored by the Central Valley Angler Survey (Wixom et al. 1995, Murphy et al. 1999, Murphy et al. 2001a, Murphy et al. 2001b, Titus and Brown 2007, Titus et al. 2008, Titus et al. 2009, Titus et al. 2010, Titus et al. 2011, and CDFW, Fisheries Branch, unpublished data for 2012–2016). For all fishing locations within California’s anadromous waterways, the daily bag limit for Striped Bass is two per person per day with an 18-inch total length minimum size criterion for harvest.

On average, Central Valley anglers harvest 4% of the available adult (defined as 18 inches minimum length or legal sized) Striped Bass population annually (CDFG 2011, DuBois 2009 [historical abundance estimates], Table 2 [harvest]), a rate that does not appear to have significantly impacted Striped Bass population size. In fact, fishing effort targeting Striped Bass

is likely a function of Striped Bass abundance (DuBois 2009) and is a good metric to assess fishery performance. Angler effort targeting Striped Bass has remained stable over at least the last 30 years.

While angler effort targeting Striped Bass has not significantly changed during 1991–2016 (Figure 1), angler catch and CPUE have increased significantly over the same period (Figure 2, 4), providing evidence that fishery performance is improving. A declining CPUE would be an indication of overexploitation (Beverton and Holt 1957, Puertas and Bodmer 2004). Increased catch may result from improvements in fishing technology (lures, fish finders, etc.) that increase anglers' ability to locate and catch fish, and/or may be an indication of an increasing Striped Bass population, particularly of small sub-adults, that are sub-legal size (<18 inches) for harvest in the fishery. Evidence of the latter comes from the significant increase in numbers of Striped Bass reported as released in the fishery (Figure 3). Anglers typically report releasing Striped Bass because they are 1) practicing catch-and-release fishing, 2) the fish is larger than they find desirable, and most commonly 3) because the fish is smaller than what they can either legally keep or want to keep (CDFW, Fisheries Branch, unpublished data). Angler catch data alone cannot be used to assess the status and trends of the Striped Bass population; population studies and assessments are needed to address these questions.

Another indication that fisheries may be in decline is significant decreases in the size of fish harvested (Audzijonyte et al. 2013, Chu et al. 2016). The average size of Striped Bass harvested by anglers has not changed significantly over time (Figure 5) and has remained around 23 inches total length. However, the Survey has not historically collected size data on fish that are reported as released, not even in broad size categories. It is possible that the size of fish released in the fishery has declined over time, but CDFW does not have data to address this question.

Nor-Cal Guides and Sportsman's Association Proposed Slot Limit

The NCGASA proposed a harvest slot limit of 20-30 inches total length. For the purposes of this analysis, we have assumed that the smallest Striped Bass that the angler could harvest is 20 inches and the largest that the angler could harvest is 30 inches total length.

If implemented, the proposed slot limit would eliminate approximately 27% of the harvest observed by the Survey (Table 4), making fish in the greater than 30 inch size category (5% of documented harvest) de facto trophy fish which could only be caught and released in the fishery. While the proposed slot limit would provide greater protection to the presumably most fecund females at and above 30 inches, which is when Striped Bass are around 7 years old (Figure 7), and well into the age when both sexes of Striped Bass have reached maturity (Collins 1982, and Robinson 1960), it is not apparent that there is a direct threat from angling based on the low reported percentage of harvest.

The proposed slot limit would create additional protection for sub-adult Striped Bass below 20 inches. This size range (18-20 inches) currently represents 22% of the harvest observed by the Survey (Table 4). These individuals could potentially be recruited in larger numbers into the slot

sizes and eventually into the trophy size category. However, it is unknown whether the protection of the smallest and largest sized Striped Bass in the population would produce the intended result of increasing the population size of Striped Bass and further improving angling quality, as defined by a higher CPUE of larger fish on average.

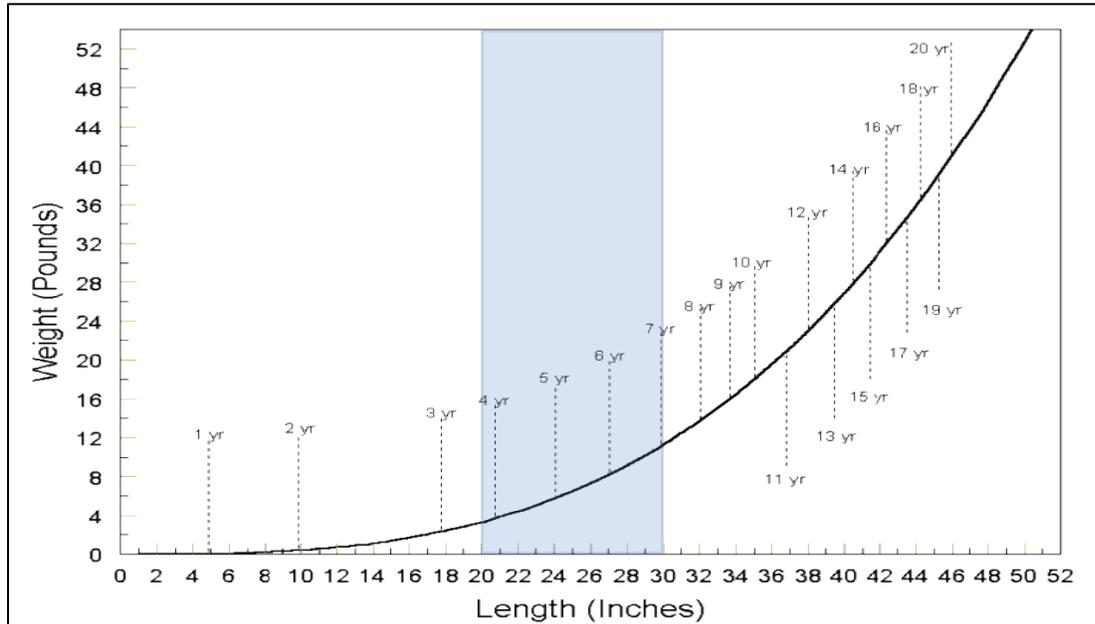


Figure 7. Age of Striped Bass in the Sacramento-San Joaquin rivers and delta in relation to average length and weight. Source: CDFG 2005, Collins 1982, and Robinson 1960. The blue shading highlights the age groups that would be affected by the NCGASA-proposed 20–30 inch slot limit.

Creating a 20–30 inch slot fishery for Striped Bass concentrates the harvest on the heart of the spawning population. Many males mature at age 3 and 18 inches and all males mature by age 5 and 24 inches (Figure 7). Many females spawn at age 4 and 21 inches and nearly all by age 6 and 27 inches (Figures 7). Nearly 74% of Striped Bass harvested historically already fall within the proposed slot limit. This is based on nearly 19,500 length measurements made in the survey during 1998–2016 under the current 18-inch minimum size regulation (Table 4, Figure 6). Because this size class already comprises a large portion of the observed harvest, it is unlikely that the regulation change would produce a significantly different harvest pattern.

Changes to Striped Bass fishing regulations may have unintended consequences such as decreased harvest opportunity and increased fishing mortality. By increasing the minimum size that anglers are allowed to keep, the regulation change would decrease harvest opportunity for all anglers and may disproportionately impact disadvantaged communities. In a survey commissioned by the California Department of Water Resources, 90% of disadvantaged community (DAC) respondents indicated that they or their families eat fish from the Delta four to five times per week. Striped Bass comprised 33% of the catch that DAC reportedly fished for (Ag Innovations 2021). Currently, Striped Bass in the 18–19.9-inch category represent 20% of the harvest, and 2% of observed harvest falls into the sub-legal category (as reported by the Survey). This indicates that Striped Bass anglers are willing to keep smaller fish and may already

struggle to catch keepable sizes (22% of the observed harvest is <20 inches total length, Table 4).

In contrast, elimination of harvest on trophy-sized Striped Bass may benefit public health because toxicants such as mercury and polychlorinated biphenyls (PCB) accumulate in the muscle and organs of fishes, particularly in large, long-lived fishes such as Striped Bass. Discouraging the consumption of very large Striped Bass by anglers and their families may dampen the bioaccumulation of harmful substances which these fish carry.

Lastly, post-release fishing mortality, primarily on sub-legal size Striped Bass, is observed by the Survey every year. This may be due to the aggressiveness of sub-adult fish, terminal tackle (primarily bait), and water temperatures. Increasing the minimum size limit of keepable Striped Bass may increase post-release fishing mortality of fish that would otherwise be kept under an 18-inch minimum length regulation.

Further compilation and analysis on Striped Bass populations in California are needed to fully address the petition request put forth by the NCGASA. In the meantime, creel data collected by the Survey, as well as life history and biological data on Striped Bass, will be used to further assess the proposed slot limit as well as potential alternative Striped Bass fishing regulations. These assessments will be used to guide the CDFW's official petition response.

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CDFW Regulation Petition Evaluation

20-30 inch Striped Bass Slot Limit

Proposed by:
Nor-Cal Guides and Sportsman Association

Wildlife Resources Committee Meeting
May 19, 2022

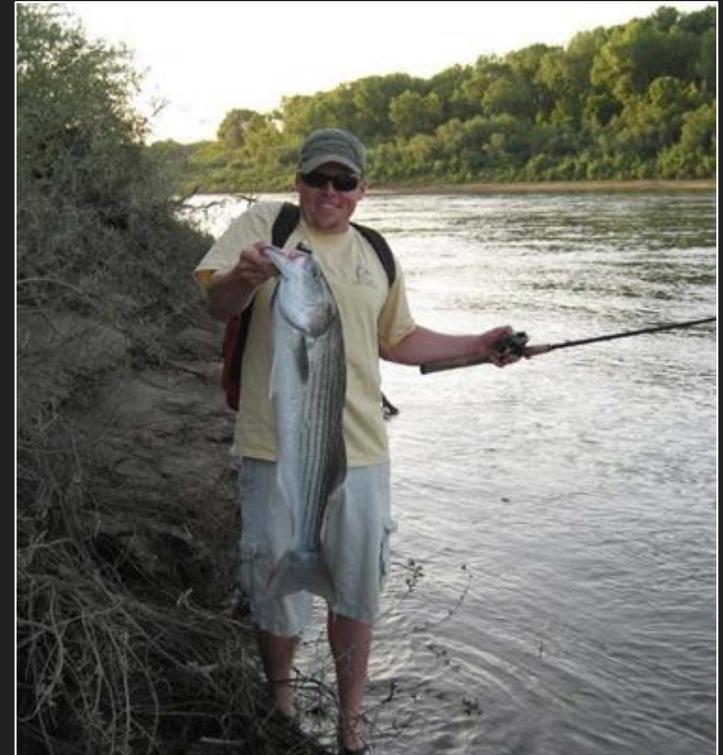
Jonathan Nelson
Anadromous Fisheries Program Manager
CDFW Fisheries Branch





Trends in the Striped Bass Fishery

- Data collected through angler surveys
 - Counts (effort)
 - Interviews (CPUE, biological data)
 - Random stratified design
 - Day type (weekday or weekend)
 - Survey section (n=15, 8x each per month)
 - Launch site (up or downstream)
 - Time (early, midday, late)
- Fishery Metrics
 - Angler effort (hours)
 - Catch (harvest and release)
 - Catch-per-unit-effort (CPUE)
 - Harvested fish size
- Survey years used
 - 1991-1994, 1998-2000, 2008-2016
- Locations included
 - Sacramento, American, and Feather rivers



Striped Bass, American River
Photo: CVAS



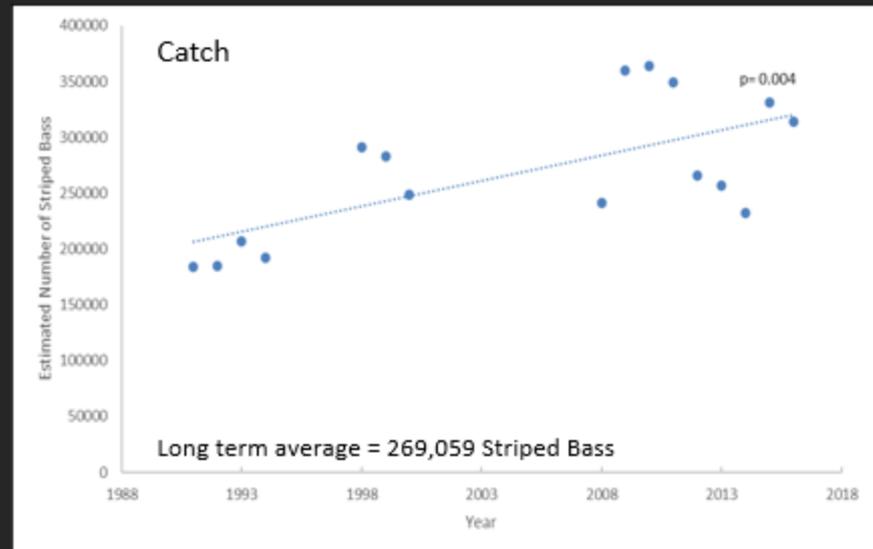
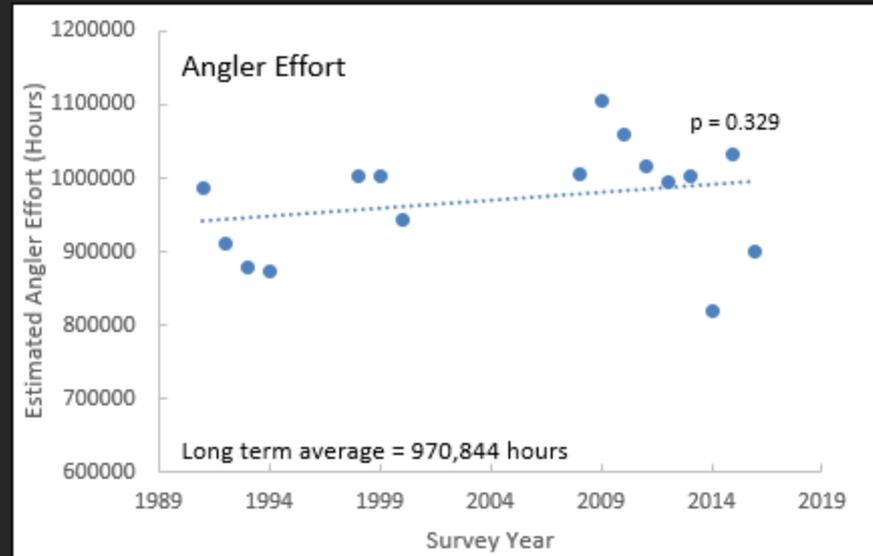
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1993	879,787	207,098	0.235	33,672	173,426	16.3
1994	874,131	192,590	0.220	30,331	162,259	15.7
1998	1,002,646	290,961	0.290	75,355	215,606	25.9
1999	1,003,266	282,692	0.282	56,356	226,336	19.9
2000	942,496	248,230	0.263	48,033	200,197	19.4
2008	1,004,285	241,634	0.241	37,376	204,258	15.5
2009	1,106,222	359,482	0.325	42,695	316,787	11.9
2010	1,058,929	364,044	0.342	51,862	312,181	14.2
2011	1,017,388	349,377	0.341	59,155	290,222	16.9
2012	995,321	266,108	0.271	65,620	200,488	24.7
2013	1,003,245	256,890	0.257	53,489	203,401	20.8
2014	819,031	231,939	0.289	29,882	202,057	12.9
2015	1,031,459	331,114	0.320	32,131	298,982	9.7
2016	899,703	313,669	0.347	39,727	273,943	12.7



Trends (1991-2016)

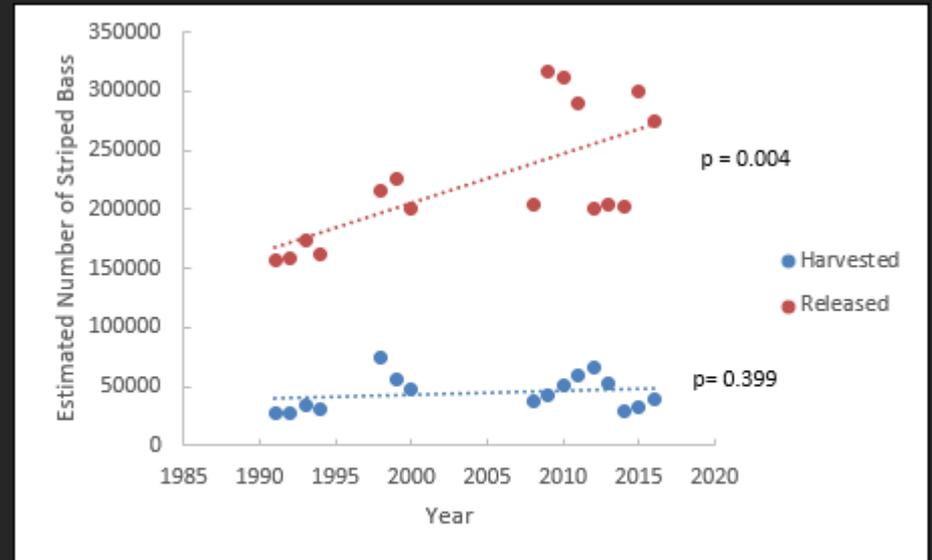
- Fishing effort targeting Striped Bass has not changed significantly
- Angler are catching significantly more SB
- Catch-per-unit-effort has significantly increased





Trends Continued (1991-2016)

- Anglers are not harvesting more Striped Bass
- Anglers are releasing significantly more Striped Bass
 - Fish are undersized
 - Angler is practicing catch and release
 - Fish is not desirable size (small or large)

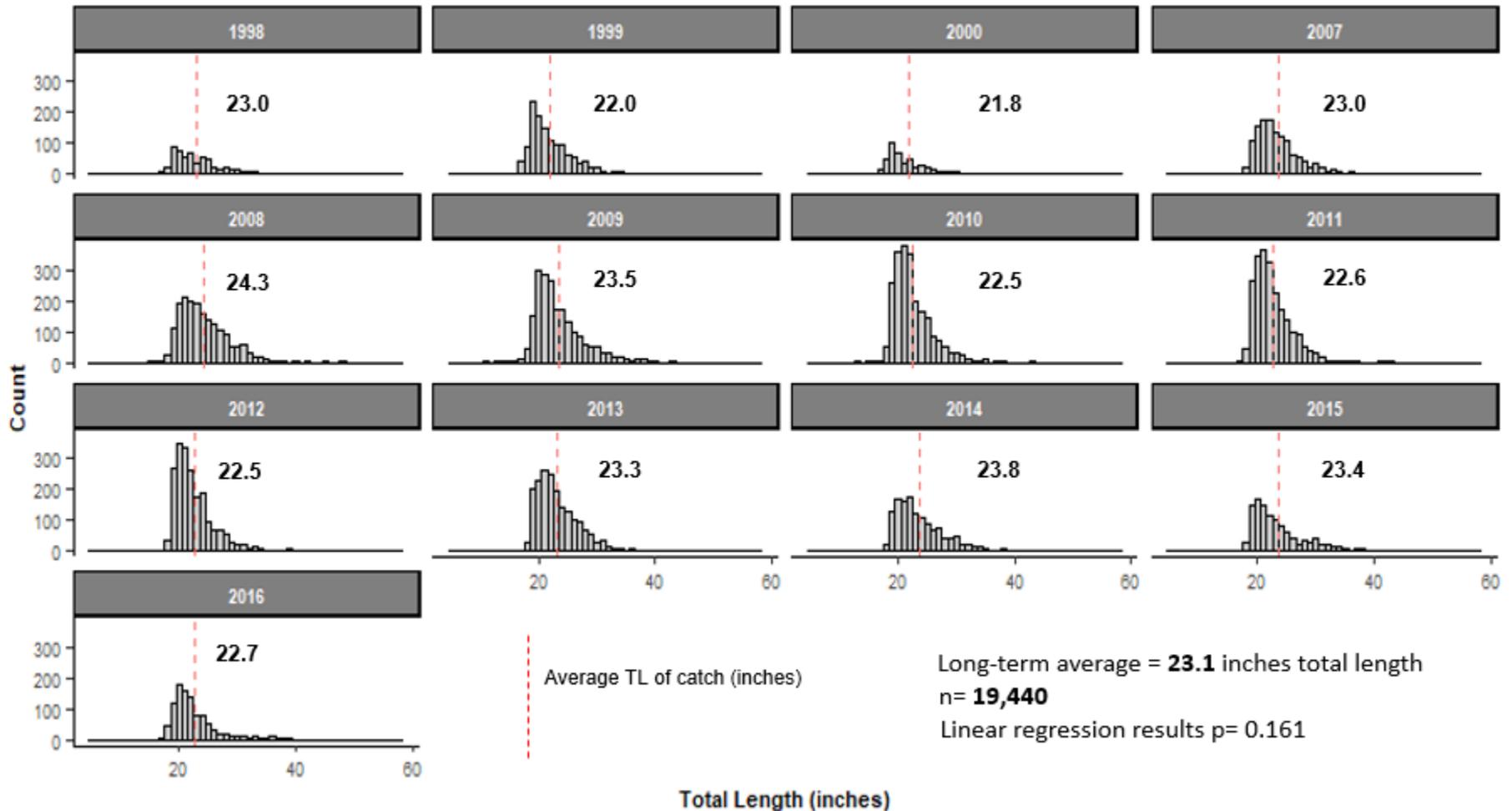




Striped Bass Size (1998-2016)

Distribution of Total Length

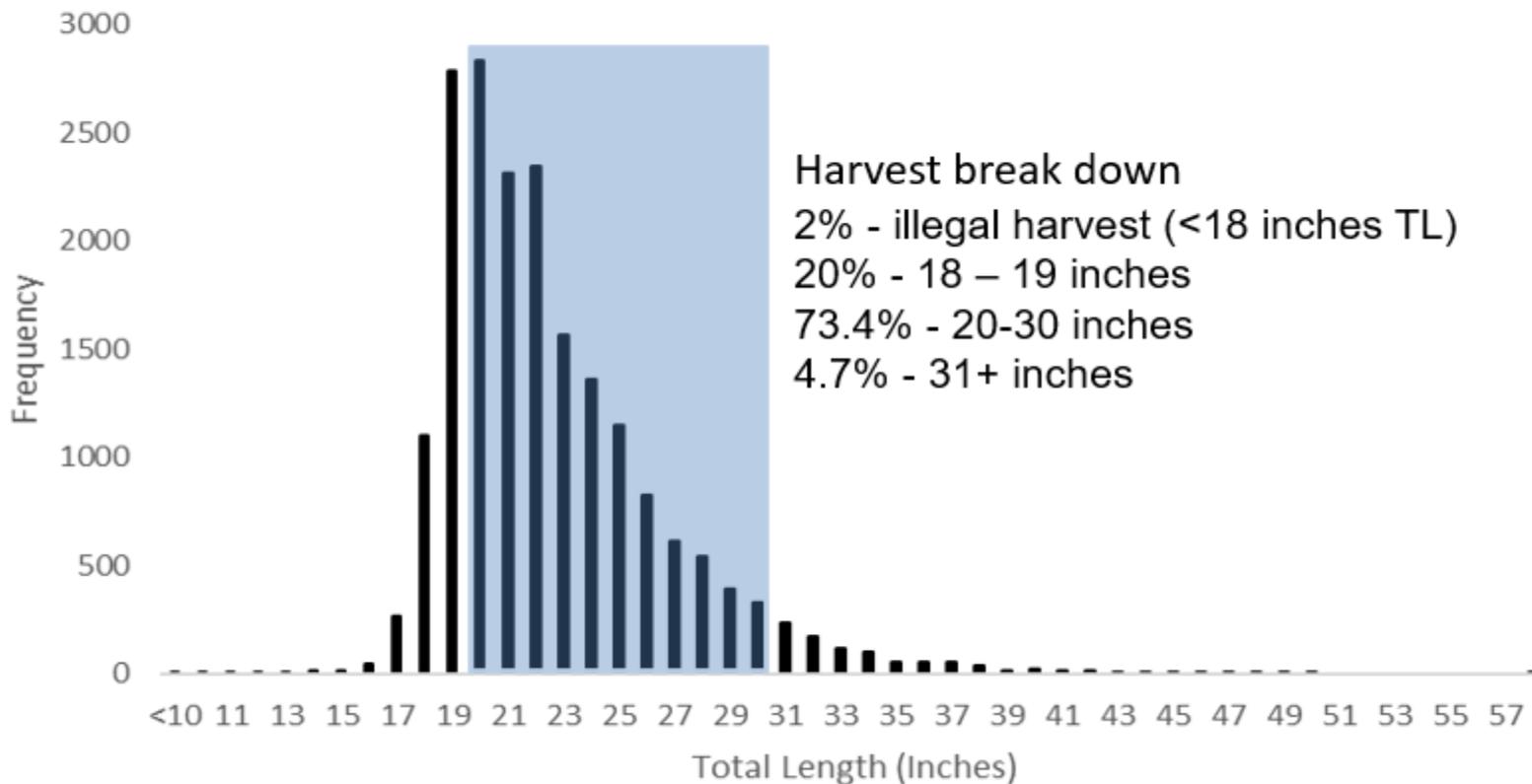
Angler Caught SB by Year





Size Distribution of Striped Bass Harvest

Total Length of Striped Bass In Angler Harvest 1998-2016





Pilot Striped Bass Angler Preference Survey

- Opportunistic surveys
- Anglers asked 10 questions
- November – ongoing
- Targeted locations
 - Shore anglers
 - Boat launches

Metric	Value
Number of Interviews	203
Number of Shore Anglers	160
Number of Boat Anglers	43
Number of Fishing Guides	20
Survey Date Range	November 13, 2022- May 2, 2022
Survey Sections	Sacramento River – Benicia to Redding Feather River – Verona to Feather River Hatchery Mokelumne River – Walnut Grove



Pilot Survey Results – 203 Interviews

Questions	% Yes	% No			
Do you fish for Striped Bass?	100.0	0.0			
Do you support the current minimum size and bag limit?	64.5	35.5			
Would you like to see the minimum size limit lower?	30.5	69.5			
Would you like to see the minimum size limit higher?	19.2	80.8			
Would you like to see a maximum size limit applied?	50.7	49.3			
Do you support a catch and release fishery for trophy Striped Bass?	59.6	40.4			
Are you associated with any professional fishing associations?	10.3	89.7			
Are you associated with any state natural resource agency?	2.5	97.5			
	Any	Bait	Lure	Fly	Spear
What method do you use to catch Striped Bass?	11.8	64.5	1	2	0.0
Why do you fish for Striped Bass?*	C/R	Eat	Both	Other	

**Newly added question, not enough data for analysis



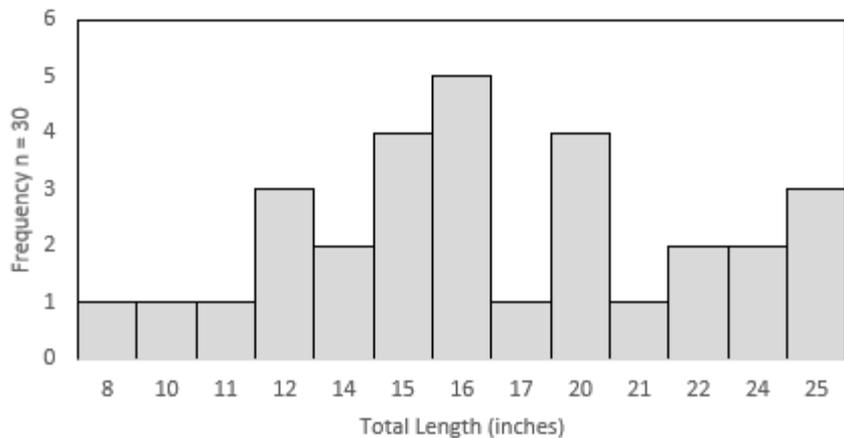
Angler Perspectives on Striped Bass Slot Limits

- *It's hard enough to catch a keeper (18") striper, so the lower limit should be lowered.*
 - Suggested sizes ranged from 8-17 inches.
- *The minimum size should be higher so that they can spawn at least once.*
 - Suggested sizes ranged from 19-25 inches.
- Anglers in support of a slot limit want it to protect larger females that have strong genetics and produce more offspring.
 - Suggested maximum limits ranged from 22-50+ inches.
- *There shouldn't be a size or bag limit on striper because they are invasive and eat all the salmon.*
- Some anglers don't care about a slot limit because they only catch and release.
- Some anglers are not in favor of an upper limit restriction, but practice catch and release of large fish anyway. It's the mandate that they don't like.

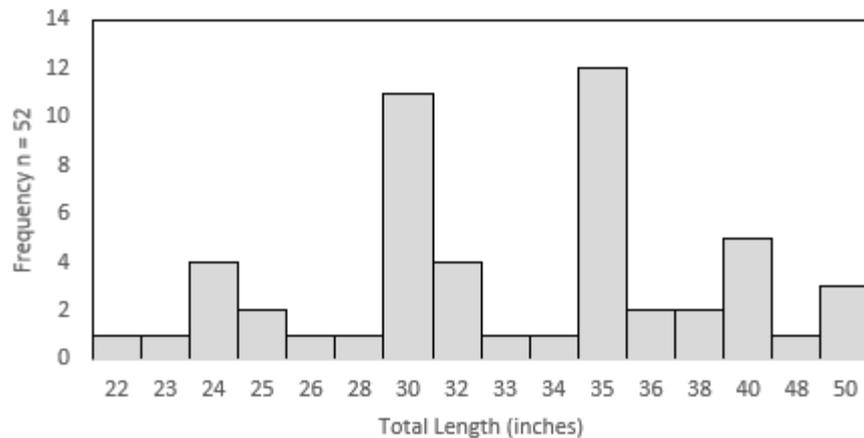


Preferred Minimum and Maximum Sizes

Desired Minimum Size Limit on Striped Bass



Desired Maximum Size Limit on Striped Bass



(displayed above). These responses do not represent opinions of all anglers interviewed



CDFW Evaluation – Next Steps

Evaluate purpose/justification for implementing a slot limit

- Biological – Benefit to population (growth/protection)
- Management – Support a trophy fishery
- Public input – Support from the angling community
- Combination -

Continue conducting pilot survey through August 2022

Consider a public town hall – Date TBD (July 2022)

Tentative decision to the WRC at the Sept 15 2022 Meeting

California Fish and Game Commission

Draft Staff Analysis of the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process

Updated 5/12/2022

The draft analyses in this document have been prepared by California Fish and Game Commission (Commission) staff using the materials from *Preliminary Results from the Conservation Standards Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process* (dated January 7, 2022), which was provided to the Wildlife Resources Committee (WRC) at its January 2022 meeting. This document therefore relies on, and is intended to pair with, that January document.

The draft analyses are based on the work of three, separate, stakeholder process groups to date, public input, and the most recent stakeholder meetings that have included all process participants from all three groups together. Three analyses are included herein: A literature review, the Oregon situation and regulatory framework, and an assessment of strategy effectiveness.

Literature Review

Campbell, T., B. Shaw, E. Hammond, L. Bao, S. Yang, P. Jurich, and S. Fox. 2021. Qualitative interviews of practitioners of Buddhist life release rituals residing in the United States: implications for reducing invasion risk. *Management of Biological Invasions* 12:178–192.

Details the practice of releasing live animals into the environment as a spiritual practice. California is among the locations studied. Turtles are mentioned as a possible animal to be released, though fish are the only species specifically mentioned as being released in California. Participants emphasized saving the lives of animals versus simply releasing animals. Sources included pet stores, bait shops, markets, commercial anglers, and wildlife rehabilitation centers. Many interviewees were aware of invasive species issues.

Claytor, S. C., K. Subramaniam, N. Landrau-Giovannetti, V. G. Chinchar, M. J. Gray, D. L. Miller, C. Mavian, M. Salemi, S. Wisely, and T. B. Waltzek. 2017. Ranavirus phylogenomics: Signatures of recombination and inversions among bullfrog ranaculture isolates. *Virology* 511:330–343.

Genetically characterizes different bullfrog ranavirus strains. Underscores the bullfrog as a vector for ranaviruses.

Cook, D. G., and A. F. Currylow. 2013. Seasonal spatial patterns of two sympatric frogs: California red-legged frog and American bullfrog. *Western Wildlife* 1:1–7.

Explores the spatial dynamics by which bullfrogs outcompete California red-legged frogs.

Crowley, S. L., S. Hinchliffe, and R. A. McDonald. 2017. Invasive species management will benefit from social impact assessment. *Journal of Applied Ecology* 54:351–357.

Urges deliberative, participatory approaches to invasive species management by identifying, evaluating and addressing social costs and benefits.

Garwood, J. M., S. J. Ricker, and C. W. Anderson. 2010. Bullfrog Predation on a Juvenile Coho Salmon in Humboldt County, California. *Northwestern Naturalist* 91:99–101.

Details an occurrence of a bullfrog having eaten a juvenile coho salmon.

Gray, I. A. 2009. Breeding pond dispersal of interacting California red-legged frogs (*Rana draytonii*) and American bullfrogs (*Lithobates catesbeianus*) of California: a mathematical model with management strategies. M.S. Thesis, Humboldt State University, Arcata, CA. <<http://humboldt-dspace.calstate.edu/handle/2148/560>>. Accessed 10 Feb 2014.

Models the dynamics of California red-legged frogs and bullfrogs. Explores cases where co-occurrence could occur, and provides recommendations to enhance California red-legged frog persistence.

Hartmann, A. M., M. L. Maddox, R. J. Ossiboff, and A. V. Longo. 2022. Sustained ranavirus outbreak causes mass mortality and morbidity of imperiled amphibians in Florida. *EcoHealth* 19:8–14.

In some circumstances ranaviruses can lead to large-scale amphibian dieoffs. Various species can exhibit differential susceptibility and some hosts may serve as reservoirs for pathogenesis. The authors recommend that disease surveillance and pathogen mitigation strategies be developed.

Implications of importing American bullfrog (*Lithobates catesbeianus* = *Rana catesbeiana*) into California. 2014. California Department of Fish and Wildlife.

A comprehensive analysis of bullfrog biology and ecology in California, as well as an analysis of bullfrog importation and the threats it poses to California's wildlife populations.

Johnson, M. L., and R. Speare. 2003. Survival of *Batrachochytrium dendrobatidis* in water: quarantine and disease control implications. *Emerging Infectious Diseases* 9:915–921.

Chytrid fungus (*Batrachochytrium dendrobatidis*, or Bd) has inhibited growth in tap, lake, and distilled water over ideal laboratory conditions. Bd did not release zoospores in tap and deionized water. Zoospores may persist in the environment in a state of arrested development for long time periods (3-4 weeks).

Johnson, M., L. Berger, L. Philips, and R. Speare. 2003. Fungicidal effects of chemical disinfectants, UV light, desiccation and heat on the amphibian chytrid *Batrachochytrium dendrobatidis*. *Diseases of Aquatic Organisms* 57:255–260.

Chemical disinfectants including sodium chloride, household bleach (active ingredient: sodium hypochlorite), potassium permanganate, formaldehyde solution, Path-XTM agricultural disinfectant (active ingredient: didecyl dimethyl ammonium chloride, DDAC), quaternary ammonium compound 128 (DDAC), Dithane, Virkon, ethanol and benzalkonium chloride were tested, as well as sterilizing ultraviolet (UV) light, and heat and desiccation, to test the efficacy of water sterilization of *Batrachochytrium dendrobatidis*. All compounds had some degree of effectiveness, but those containing DDAC were most effective and can be deployed at low concentrations. Heating and drying met with some success but UV was ineffective.

Johnson, M., and R. Speare. 2005. Possible modes of dissemination of the amphibian chytrid *Batrachochytrium dendrobatidis* in the environment. *Diseases of Aquatic Organisms* 65:181–186.

Demonstrates *Batrachochytrium dendrobatidis* survival and potential ability for translocation in moist river sand and in bird feathers.

Kamoroff, C., N. Daniele, R. L. Grasso, R. Rising, T. Espinoza, and C. S. Goldberg. 2019. Effective removal of the American bullfrog (*Lithobates catesbeianus*) on a landscape level: long term monitoring and removal efforts in Yosemite Valley, Yosemite National Park. *Biological Invasions*. <<https://doi.org/10.1007/s10530-019-02116-4>>. Accessed 30 Oct 2019.

Documents successful eradication of bullfrogs on a landscape level at Yosemite National Park.

Kim, R., B. J. Halstead, E. J. Routman, and J. Andersen. 2021. When introduced prey violates trophic hierarchy: Conservation of an endangered predator. *Biological Conservation* 256:109019.

Explores the dynamics between bullfrogs and the imperiled San Francisco garter snake. Notes that localized bullfrog control efforts can be critical in the conservation of many such species.

Lambert, M. R., J. M. McKenzie, R. M. Screen, A. G. Clause, B. B. Johnson, G. G. Mount, H. B. Shaffer, and G. B. Pauly. 2019. Experimental removal of introduced slider turtles offers new insight into competition with a native, threatened turtle. *PeerJ* 7:e7444.

Recounts a field experiment of the limited removal of red-eared sliders, and measured the responses of western pond turtles. Demonstrates intense competition for basking and potentially other resources such as food.

Nicholson, E. G., S. Manzo, Z. Devereux, T. P. Morgan, R. N. Fisher, C. Brown, R. Dagit, P. A. Scott, and H. B. Shaffer. 2020. Historical museum collections and contemporary population studies implicate roads and introduced predatory bullfrogs in the decline of western pond turtles. *PeerJ* 8:e9248.

Examination of historical museum specimens indicates negative effects of roads and bullfrogs in the decline of western pond turtle species. Male-biased sex ratios indicate a strong negative effect from roads, while long-term changes in body size implicate competition and predation from non-native invasive species.

Open Standards for the Practice of Conservation. 2020. Conservation Measures Partnership. <<https://conservationstandards.org/download-cs/>>.

A manual explaining the *Open Standards for the Practice of Conservation*, the process used to examine the issues surrounding bullfrogs and non-native turtles.

Ribeiro, L. P., T. Carvalho, C. G. Becker, T. S. Jenkinson, D. da S. Leite, T. Y. James, S. E. Greenspan, and L. F. Toledo. 2019. Bullfrog farms release virulent zoospores of the frog-killing fungus into the natural environment. *Scientific Reports* 9:1–10.

Bullfrog farms can harbor *Batrachochytrium dendrobatidis* (Bd) and release it into the environment, and can have high prevalence and pathogen loads. High densities may play a role in increasing frog susceptibility, and tadpoles may serve as a reservoir for Bd. They posit

that controlling chytrid in farms may increase profits. They advocate for treating both frogs and water.

Salafsky, N., R. Margoluis, K. H. Redford, and J. G. Robinson. 2002. Improving the practice of conservation: a conceptual framework and research agenda for conservation science. *Conservation biology* 16:1469–1479.

Provides the conceptual underpinnings of the *Open Standards for the Practice of Conservation* and how to use the framework to effect positive conservation action.

Salafsky, N., and E. Wollenberg. 2000. Linking livelihoods and conservation: a conceptual framework and scale for assessing the integration of human needs and biodiversity. *World development* 28:1421–1438.

Discusses the integration of human well-being targets into the *Open Standards for the Practice of Conservation*.

Schloegel, L. M., A. M. Picco, A. M. Kilpatrick, A. J. Davies, A. D. Hyatt, and P. Daszak. 2009. Magnitude of the US trade in amphibians and presence of *Batrachochytrium dendrobatidis* and ranavirus infection in imported North American bullfrogs (*Rana catesbeiana*). *Biological Conservation* 142:1420–1426.

An examination of bullfrogs obtained from live markets in Los Angeles, San Francisco, and New York found a 62% prevalence of *Batrachochytrium dendrobatidis* (Bd) and an 8.5% prevalence of ranaviruses. California markets had a lower probability of Bd infection than New York, but LA frogs had a higher chance of ranavirus than elsewhere. The study found significant seasonal differences in probability of infection (winter > summer > spring). There was no correlation between prevalence of the two diseases.

Schwartz, M. W., K. Deiner, T. Forrester, P. Grof-Tisza, M. J. Muir, M. J. Santos, L. E. Souza, M. L. Wilkerson, and M. Zylberberg. 2012. Perspectives on the open standards for the practice of conservation. *Biological Conservation* 155:169–177.

Setting free the fish. n.d. Global Times.

A review of the *Open Standards for the Practice of Conservation*, including an examination of its strengths and suitability for approaching a wide variety of conservation planning tasks.

Stromberg, J. 2013. The science of winning leaps at the Calaveras County frog jumping competition. *Smithsonian*. <<https://www.smithsonianmag.com/science-nature/the-science-of-winning-leaps-at-the-calaveras-county-frog-jumping-competition-2277694/>>. Accessed 17 Jun 2019.

Expounds on how bullfrogs are able to perform well in jumping frog contests and why bullfrogs are a preferred species.

Wang, H., C. Yang, Z. Sun, W. Zheng, W. Zhang, H. Yu, Y. Wu, X. Didelot, R. Yang, J. Pan, and Y. Cui. 2020. Genomic epidemiology of *Vibrio cholerae* reveals the regional and global spread of two epidemic non-toxigenic lineages. *PLOS Neglected Tropical Diseases* 14:e0008046.

Examines the genetics and epidemiology of an outbreak of *Vibrio cholerae* bacteria in humans, linked to soft-shelled turtles and bullfrogs.

West, D. 1997. Buddhists release animals, dismaying wildlife experts. The New York Times, 11 January 1997; section New York.
<<https://www.nytimes.com/1997/01/11/nyregion/buddhists-release-animals-dismaying-wildlife-experts.html>>. Accessed 27 Aug 2021.

Describes the practice of releasing animals in New York, including turtles, for cultural and spiritual ceremonies, and the environmental damage it can cause. Details the purposes for the practices, such as the motivation to show respect for life and do good acts.

Wilgen, N. J. van, M. S. Gillespie, D. M. Richardson, and J. Measey. 2018. A taxonomically and geographically constrained information base limits non-native reptile and amphibian risk assessment: a systematic review. PeerJ 6:e5850.

A review of research papers on herpetological invasive species, highlighting several taxonomic, geographic and subject patterns and biases of publications.

Woodburn, D. B., A. N. Miller, M. C. Allender, C. W. Maddox, and K. A. Terio. 2019. *Emydomyces testavorans*, a new genus and species of Onygenalean fungus isolated from shell lesions of freshwater aquatic turtles. Journal of Clinical Microbiology 57.
<<https://jcm.asm.org/content/57/2/e00628-18>>. Accessed 3 Aug 2020.

Describes a fungus previously found only in reptiles but recently found in various aquatic turtle species, including some that can be found in California.

Yang, Y., X. Zhu, H. Zhang, Y. Chen, Y. Liu, Y. Song, and X. Ai. 2022. *Vibrio cholerae* was found in cultured bullfrog. Epidemiology and Infection 150:e30.

A study of “anorectal disease” which isolates and identifies *V. cholerae* bacteria in bullfrogs. Examines the pathogenicity and potential treatments.

Yap, T. A., M. S. Koo, R. F. Ambrose, and V. T. Vredenburg. 2018. Introduced bullfrog facilitates pathogen invasion in the western United States. M. C. Fisher, editor. PLOS ONE 13:e0188384.

Uses museum specimens to examine the invasion history and disease dynamics of *Batrachochytrium dendrobatidis* (Bd). Creates a suitability model to glean the historical spread of Bd across the US and link it to the proliferation of bullfrogs.

Oregon Situation and Regulatory Framework

In Oregon, non-native bullfrog and turtle populations are reproducing naturally. Oregon currently does not have an active eradication program because the populations are already well-established.

Bullfrogs are a “controlled” species, so importing or exporting them is prohibited. Most water turtles from North America, Europe and Asia are not allowed to be sold, but selected non-native species that are thought to be unable to survive in the wild are allowed to be sold. Sometimes they are surrendered by owners or are found moving to nesting grounds and are turned over to the Oregon Department of Fish and Wildlife (ODFW) and humanely euthanized. Importing through online sellers, particularly from Florida, continues to be a problem.

Schools can apply for a permit and may be allowed to import bullfrogs, so long as they are kept contained and eventually are euthanized. Bullfrogs often come into Oregon as tadpoles inadvertently included in shipments of aquatic plants.

Enforcement depends on the field district. There is no inspection system for commercial trade; enforcement actions typically manifest through complaints or through Craigslist, or when ODFW personnel personally check stores. Volunteers often watch Craigslist and report suspected violations. ODFW has sole jurisdiction over these matters.

Assessment of Strategy Effectiveness

Commission staff assessed the effectiveness of all strategies that were proposed by the three stakeholder groups. After eliminating duplicate strategies, staff used the many discussions and understandings from stakeholder groups to evaluate how successful a strategy would be at achieving a particular goal. A strategy's goal(s) were identified through analysis of its "results chain," as either the primary means by which threats would be abated, or as "research" in the case of strategies designed to fill informational gaps.

Strategies are rated on two criteria, potential impact and feasibility.

Potential Impact - If implemented, will the strategy lead to desired changes in the situation at your project site?

- *Very High* - The strategy is very likely to completely mitigate a threat or restore a target.
- *High* - The strategy is likely to help mitigate a threat or restore a target.
- *Medium* - The strategy could possibly help mitigate a threat or restore a target.
- *Low* - The strategy will probably not contribute to meaningful threat mitigation or target restoration.

Note that at least two dimensions are combined into this rating: probability of positive impact and magnitude of change. The potential impact rating takes into account both of these factors, which were assessed in terms of the overall scope of the strategy. For example, a strategy which contemplates a localized biological effect would be evaluated in terms of the likelihood and magnitude of impact to a local area, and not penalized because it did not have a statewide scope.

Feasibility - Would implementation of the strategy be likely within biological, regulatory, time, financial, staffing, ethical, and other constraints?

- *Very High* - The strategy is ethically, technically, AND financially feasible.
- *High* - The strategy is ethically and technically feasible, but may require some additional financial resources.
- *Medium* - The strategy is ethically feasible, but either technically OR financially difficult without substantial additional resources.
- *Low* - The strategy is not ethically, technically, OR financially feasible.

Potential impact and feasibility are combined to give an overall summary effectiveness rating for the strategy, as illustrated in the table below.

		Potential Impact			
		Very High	High	Medium	Low
Feasibility	Very High	Very High	High	Medium	Low
	High	High	High	Medium	Low
	Medium	Medium	Medium	Medium	Low
	Low	Low	Low	Low	Low

Strategies are then classified as Very Effective (very high result), Effective (high result), Potentially Effective (medium result), or Low Efficacy (low result).

*Note that it is critical to understand that effectiveness is an attempt to rate strategies with respect to whether they will be successful, **not whether they are desirable**. Even a strategy with low efficacy may be desirable for particular reasons (for example, if it requires minimal investment to implement or fills a needed gap in strategy diversification). Effectiveness is an attempt to rate the ability of a strategy to accomplish specific goals in addressing extant threats to natural and human well-being targets. Desirability — the decision whether or not to implement a given strategy — is usually informed by effectiveness, but it is ultimately a value judgement whether or not to move forward with a particular solution.*

Strategy Analysis

The grouping of various strategies in this analysis are simply for convenience; while they characterize the primary domain of a strategy, the proposed solutions should not be seen as exclusive to that category as strategies can have considerable overlap among groupings.

Resources

All strategies will require some level of resources to implement – financial, temporal, staffing, and so on. The amount and type necessary to achieve a given strategy will depend on a number of factors, including the specific portfolio of projects to be implemented within a strategy, the ability to capitalize on already available resources, and the formation of strategic partnerships, to name but a few. Assessing the resources necessary to implement particular strategies is an important consideration, but is beyond the scope of the stakeholder inquiry; while the expertise of stakeholders is extensive, even as a group they do not possess an overview of available resources within various partner organizations that may be involved in implementation: state governments, local governments, non-governmental organizations, trade and industry groups, businesses, research institutions, etc.

However, in this analysis Commission staff has attempted to identify strategies that would likely require a great deal of additional resources to implement. The strategies below have a primary goal of obtaining more resources to implement other strategies.

Strategy: More Resources for the Department. Procure more budgetary resources for the California Department of Fish and Wildlife (Department), either directly from the state legislature or through a special program, such as voluntary income tax contributions.

Primary Goals: Increase resources for implementation

Potential Impact: Very High

Feasibility: High

Effectiveness: Effective

Reasoning: This strategy is a critical prerequisite for many other strategies and could muster significant resources for the Department to implement strategies.

Primary Mode of Action: Resources

Controversy: Low

Strategy: Raise Permit Prices. Raise the cost of importation permits and apply the funds to other strategies.

Primary Goals: Increase resources for implementation

Potential Impact: Medium

Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Would produce more resources for the Department, but raising importation permit prices substantially while keeping imports economical may not be possible.

Primary Mode of Action: Resources

Controversy: Medium

Strategy: Department Grant Program. Establish a new grant program for the Department to disburse funds for various bullfrog and non-native turtle projects.

Primary Goals: Increase resources for implementation

Potential Impact: High

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could convey resources for innovative and critical projects, but would likely require dedicated funding from the Legislature.

Primary Mode of Action: Resources

Controversy: Low

Research

The stakeholder engagement process identified several important knowledge gaps. Many of the informational needs are critical to properly assess the scope of particular issues, the biological dynamics at play and relative risk caused by various ecological threats, and the overall effectiveness of strategies.

Strategy: Research into Release "Inputs." Gain more information about escapees and intentional releases from live markets and pets.

Primary Goals: Research

Potential Impact: Very High

Feasibility: Very High

Effectiveness: Very Effective

Reasoning: These are critical knowledge gaps. This research would help resolve many uncertainties about the dynamics at play and the effectiveness of other strategies.

Primary Mode of Action: Informational

Controversy: Low

Strategy: Research on Discharge. Gain more information about water used for transport and storage, including disease pathogens, invasive aquatic organisms, and water treatment methods.

Primary Goals: Research

Potential Impact: Medium

Feasibility: High

Effectiveness: Potentially Effective

Reasoning: The research would fill in knowledge gaps with respect to contaminated runoff water, but contaminated water may not be a very significant threat.

Primary Mode of Action: Informational

Controversy: Low

Strategy: Research into Live Food as Vectors for Diseases. Gain more information about the prevalence, epidemiology, and treatment of frog- and turtle-borne diseases in the live markets.

Primary Goals: Research

Potential Impact: Very High

Feasibility: Very High

Effectiveness: Very Effective

Reasoning: There has been some research on this topic, but many open questions remain. Answers may help lower the risks of new diseases entering California.

Primary Mode of Action: Informational

Controversy: Low

Notes: Chytrid fungus is nearly ubiquitous in California. Ranaviruses have a relatively low prevalence.

Strategy: Research into Population Control Techniques. Gain more information on eradication and control techniques, habitat enhancements to combat bullfrogs and non-native turtles, and other similar environmental interventions.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: High

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could provide valuable results but would require substantial new resources.

Primary Mode of Action: Informational

Controversy: Low

Education and Outreach

All stakeholder groups identified educational campaigns as an important initiative. Potential audiences identified included live market retailers, pet owners and retailers, teachers, aquaculture facilities, and importers; key themes and messages would vary according to the particular audience.

Stakeholders identified several existing educational programs that could be adopted or serve as partners to achieve educational goals. Alternatively, one or more of the programs could serve as models from which to develop proprietary education initiatives.

Other Stakeholder Insights

Stakeholders identified certain religious ceremonies where live animals are released as a potential source of non-native introduction. FGC staff were able to corroborate the practice of releasing fish and potentially invertebrates in California, but not of reptiles or amphibians. Outreach to these communities may help facilitate understanding.

Strategy: Encourage Wild Collection. Promote collection of bullfrogs for personal food usage as an alternative to purchase in live markets.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium Feasibility: Very High

Effectiveness: Potentially Effective

Reasoning: Will likely have minimal effect but readily accomplishable.

Primary Mode of Action: Biological Controversy: Low

Strategy: Bullfrogs as Bait. Promote the use of bullfrogs as bait for fishing.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Low Feasibility: Very High

Effectiveness: Low Efficacy

Reasoning: Easy to implement, but likely to have very limited impact.

Primary Mode of Action: Social Controversy: Low

Strategy: Education Campaign 1 (Live Markets). Establish a focused, periodic education initiative at live market vendors to instill best practices and reinforce existing regulation.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Focused education campaign could lessen escapees and contaminated water, but effectiveness depends on the actual level of the threat which is currently unknown.

Primary Mode of Action: Educational Controversy: Low

Strategy: Education Campaign 2 (Pets). Establish a sustained education campaign aimed at pet owners, retailers, and other relevant audiences to instill the importance of not releasing animals into the wild. Teach good animal care techniques to lessen the impetus to abandon pets.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Focused education campaign could lessen escapees. Existing good models of this type of campaign exist to build on.

Primary Mode of Action: Educational Controversy: Low

Notes: While it is unclear the extent to which it happens, people do bring wild frogs and turtles home to keep as pets.

Strategy: Education Campaign 3 (All-Encompassing). Establish a comprehensive education campaign, or a series of campaigns, to address many different audiences and issues.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment.

Potential Impact: Very High Feasibility: Very High

Effectiveness: Very Effective

Reasoning: Broad-scale education campaign that would encompass many threat vectors and could significantly affect releases into the wild.

Primary Mode of Action: Educational Controversy: Low

Notes: Clean Drain Dry and Stop AIS (aquatic invasive species) are potential models for good education campaigns. They have had positive impacts.

Habitattitude is a PIJAC partnership with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration with a wide audience including water gardeners, students, and teachers. Key messages include: don't release pets into the wild, move things up the consumer timeline, be aware of all that comes into play when owning a pet. It is composed of partnerships with organizations that share the message. It is mostly on the web.

Strategy: Increased Compliance with Animal Release Regulations. Education initiative aimed primarily at reducing intentional releases, including live market, unwanted pets, and other wildlife releases. One potential audience is local and county officials, to encourage the development of local ordinances which may play a role in reinforcing state regulations against releases as well.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: These solutions may have significant effects but would be very dependent on the specifics of the educational material and on local interest and cooperation in the case of municipal or county ordinances.

Primary Mode of Action: Educational Controversy: Low

Ecological Restoration

Direct action in the environment will be an important component of any comprehensive solution. Direct action could include strategies such as habitat improvement for native species threatened by non-native turtles and bullfrogs, or localized eradication initiatives; these strategies are typically resource intensive, requiring a great deal of time, planning, and funding to execute properly. However, they have been shown to be successful in many cases.

Strategy: Habitat Improvement. Implement restoration projects to improve conditions for various native species to allow them to deal with the threats posed by bullfrogs and non-native turtles.

Primary Goals: Improve conditions for native species

Potential Impact: High Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: The Department has extensive experience in this activity, but it requires substantial resources to implement.

Primary Mode of Action: Biological Controversy: Low

Notes: Bullfrogs and non-native turtles are prolific in fragmented habitats. Habitat improvements could include creating base habitat conditions that favor native species and disfavor bullfrogs, promoting favorable water temperatures (e.g., colder water), promoting running water, reestablishing food webs, and/or eliminating barriers between native populations.

Strategy: Localized Eradication. In selected circumstances, eradication of bullfrogs has been shown to be achievable (it is unclear whether the same is true for non-native turtles). Other strategies short of eradication, such as invasive population reductions or limited control efforts, have also been shown to be effective at reducing competition and increasing the fitness of native populations.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Very High

Feasibility: High

Effectiveness: Effective

Reasoning: The Department has extensive experience in this activity, but it requires substantial resources to implement.

Primary Mode of Action: Biological

Controversy: Low

Strategy: Use of Private Land Eradication of Fish. Existing authorities allow the Department to cooperate with private landowners to eradicate invasive and harmful fish, which includes bullfrogs.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: High

Feasibility: High

Effectiveness: Effective

Reasoning: Provides flexibility for bullfrog control but regulatory updates may be necessary to include turtles.

Primary Mode of Action: Biological

Controversy: Low

Live Markets

Live markets have been identified as an important vector for disease. However, bullfrogs and turtles used for food are a culturally important tradition.

Other Stakeholder Insights

- The practice of eating bullfrogs and certain turtles was identified as an important cultural tradition – particularly for first-generation immigrants. When immigrants attend the markets, they feel comfortable and welcomed.
- Some stakeholders claimed that market leftovers are sometimes sold to the pet trade, where a middleman/broker transfers unsold turtles and/or frogs to pet stores.

Strategy: Ban Sale of Live Bullfrogs. Sale of live bullfrogs would be illegal, but dead bullfrogs could still be sold.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Decrease introduction of new frogs/turtles into environment

Potential Impact: High

Feasibility: High

Effectiveness: Effective

Reasoning: Would lower risks of introductions and disease from live markets, but scope of risks are unknown and has cultural implications.

Primary Mode of Action: Social

Controversy: High

Notes: Disease risk from frozen bullfrogs is considerably less, and there is less water volume. However, live frogs are preferable from a cultural standpoint. There was concern raised that frozen frogs may be considered inedible or unsafe.

Strategy: Point of Sale Inspections. Department personnel would perform inspections on live markets to ensure compliance with state regulations.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species. Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Could be valuable to detect escapees or poor conditions, but actual frequency of escapees is unknown. Strategy would require substantial new resources for the Department.

Primary Mode of Action: Social

Controversy: Medium

Notes: Posters are passed out in and hung in live markets, explaining in native languages that "Releasing live turtles or frogs is prohibited" and listing the CALTIP line for reporting violations. The Department has informed merchants that they must post the signs where live animals are sold for food.

Strategy: Domestic Bullfrog Aquaculture. In the event of a loss of extra-state bullfrog importation (presumably through regulation), domestic aquaculture facilities could establish a market supply.

Primary Goals: Maintain market sales

Potential Impact: Medium

Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Could allow a domestic supply of frogs that may be better monitored, but would likely be dependent on implementation of an import ban to make it financially feasible.

Primary Mode of Action: Social

Controversy: Low

Notes: Bullfrogs are ubiquitous in agriculture currently; they are always caught in on-site nets and are a typical byproduct. Turtles are a very rare occurrence.

Bullfrogs are a minute business consideration. Price per frog would be an important factor in making California bullfrog aquaculture a viable business. But there do not appear to be any regulatory barriers to aquaculture -- bullfrogs can be recognized as a legitimate aquaculture product now.

With respect to disease, initially, bullfrog farms may have the same disease prevalence as the environment, but that may change depending on the culture practices, treatments, etc.

Strategy: Testing and Monitoring Regime. Develop and implement a protocol for sampling animals for sale at live markets for various diseases and/or invasive aquatic organisms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Would be valuable to monitor disease better, but practical potential to stop disease entry is unknown. Strategy would require substantial new resources for the Department.

Primary Mode of Action: Social

Controversy: High

Notes: The Taiwan Health Department provides health certifications based on testing a sample of the water where bullfrogs are produced for diseases. There are five primary frog farms that obtain a Taiwanese license to export, mainly to the United States, Southeast Asia, and Singapore.

There is generally no intermediate storage. Frogs are shipped directly to markets.

Strategy: Increased Information Collection through Permits. Revise importation permits to gather more information that may be useful, such as: Where are shipments coming from? How many shipments/individuals are you bringing in under this permit? Do you have permission from the source?

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Low

Feasibility: High

Effectiveness: Low Efficacy

Reasoning: Some additional information may be minimally helpful in the case of problems or for general data collection, but it will likely be of limited use.

Primary Mode of Action: Social

Controversy: Low

Pets and Bullfrog Contests

Bullfrogs and turtles being kept as pets, in homes and classrooms, can pose several threats to California's environment, including release of unwanted animals. However, pets also provide companionship and can help people to appreciate wildlife.

Strategy: Promotion of Programs for Unwanted Animals. Implement and support places, such as sanctuaries, for unwanted pets to be taken and kept when they are unwanted. Also includes "rehoming" organizations.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Low

Feasibility: Medium

Effectiveness: Low Efficacy

Reasoning: Similar programs exist but have limited capacity and effectiveness.

Primary Mode of Action: Social

Controversy: Low

Strategy: Dispatching Bullfrogs in Contests. In jumping frog contests, terminate all bullfrogs that are not being kept by contestants.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High

Feasibility: Very High

Effectiveness: Effective

Reasoning: Bullfrogs being let loose or escaping from contests could be a significant source of bullfrogs entering the environment. Would likely raise significant controversy.

Primary Mode of Action: Social

Controversy: High

Strategy: Ban Frog Jumping Contests. Frog jumping contests would be outlawed through regulation.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: High

Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: May stop a significant source of bullfrog introductions into the environment. Would be controversial, as contests provide significant enjoyment and economic benefits, and would require changes to the California Fish and Game Code.

Primary Mode of Action: Social

Controversy: High

Strategy: Contest Monitoring/Enforcement. Deploy monitors to jumping frog contests to help guard against escapees and ensure compliance with state regulations.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Would require increased resources for implementation. Magnitude of impact is unclear but could be significant.

Primary Mode of Action: Social

Controversy: Medium

Notes: Frogs can be bought from authorized sellers, caught in the wild, or rented. Rented frogs are likely collected and then released (staff has not yet confirmed this statement). Events have a minimum size limit to avoid other non-native frogs.

Strategy: Encourage/Allow Use of Other Species with Lesser Effects. Disallow or discourage the use of bullfrogs in jumping contests, in favor of utilizing other species.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: May curtail a significant source of bullfrog releases, but also may encourage the use of native species which may cause problems for those species. Bullfrogs are generally seen as the leading animal for jumping contests.

Primary Mode of Action: Social

Controversy: High

Regulatory Actions

The Commission promulgates regulations concerning wildlife in the State of California, consistent with the California Fish and Game Code. Stakeholders offered many strategies that would require legislative and/or regulatory changes to implement. Evaluating the effectiveness of these strategies necessarily involved the likelihood of rule changes actually being implemented; particularly in the case of legislative changes, this involved a value judgement.

Other Stakeholder Insights

- There is some risk in implementing strategies to combat use of a particular species, because users may switch to using another species. Some stakeholders emphasized a broad-brush approach which would instantiate a precautionary principle, while others favored a narrowly-tailored tactic which considers the environmental risk that could be anticipated by each species.
- Stakeholders raised the prospect of a bullfrog bounty, but raised concerns about creating a market; it could lead to cultivation and widespread non-target collection. Bounties were ultimately rejected as a viable strategy.

- Local municipalities can play an important role in non-native species control. The city of Santa Cruz enacted a ban on the sale and collection of bullfrogs in Santa Cruz. There is no specific mechanism for enforcement; enforcement is largely complaint driven. Santa Cruz has conducted outreach to pet stores. While the impacts on local frog populations may not be readily apparent, success is difficult to appraise in the absence of a concerted monitoring effort. Effectiveness may be greatly increased if a cluster of geographically proximate localities were to enact similar restrictions.

Strategy: Water & Reservoir Management. Encourage municipalities to enact ordinances to protect against bullfrogs and non-native turtles, and to manage their water features to enhance suitability for native species.

Primary Goals: Decrease introduction of new frogs/turtles into environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: Effective implementation will depend on local government ability and willingness to implement measures to control bullfrogs/turtles.

Primary Mode of Action: Biological Controversy: Medium

Notes: Potential impact could be high in some cases, where ponds/reservoirs are a primary source for many of the bullfrogs an area.

Strategy: Ban Bullfrog Imports. Enaction of a complete ban on any bullfrogs or bullfrog parts, living or dead, shipped from any source outside of California.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: High Feasibility: High

Effectiveness: Effective

Reasoning: Would lower risks of new disease establishment. Would stop sales of bullfrogs unless domestic sources were established.

Primary Mode of Action: Social Controversy: High

Notes: Long-term importation permits stopped around 2005. Only standard importation permits are issued currently (i.e., container by container).

There are few small importers left in the state – they would be hurt by a ban. Suppliers may not be able to switch to in-state sources, even if those sources were established. Turtle prices may increase, leading to a black market. A ban may encourage importation of unregulated animals.

Strategy: Develop Commercial Harvesting. Allow and develop a market for the commercial harvest of bullfrogs and/or non-native turtles, to supplement (or supply, in the case of some type of import ban) animals for the live markets.

Primary Goals: Reduce the number of bullfrogs/turtles in the environment

Potential Impact: Medium Feasibility: High

Effectiveness: Potentially Effective

Reasoning: May significantly reduce the number of bullfrogs in the environment, but also may establish desires for a non-native species, including illicit raising of frogs for sale.

Primary Mode of Action: Social Controversy: Medium

Notes: Will encouraging commercial harvest promote or create an incentive to maintain bullfrogs in the environment?

Strategy: Add Non-Native Turtles to Restricted Species List. Promulgate a regulation to make it unlawful to import, transport, possess, or release alive selected non-native turtle species under normal circumstances.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment.

Potential Impact: High

Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: Effectively eliminates use of non-native turtles completely. Possession restrictions could cause complications.

Primary Mode of Action: Social

Controversy: High

Strategy: Add Bullfrogs to Restricted Species List. Promulgate a regulation to make it unlawful to import, transport, possess, or release alive bullfrogs under normal circumstances.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Decrease introduction of new frogs/turtles into environment

Potential Impact: High

Feasibility: Low

Effectiveness: Low Efficacy

Reasoning: Effectively eliminates use of bullfrogs completely. Possession restrictions could cause complications.

Primary Mode of Action: Social

Controversy: High

Strategy: Prevent Water Contamination. Implement water treatment to prevent disease and/or invasive aquatic organisms from entering the environment. Could be required for any or all of import shipments, pet stores, market facilities, water from frogs or turtles in homes, and classrooms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species.

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Most water likely goes down a municipal drain and receives standard water treatment, but that may or may not be completely effective. A regulation may prevent the introduction of new diseases or new strains of extant diseases. There are readily available, inexpensive, effective treatments that are easy to use.

Primary Mode of Action: Social

Controversy: Low

Enforcement Actions

Stakeholders generally agree that bullfrog- and turtle-related enforcement actions are not predominant in California. There are differing opinions on whether increased enforcement is necessary, where those actions should focus, how to accomplish obtaining more resources for the Department's enforcement efforts, and how effective increased enforcement actions would be in alleviating some of the threats to California's native wildlife.

Strategy: Ensure Shipments are Lawfully Obtained. Perform inspections to ensure that shipments have a valid chain-of-custody, valid health certificates when necessary, and other documentation as needed.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

Reasoning: Current law, would require more resources for implementation and uncertain impact.

Primary Mode of Action: Social

Controversy: Low

Notes: Importers obtain two primary certifications; one from the Taiwanese Health Department indicating the bullfrogs are free from diseases, and another from the Taiwanese Department of Commerce attesting to the legitimacy of the company.

Most imported turtles are originally collected from the wild. Shipments get documentation that the exporter is legal, but there are no health or safety documents.

Strategy: Inspect Shipments for Illegal Imports/Mixing Species. Imported shipments would be subject to spot testing and/or inspections for diseases and invasive aquatic organisms.

Primary Goals: Curtail risks from diseases and/or introduction of new diseases. Curtail risks from invasive aquatic species and/or introduction of new invasive aquatic species.

Potential Impact: Medium

Feasibility: Medium

Effectiveness: Potentially Effective

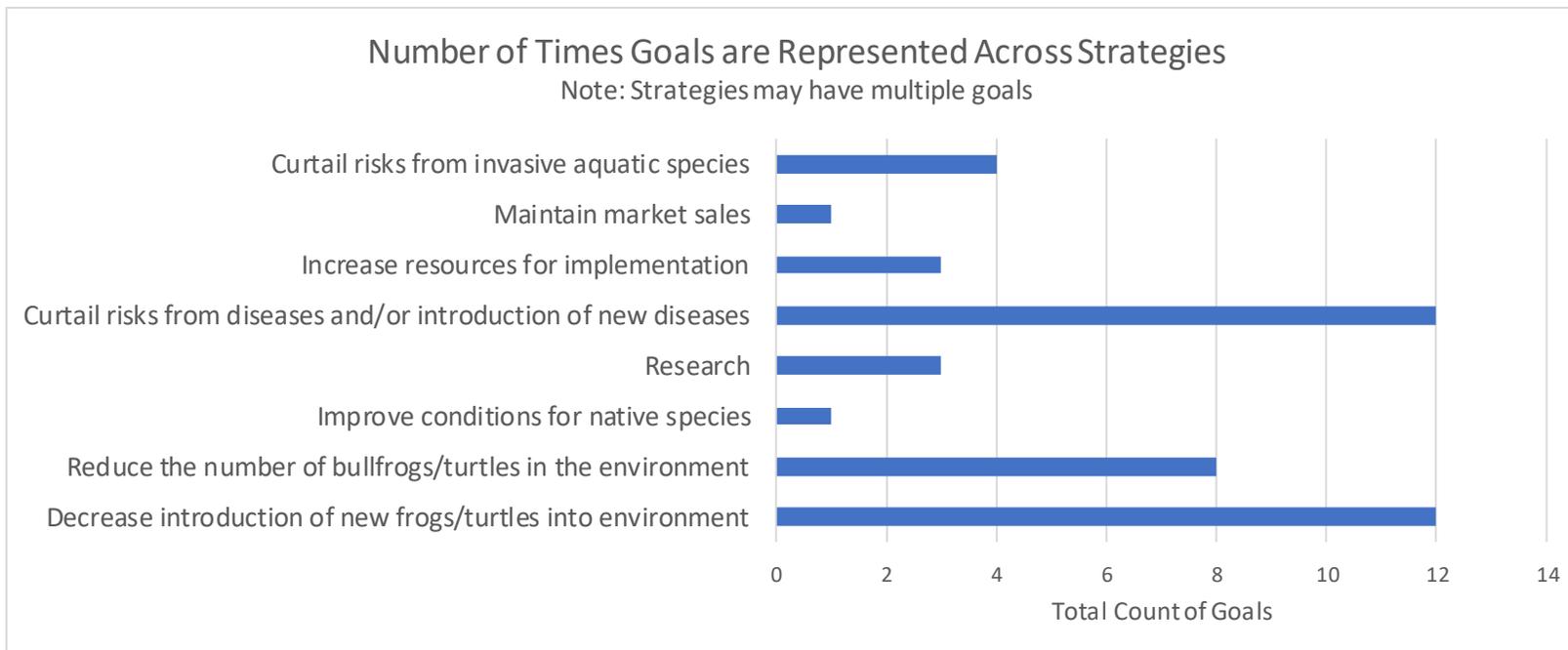
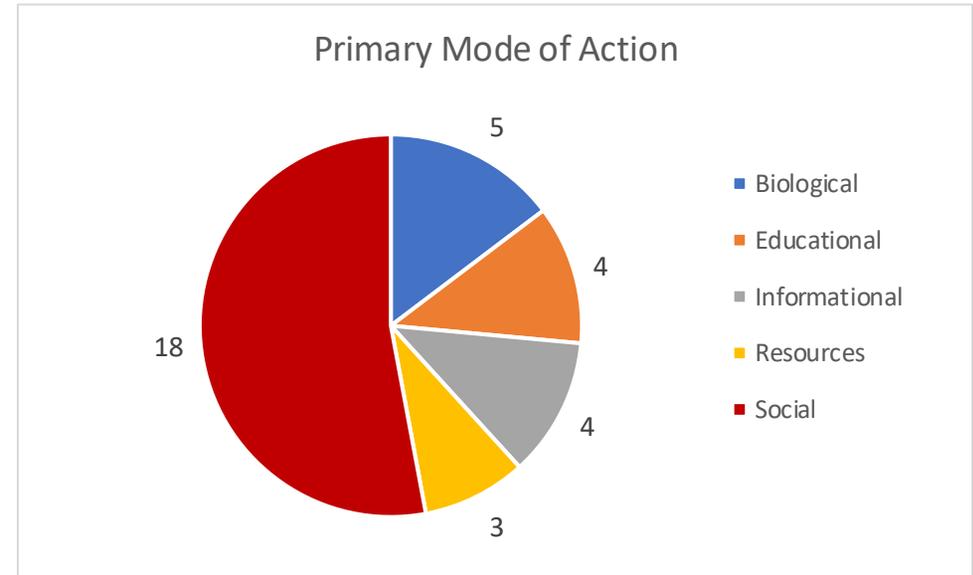
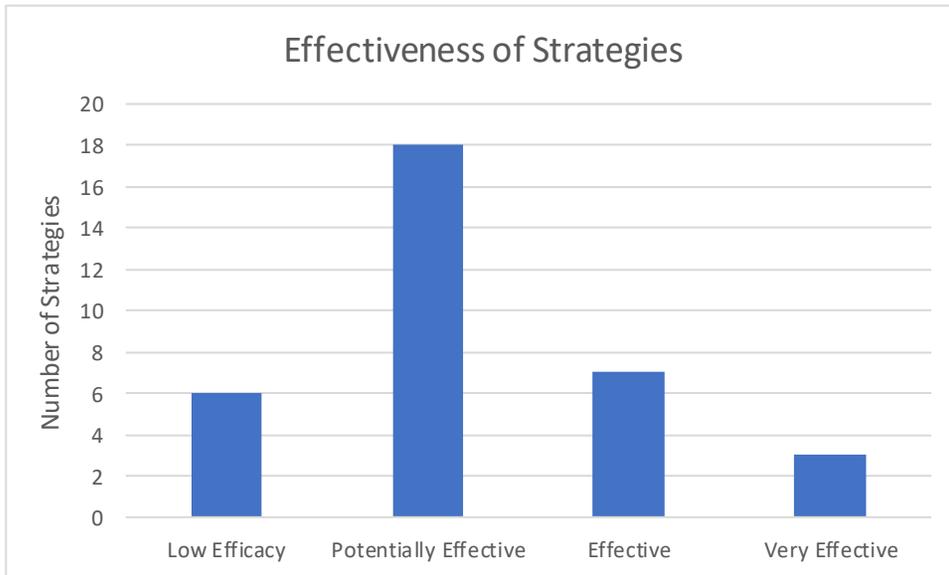
Reasoning: Would be valuable to detect problems in shipments, but actual prevalence of such import issues is unknown. Strategy would require substantial new resources for the Department.

Primary Mode of Action: Social

Controversy: Low

Notes: Turtles are imported from a number of small and large sources, but most are from commercial facilities in Louisiana or Arkansas. The health standards for imports rest largely on the regulations (and thoroughness of regulatory enforcement) from the originating state.

Selected Summary Analyses of Strategies



Preliminary Results from the *Conservation Standards* Work in the Bullfrog and Non-Native Turtle Stakeholder Engagement Process

January 7, 2022

Since 2018, California Fish and Game Commission (Commission) staff has led a stakeholder engagement process with three stakeholder groups to identify potential regulatory and statutory changes, funding mechanisms, and strategies for existing wild populations of American bullfrogs and non-native turtles to reduce their impacts on California's native wildlife.

In Dec 2018, the Commission referred to its Wildlife Resources Committee a stakeholder engagement plan, to track progress in implementation. The plan involves three independent groups developing situation analyses and strategies for addressing the threats, challenges, and opportunities posed by bullfrogs and non-native turtles and their impacts on native wildlife. The fourth group identified in the plan is the California State Legislature, which will be engaged in the process upon completion of the situation analyses and strategies.

For the situation analyses and strategies work, independent groups were formed, composed of representatives from three different spheres of California society that have a vested interest in bullfrog and non-native turtle concerns. The first group was composed of representatives from local, state, and federal government agencies, the second from environmental and animal welfare groups, and the third from various commercial sector and industry groups. The groups met separately and worked on the same task (in parallel) to analyze: (1) threats to California's environment posed by bullfrogs and non-native turtles, (2) benefits and cultural values of bullfrogs and turtles in California's communities and other intersections with human well-being values, (3) knowledge gaps in our understanding of the relevant systems and operative biological processes, and (4) opportunities for progress in addressing the issues posed by invasive bullfrogs and non-native turtles in California's environment. After completing their individual analyses, each group had an initial opportunity for cross-dialogue, to clarify and discuss the approaches taken by the other groups.

Group Analyses

The three groups used a flexible, comprehensive process called *Open Standards for the Practice of Conservation* (see <https://conservationstandards.org/about/> for more information) to guide their analyses. This document presents a preliminary compilation of the results of that process for all three groups, embodied in:

- a conceptual diagram which lays out conservation targets that experience some level of risk, the extant threats to those targets, and various strategies that may be implemented to address those threats;
- a ranking of proximate threats performed by the agencies group, with grids that outline how those assessments were developed;
- “results chains” for all strategies that enumerate the stepwise, logical process by which those strategies may be expected to work; and
- notes that expand, clarify, and/or qualify certain elements of each assessment.

The main diagrams map the connections between various strategies, the threats they address, and conservation and human well-being targets they could be expected to affect. The results chains

illustrate the explicit mechanisms by which each strategy may be expected to influence the conservation threats and other factors, and to help confirm that strategies realistically can be implemented.

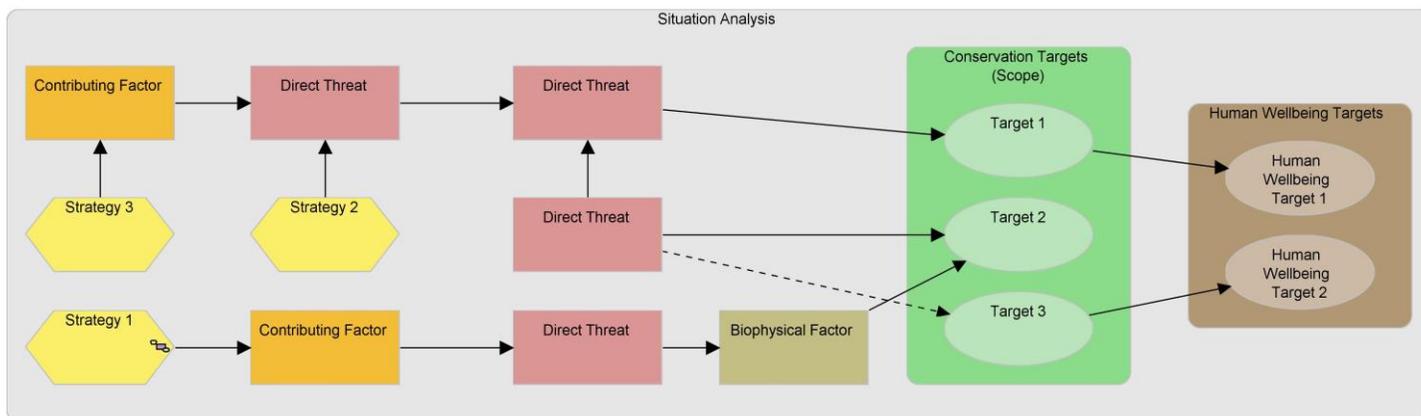
Important Remarks

- The terms “environmental” and “animal welfare” are intended to connote broad types of certain stakeholder organizations, not attitudes or philosophies inherent to any organization. It should be recognized that governmental agencies and industry groups are also concerned with the welfare of animals and with protecting California’s environment.
- Inclusion of a particular strategy in a group’s analysis is not intended to indicate that the group favors or recommends it. Sometimes a particular strategy is intended as an alternative action, or perhaps simply to analyze the consequences of non-recommended strategies that may ultimately be implemented in the future. Indeed, certain strategies within a single analysis are mutually exclusive.
- While strategies that each group deemed generally infeasible were typically eliminated during the process of developing results chains, it should be recognized that some strategies may be more or less likely to succeed, and the actual efficacy of a particular strategy may be low or unclear.
- The diagrams are not intended to depict every single factor at play, nor every relationship between those factors; rather, they are intended to highlight the most significant and meaningful associations that are relevant to understanding and achieving the vision enumerated by each group.

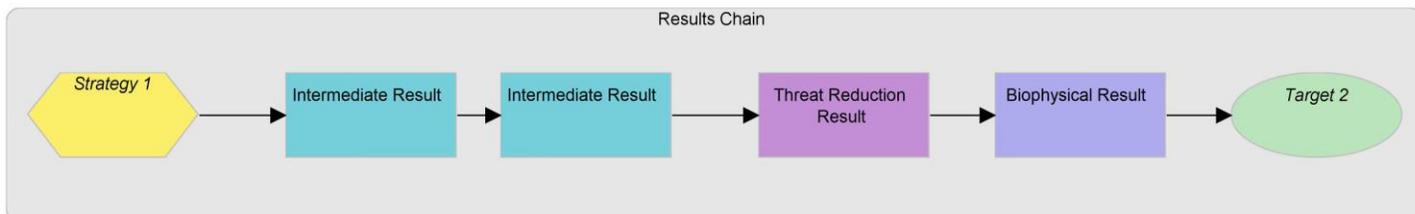
Guide to Symbols and Diagrams

	Results Chain
	Target
	Human Wellbeing Target
	Direct Threat
	Contributing Factor
	Intermediate Result
	Threat Reduction Result
	Strategy
	Text Box
	Group Box
	Causal Linkage
	Uncertain Link

Situation Analysis Diagram



Results Chain Diagram



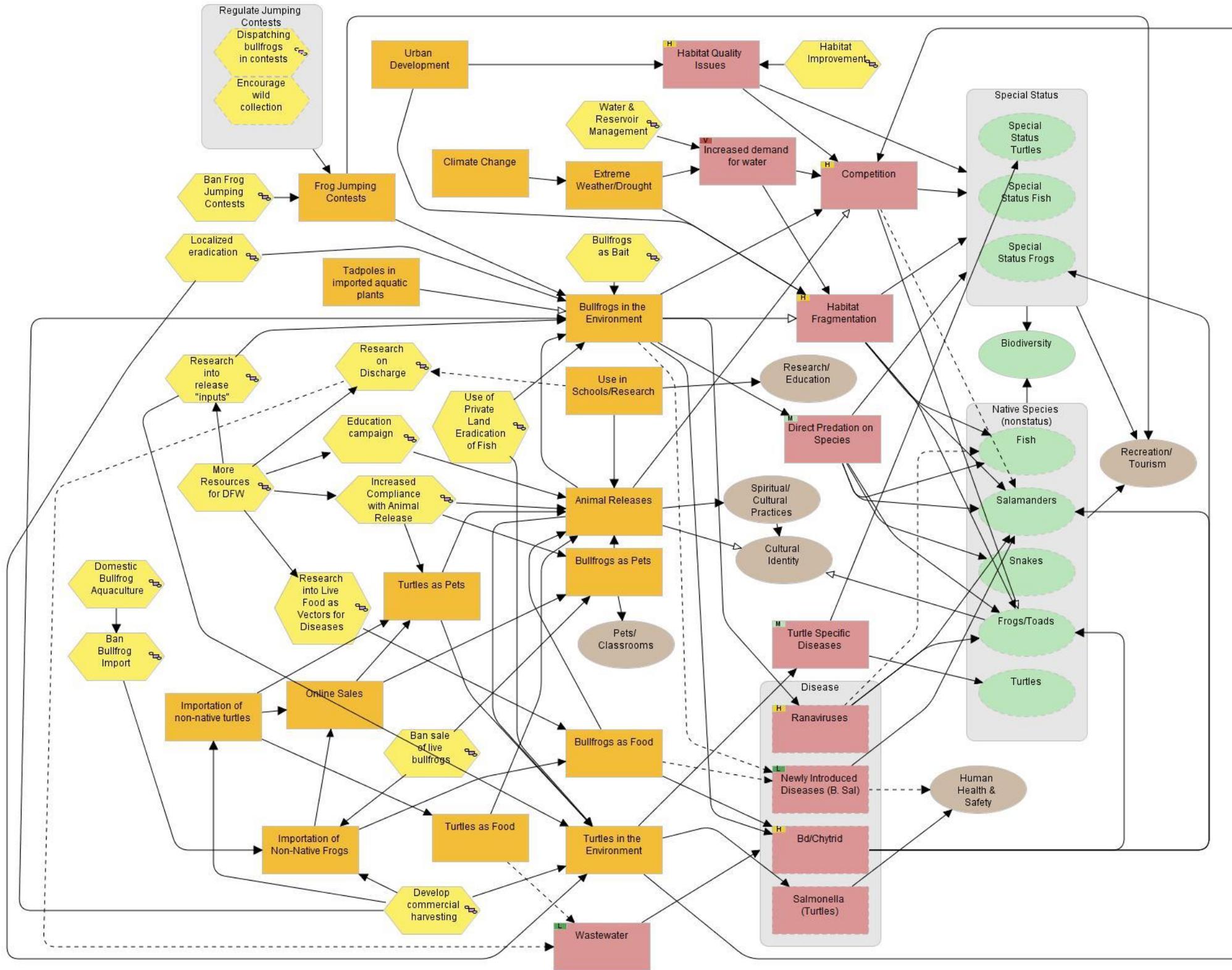
Note: During their assessments, the groups did not elect to use “biophysical factors” in the situation analysis diagrams or “biophysical results” in the results chain diagrams.

Agency Group Analysis

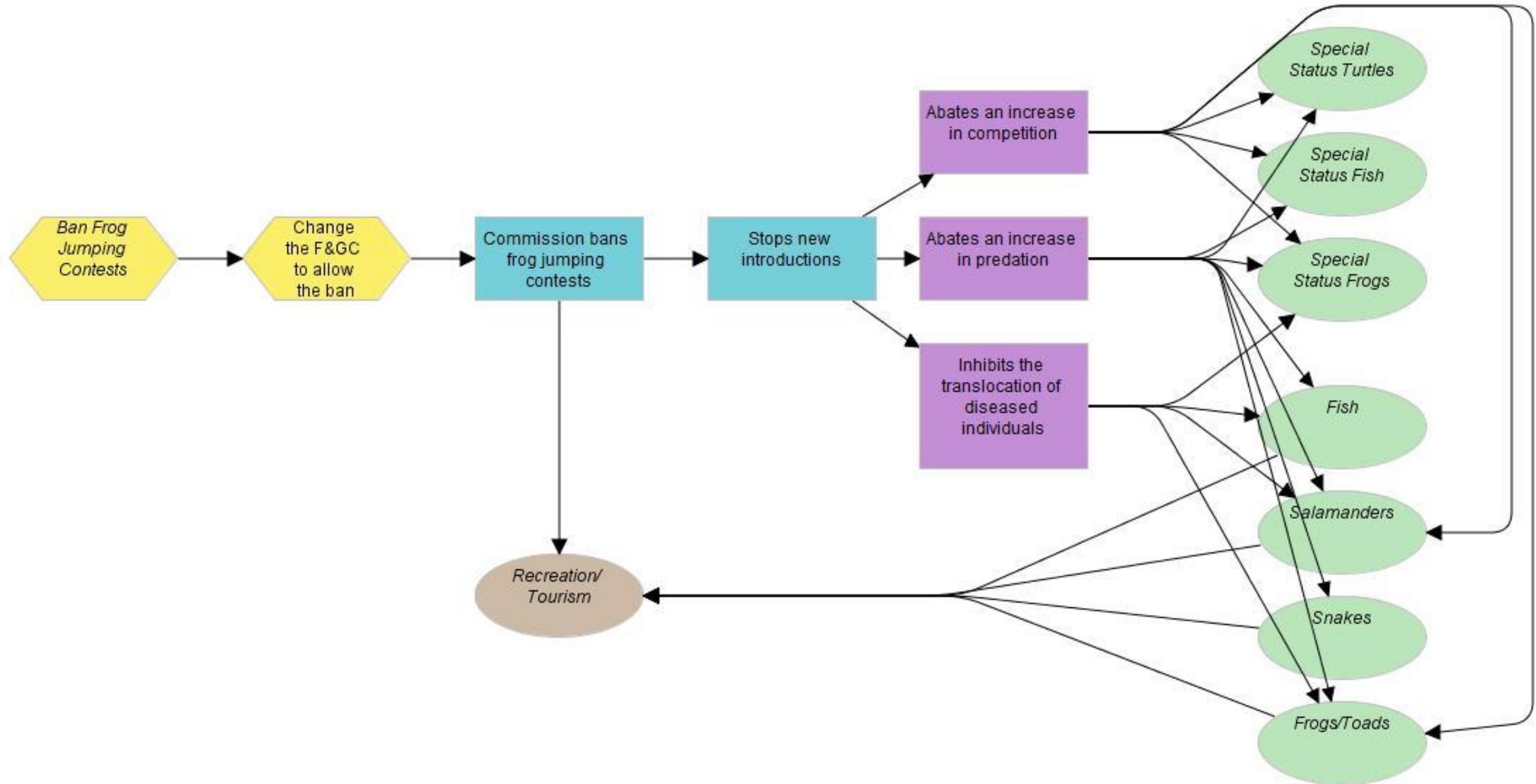
Scope and Vision

Scope/Site Name	Bullfrogs and non-native turtles in California
Vision Statement Text	To minimize the impacts to native species from bullfrog presence in California by managing, reducing, containing, controlling, regulating, and eventually eradicating them. Organizations should be provided the tools to limit populations and introductions.
Comments	There is a question as to whether or not eradication is feasible.

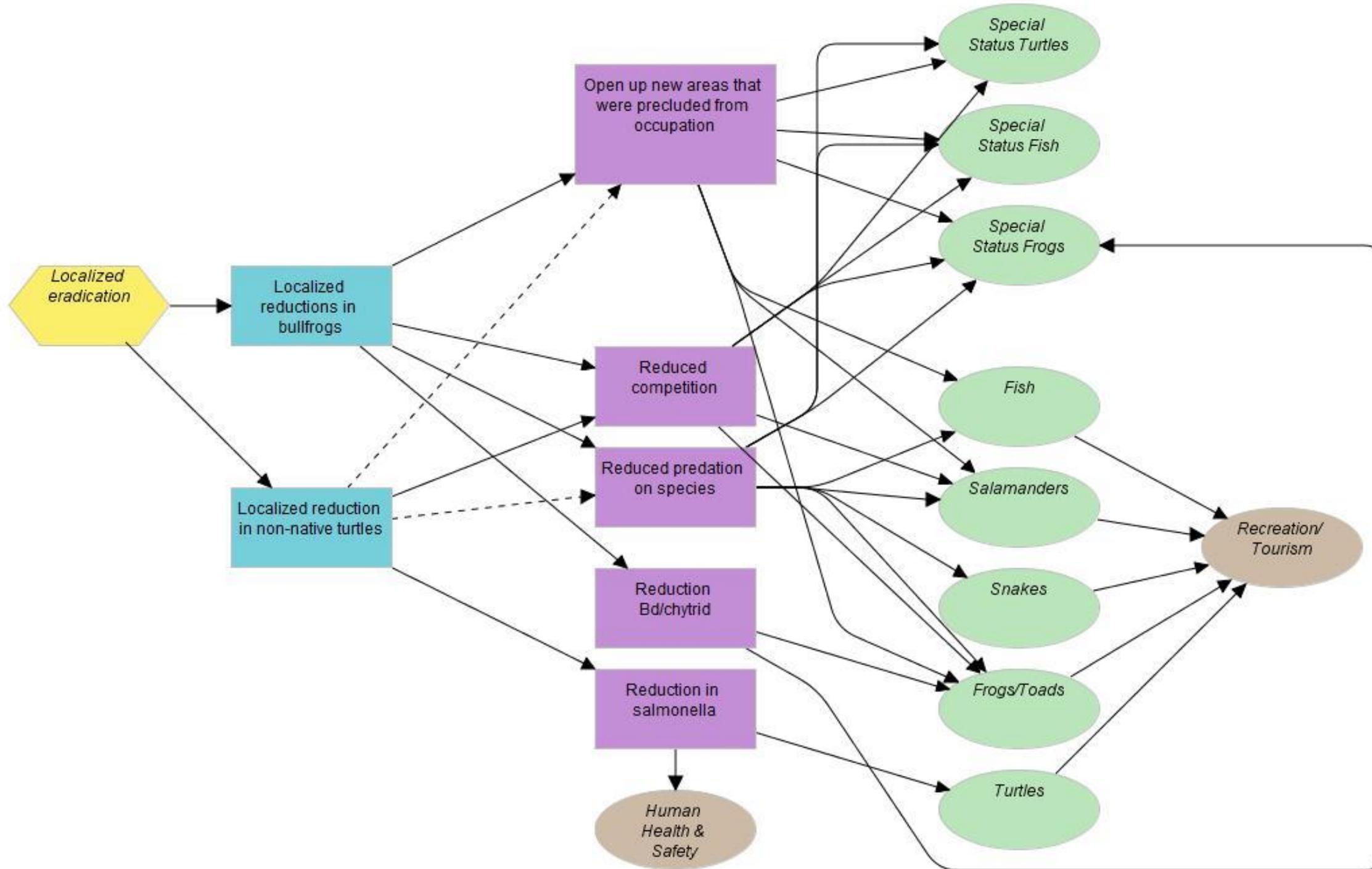
Main Diagram



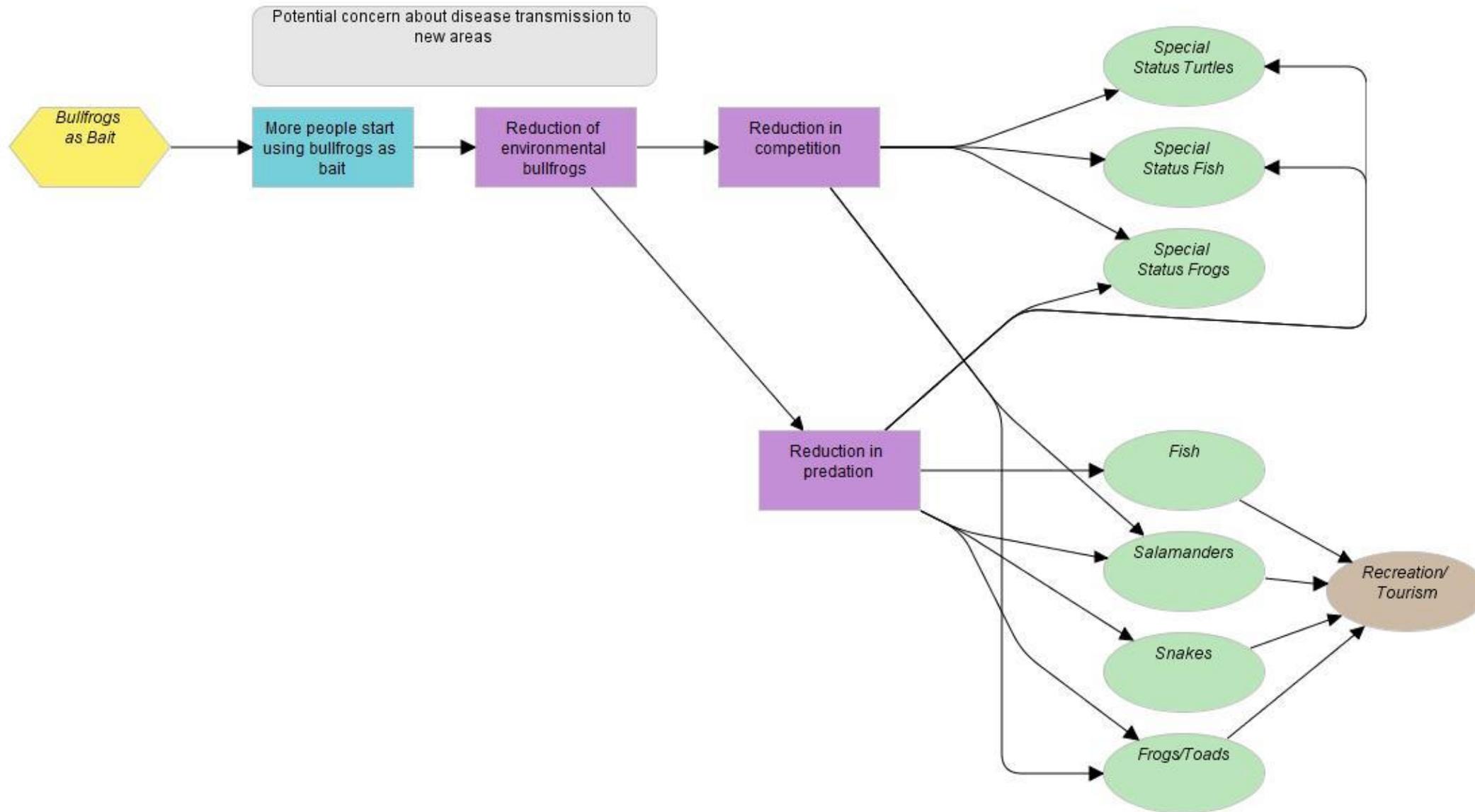
Results Chain: Ban frog jumping contests



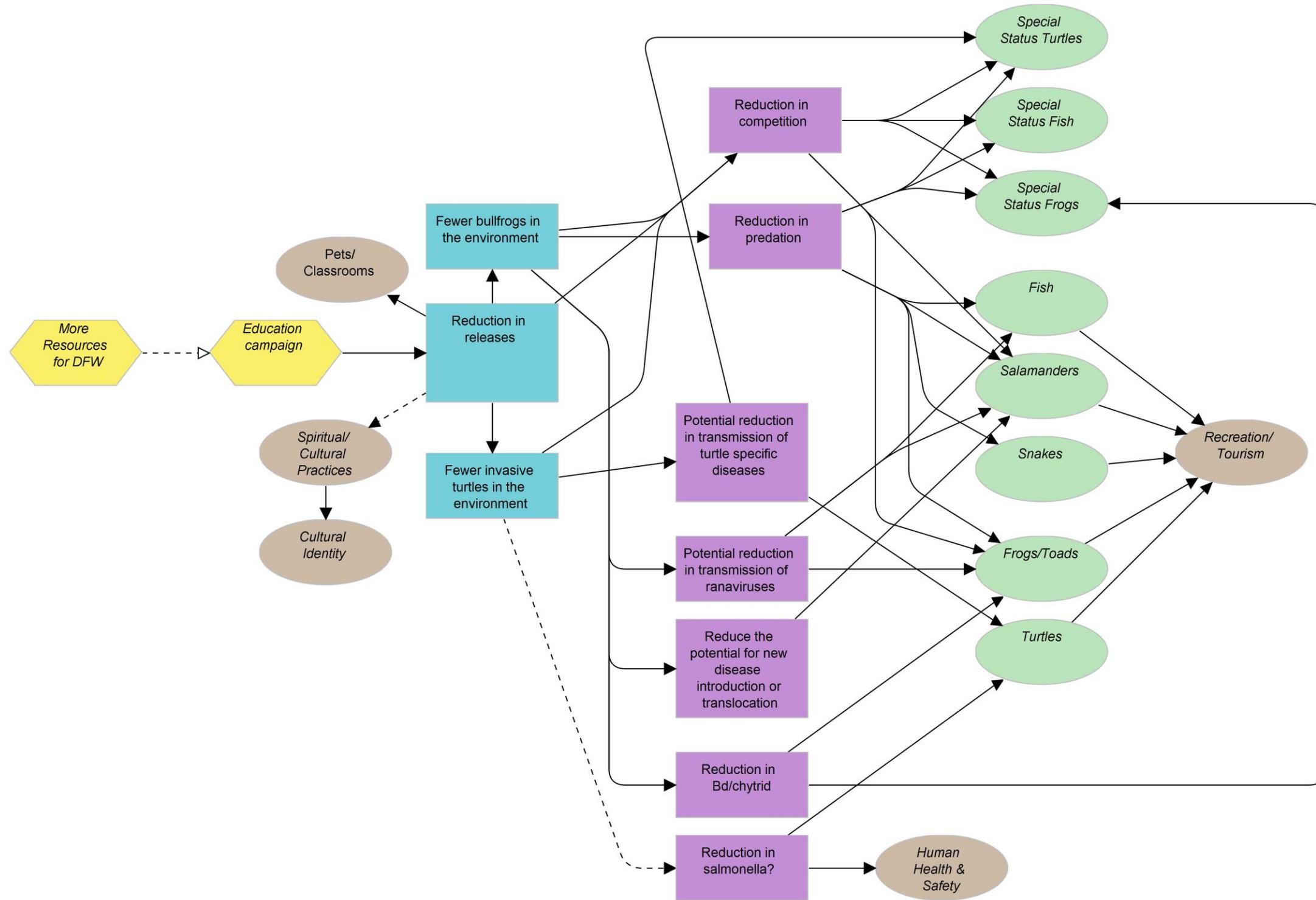
Results Chain: Localized eradication



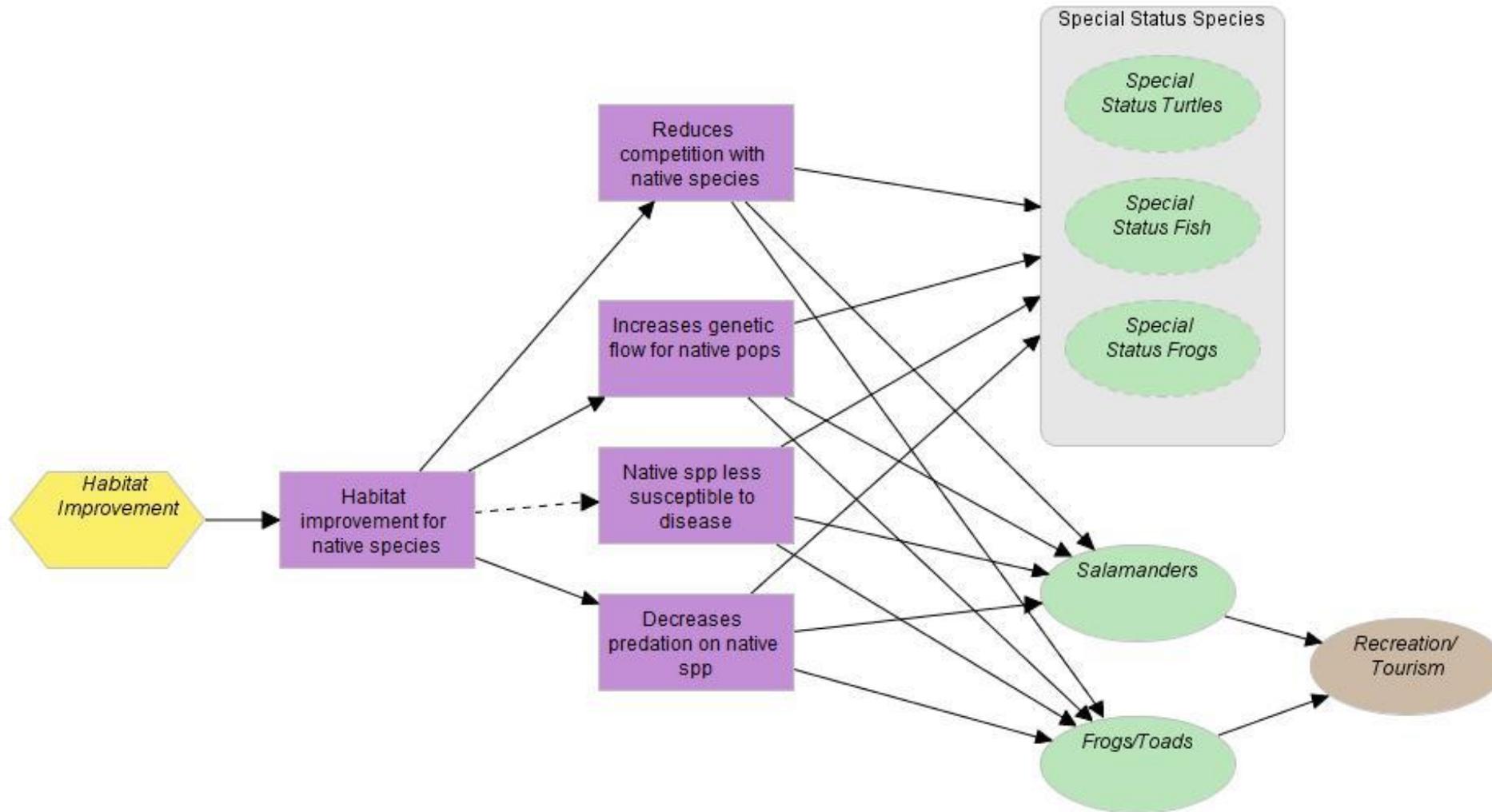
Results Chain: Bullfrogs as bait



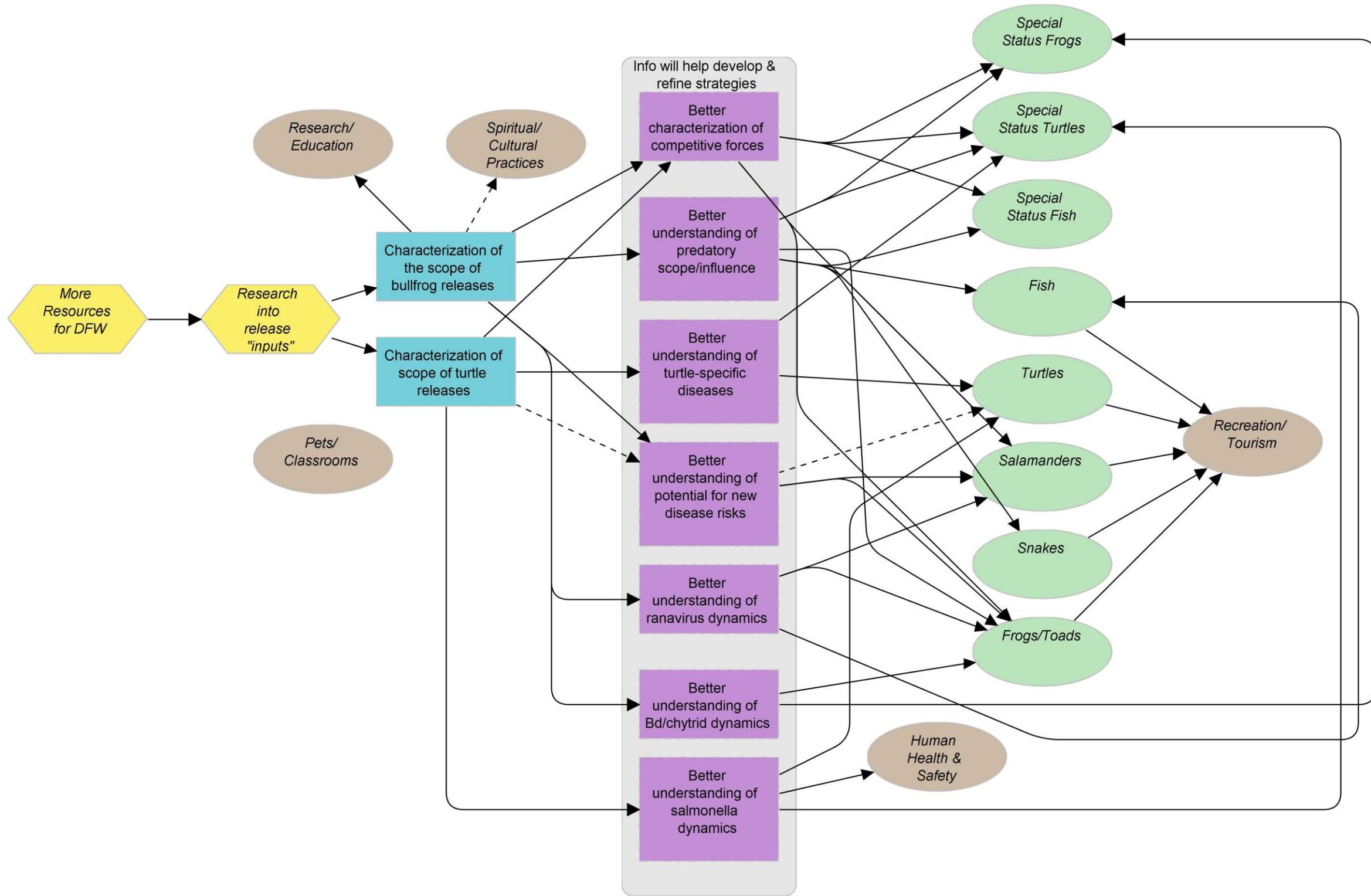
Results Chain: Education campaign



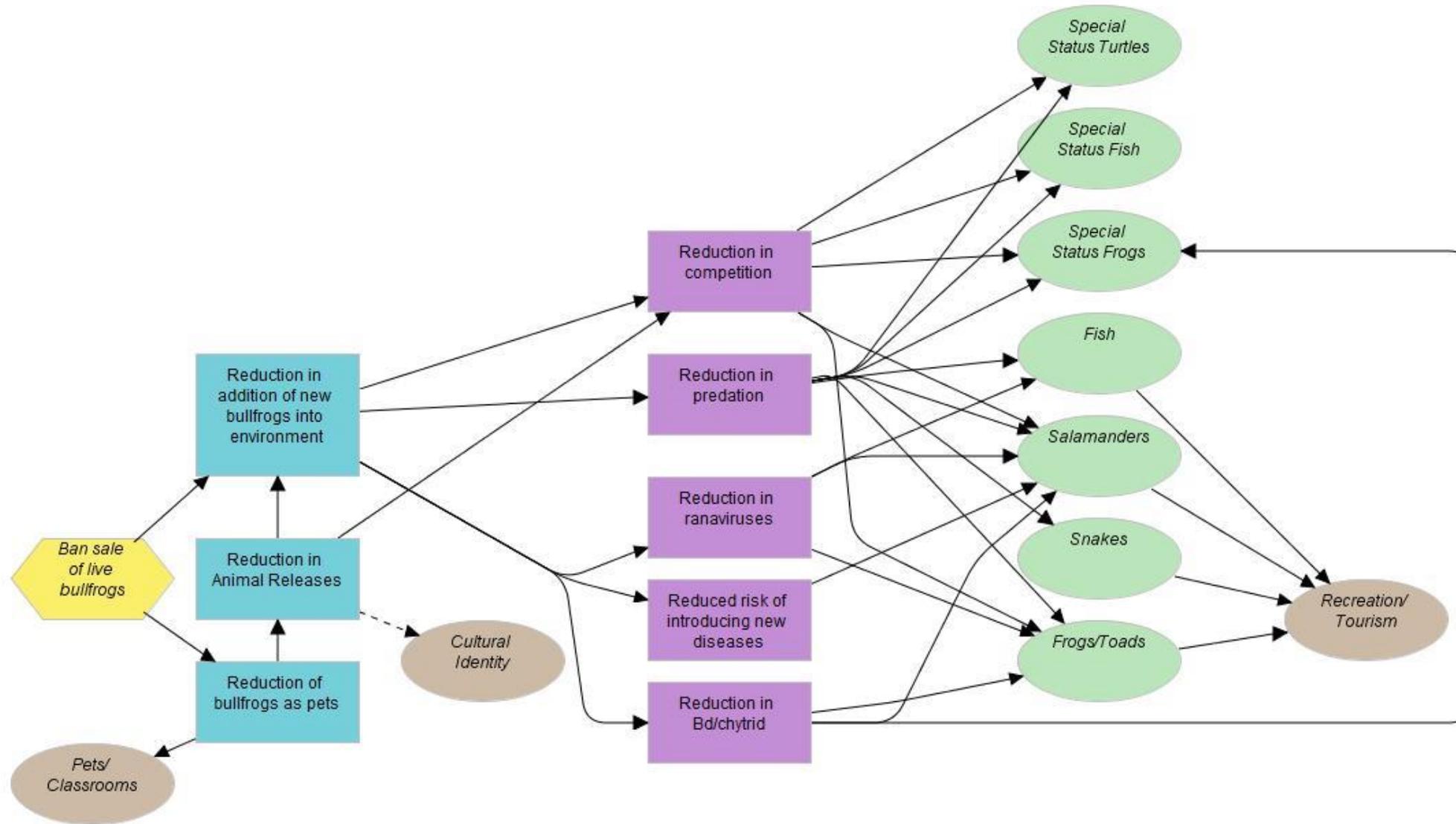
Results Chain: Habitat improvement



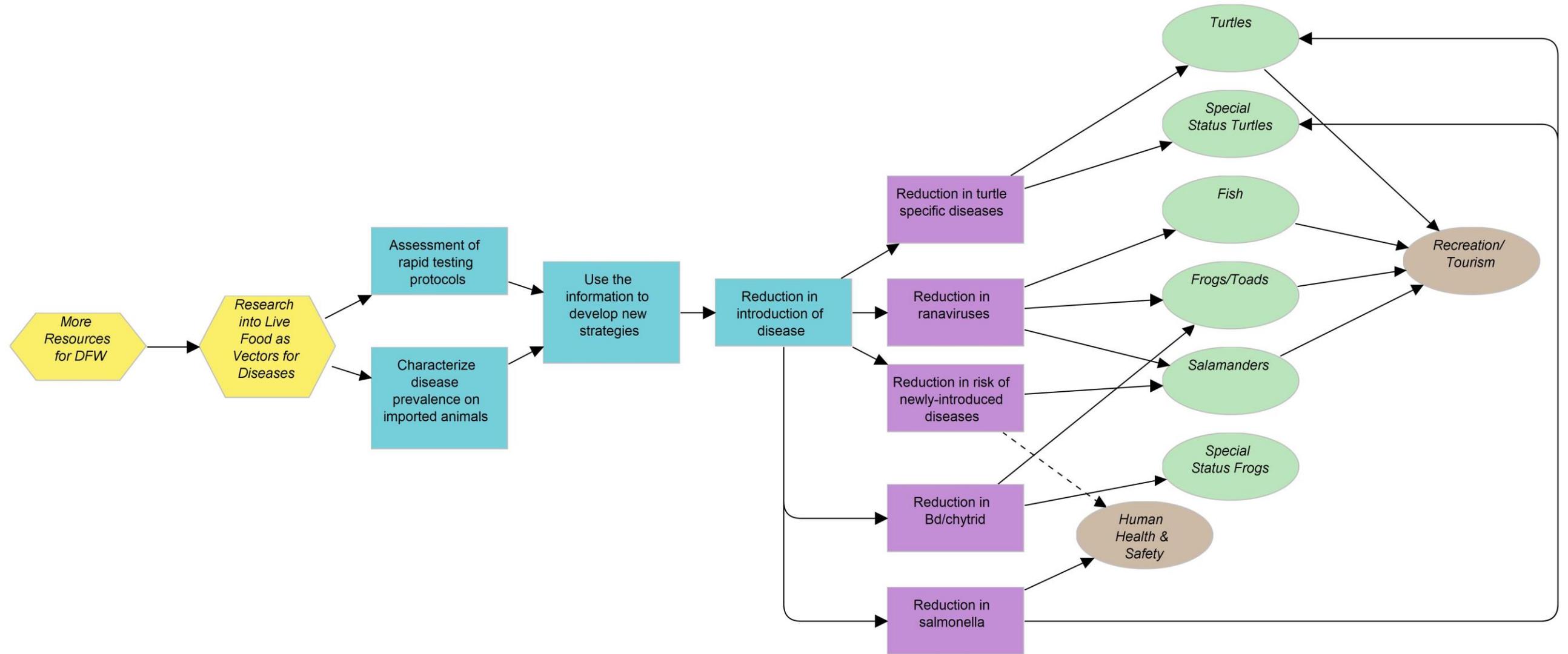
Results Chain: Research into release "inputs"



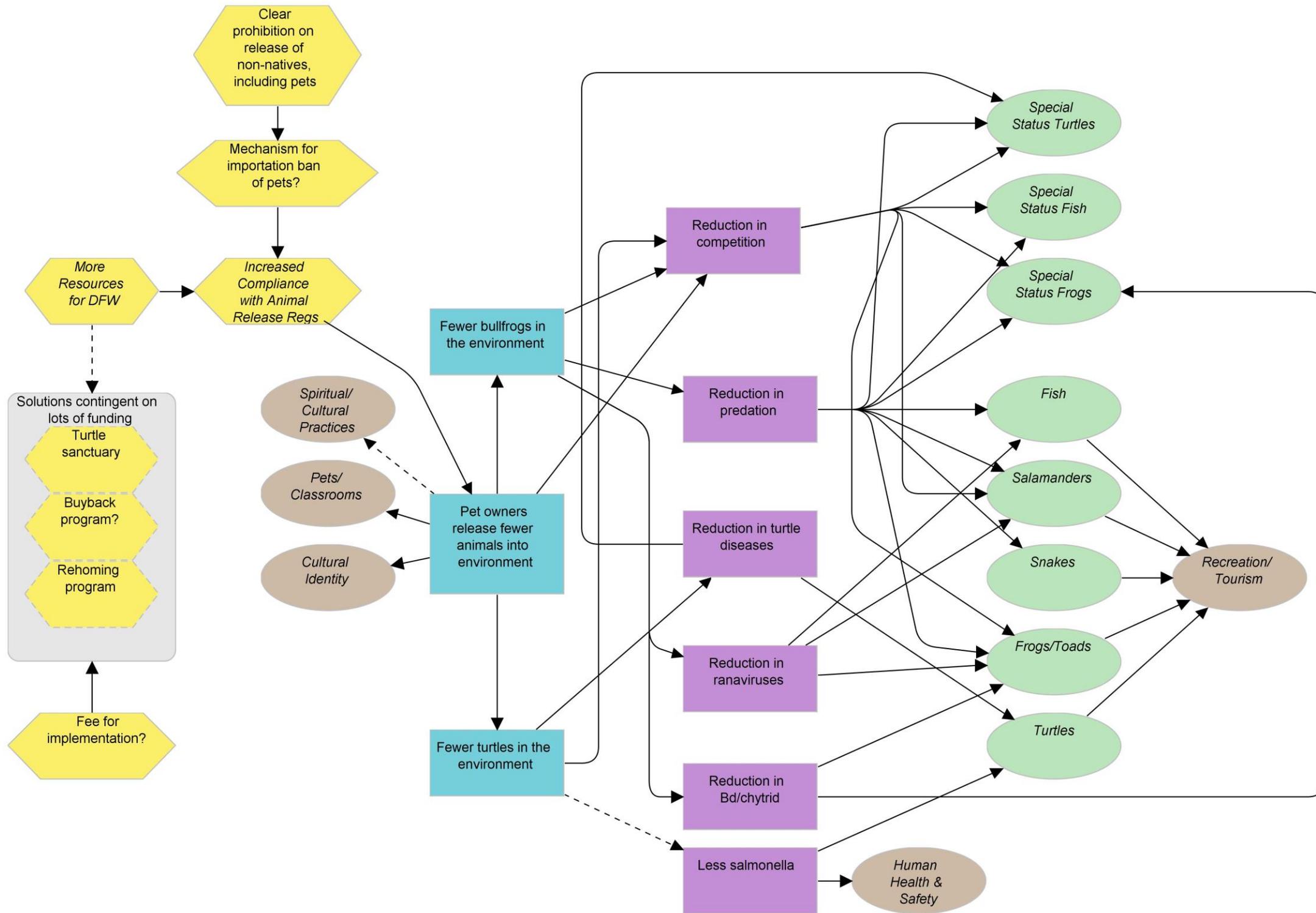
Results Chain: Ban sale of live bullfrogs



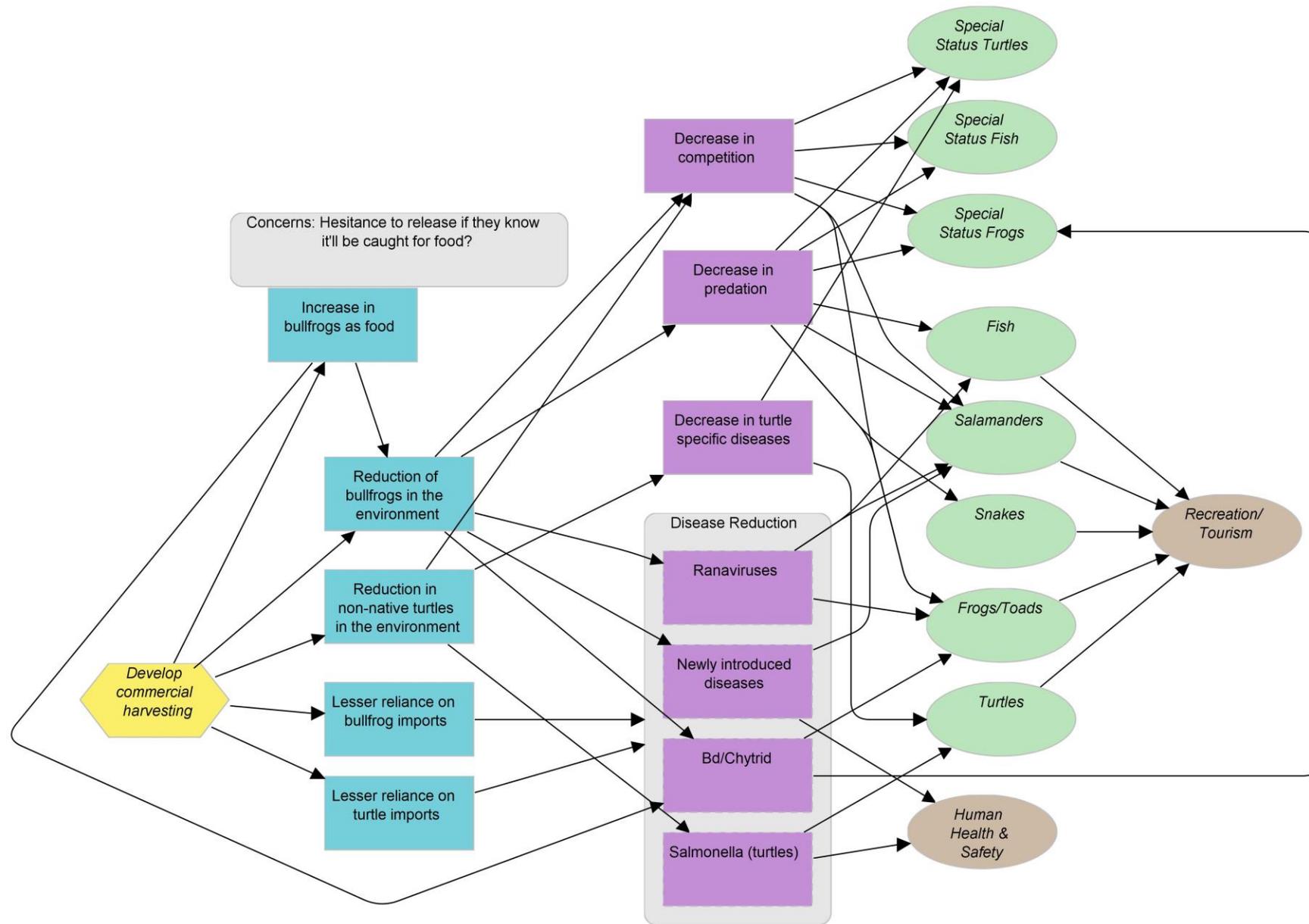
Results Chain: Research into live food as vectors for diseases



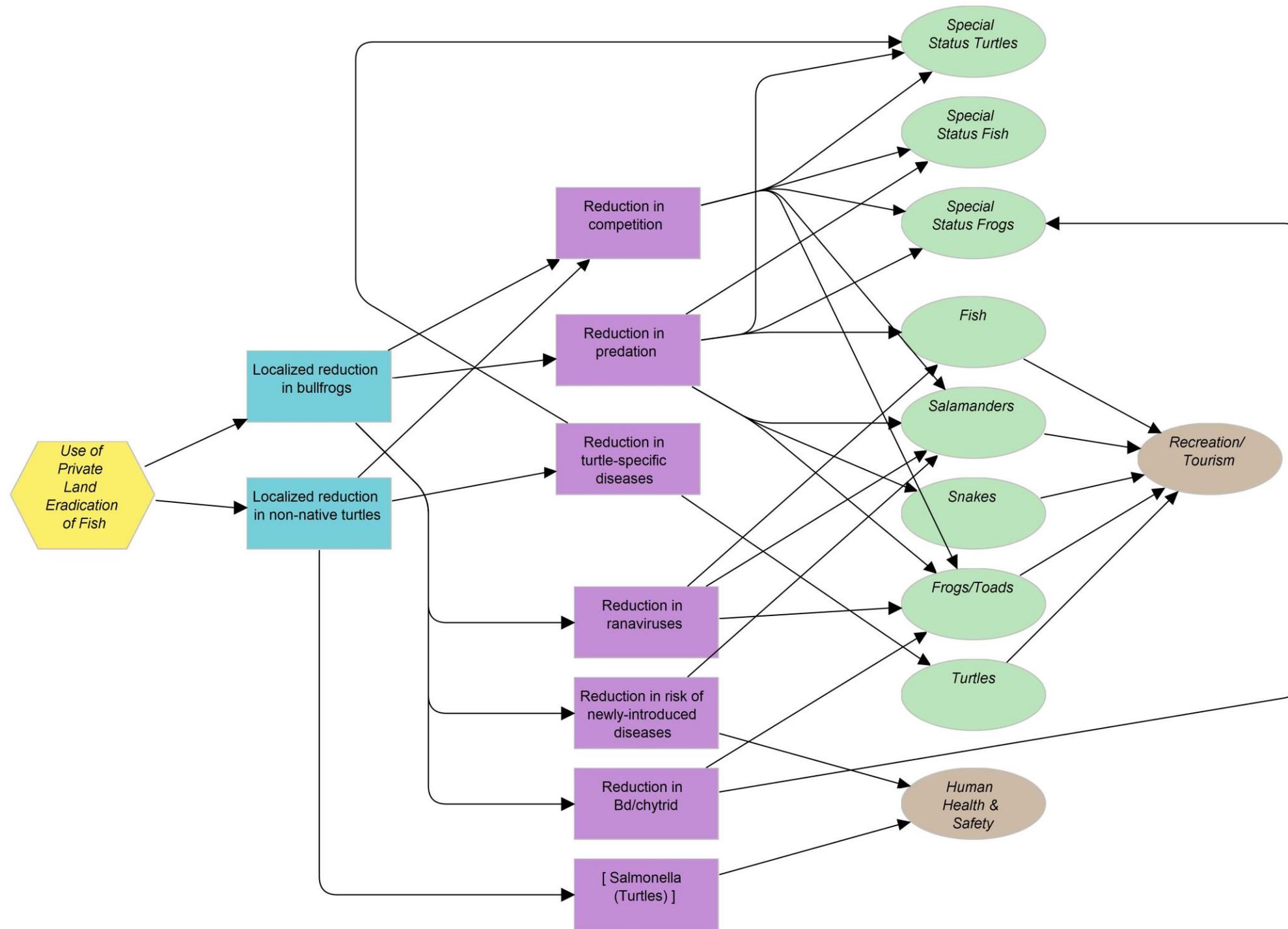
Results Chain: Increased compliance with animal release regulations



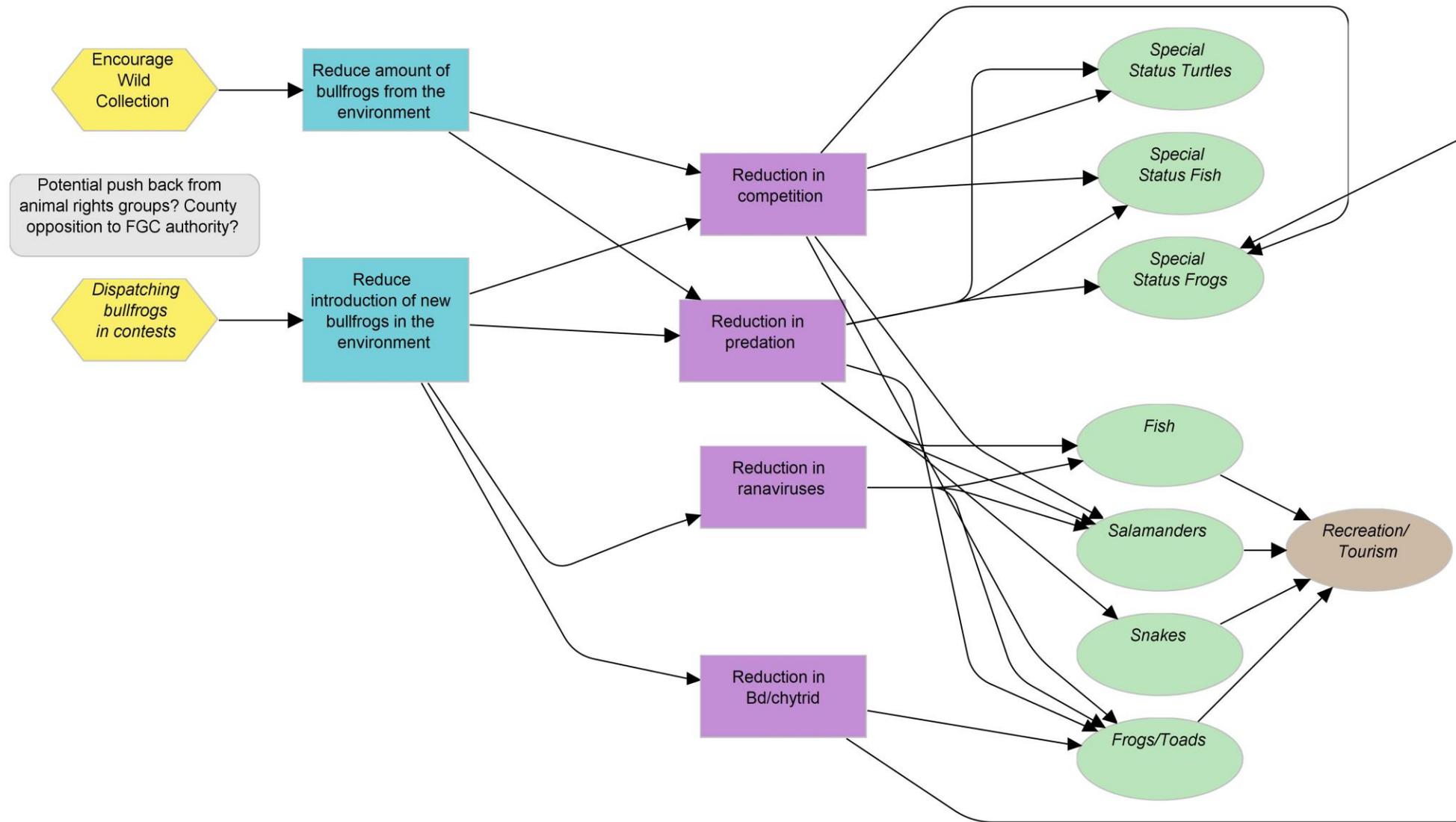
Results Chain: Develop commercial harvesting



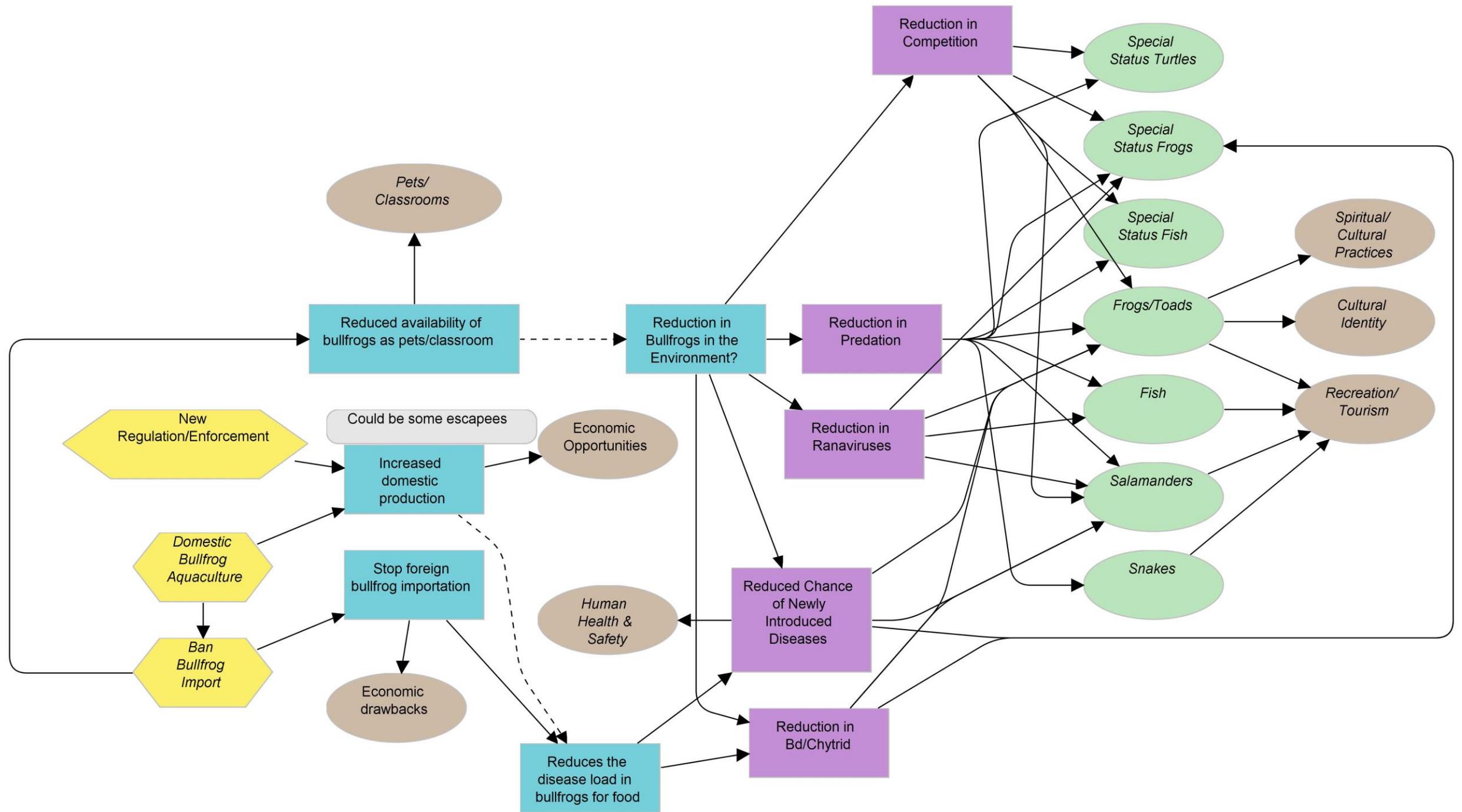
Results Chain: Use of private land eradication of fish



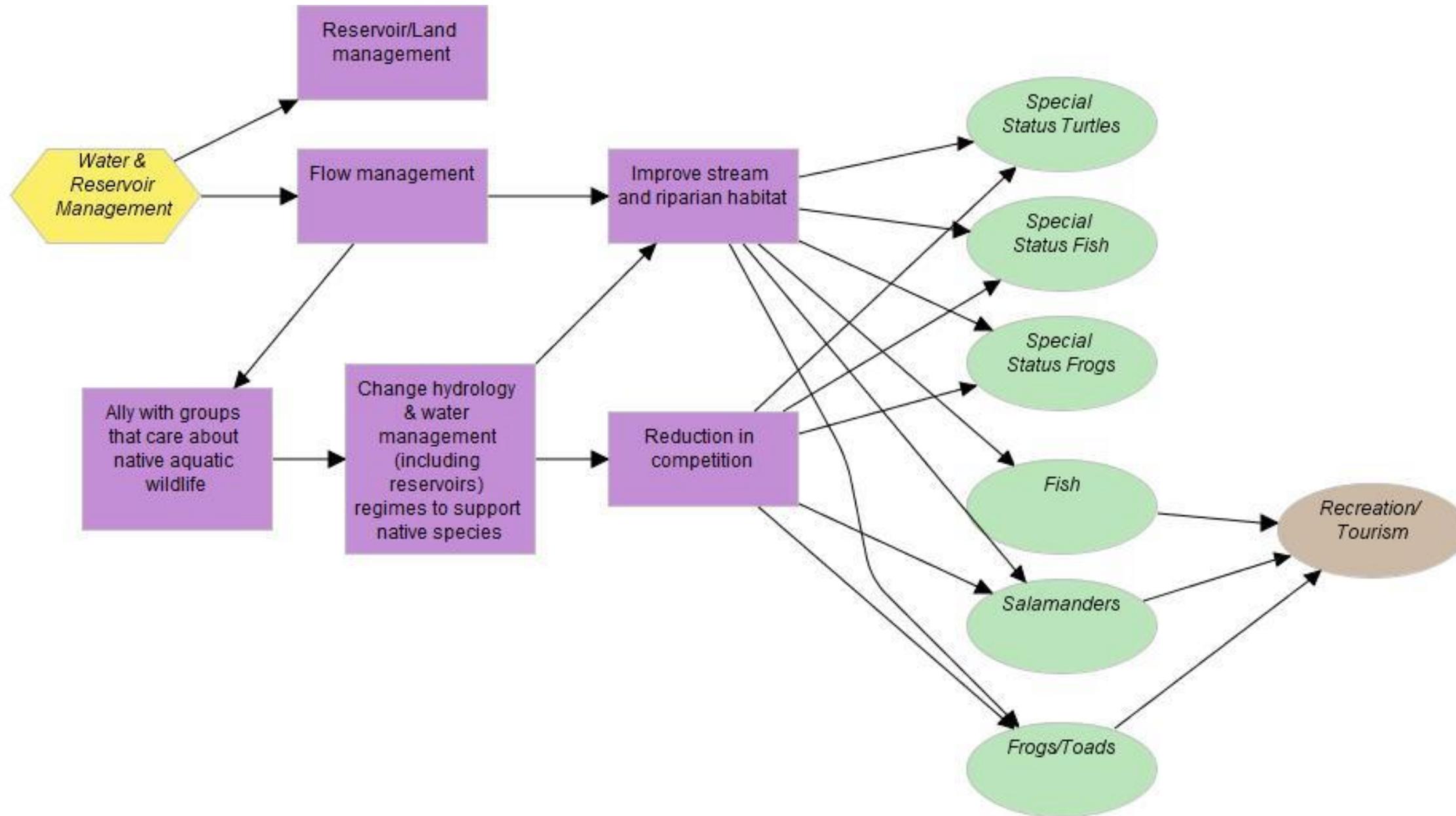
Results Chain: Jumping contest reforms



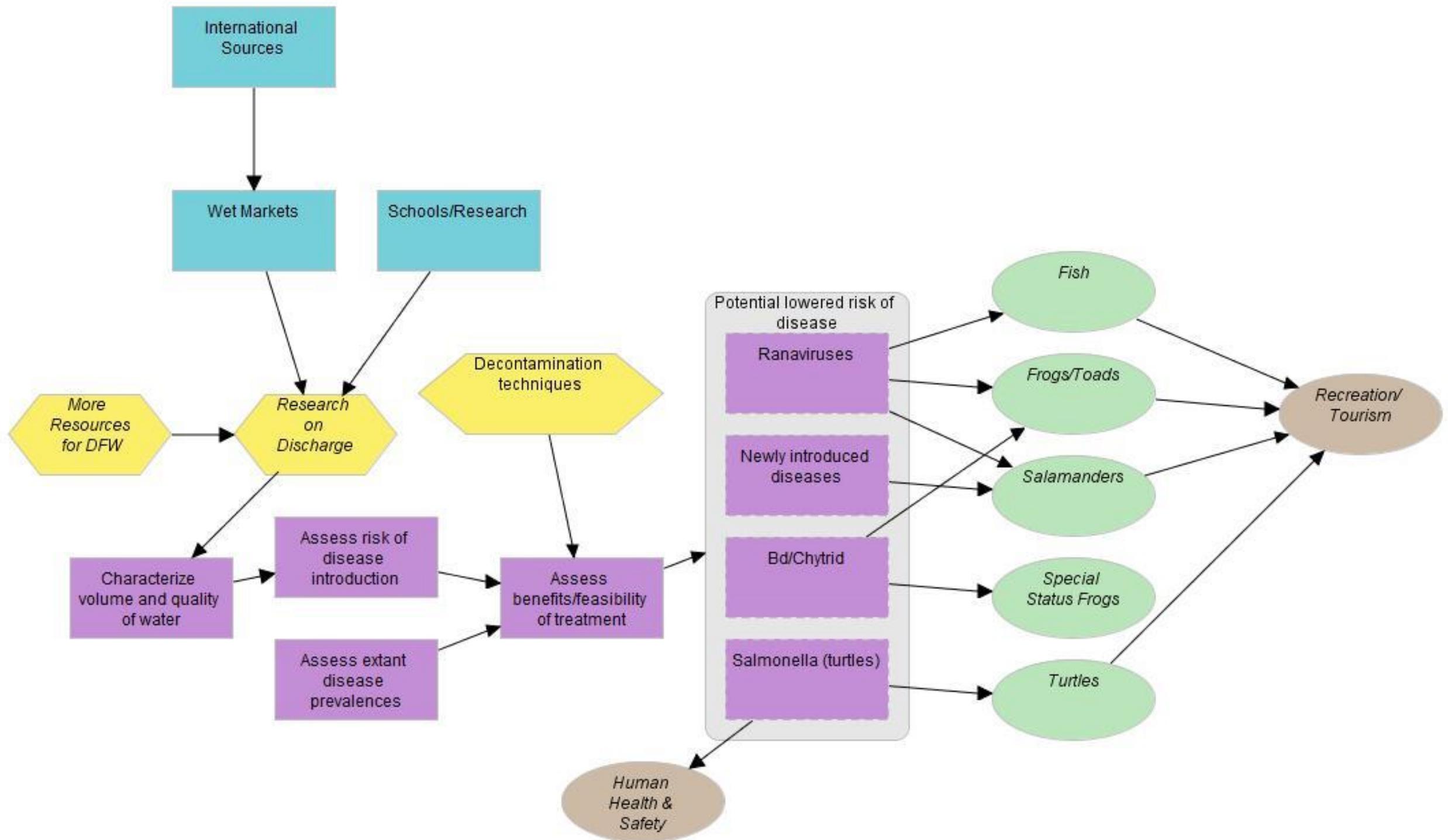
Results Chain: Ban bullfrog import



Results Chain: Water and reservoir management



Results Chain: Research on wastewater discharge



Agencies Notes

<ul style="list-style-type: none"> ● Ban bullfrog import 	<ul style="list-style-type: none"> ● Ban from anywhere outside California ● Novel pathogens may not be detectable, even from other states ● Other states may receive international imports
<ul style="list-style-type: none"> ● Domestic bullfrog aquaculture 	<ul style="list-style-type: none"> ● Probably unlikely to catch on unless an import ban is implemented ● Growers aren't pushing for import ban
<ul style="list-style-type: none"> ● Ban sale of live bullfrogs 	<ul style="list-style-type: none"> ● Possession would still be allowed ● Potentially ban of tadpoles and other avenues, not just live market ● Goal: Reduce the introduction of new bullfrogs in the environment ● Dead individuals/parts would be allowed ● Potential conflict with commercial harvest? ● Would likely need a specific carve out for frog jumping contests ● Potential switching to other species in the live markets ● Potential impacts to markets?
<ul style="list-style-type: none"> ● Bullfrogs as bait 	<ul style="list-style-type: none"> ● Encourage wild catch of bullfrogs and use them as bait ● Don't encourage a market of importation for bait ● Potentially ban sale of bullfrogs for bait but allow personal use
<ul style="list-style-type: none"> ● Develop commercial harvesting 	<ul style="list-style-type: none"> ● Economics & business model have to work out as a prerequisite ● Access to property also necessary ● Nexus with aquaculture? Creation of a permitting structure? Size limits to ensure accurate identification? Geographic or take limitations? ● See Title 14 226.7 -- bullfrogs would need to be added. T14 651, 658, 41.7; Also see Fish & Game Code 6850-6855CDFR regs -- ok to give pets to commercial harvesters for food? Possible way to reduce releases ● Permitting of harvesters? ● VERY CONTEXTUAL -- HIGHLY DEPENDENT ON OVERALL STRATEGIES DEPLOYED
<ul style="list-style-type: none"> ● Education campaign 	<ul style="list-style-type: none"> ● Audience: live markets, pet owners, educational facilities, religious purposes, aquaculture facilities ● Don't release animals into the environment ● Collection event -- "Free 2 hour boat rental to whoever collects the most" ● Educate people about the availability of bullfrog harvest? R3?
<ul style="list-style-type: none"> ● Habitat improvement 	<ul style="list-style-type: none"> ● Creating base habitat conditions that favor native species and disfavor bullfrogs ● Water temperature (ex. colder water), running water, reestablish food webs, elimination of barriers
<ul style="list-style-type: none"> ● Increased compliance with animal release regs 	<ul style="list-style-type: none"> ● Illegal importation ● Should leave the market dead ● Release of wildlife ● Important role for local ordinances ● Probably mostly an education/outreach initiative, less an enforcement issue ● Signage, employee training at pet store
<ul style="list-style-type: none"> ● Mechanism for importation ban of pets? 	<ul style="list-style-type: none"> ● Require pet industry to PIT tag?
<ul style="list-style-type: none"> ● Turtle sanctuary 	<ul style="list-style-type: none"> ● For pet owners that don't want their pets anymore
<ul style="list-style-type: none"> ● Dispatching bullfrogs in contests 	<ul style="list-style-type: none"> ● Kill any bullfrogs that contestants don't want to keep (driven by animal rights groups) ● See F&GC Sec 6855 -- permit needed?
<ul style="list-style-type: none"> ● Encourage wild collection 	<ul style="list-style-type: none"> ● Turn the bullfrog competition into an amphibian conservation event
<ul style="list-style-type: none"> ● Commission authority to regulate contests 	<ul style="list-style-type: none"> ● Fish and Game Code addition
<ul style="list-style-type: none"> ● Jumping contests 	<ul style="list-style-type: none"> ● Dispatching of frogs ● Encouraging wild collection ● Working with permit holders? Outreach to event holders?
<ul style="list-style-type: none"> ● Research into release "inputs" 	<ul style="list-style-type: none"> ● What is the release rate of animals from live markets?

	<ul style="list-style-type: none"> • How many pets are released into the wild? • Are new influxes of diseased individuals additive to those already in the population?
🟡 Decontamination techniques	<ul style="list-style-type: none"> • Treatment with bleach/antifungal agent
🟡 Research on discharge	<ul style="list-style-type: none"> • Discharge: Any water that comes into contact with animals
🟡 Use of private land eradication of fish	<ul style="list-style-type: none"> • Turtles are not fish -- would need to be updated to include them • Take methods might need to be reexamined: Add gigging • Form: Fish & Game 5501 (T14 226.5, 226.7), form Fish & Game 793 • Also see Fish & Game Code 6850-6855; use 6855 as a general authority • Doesn't necessarily have to be limited to private lands
🟠 Frog jumping contests	<ul style="list-style-type: none"> • Sourcing bullfrogs from biological supply houses?
🟠 Bullfrogs as pets	<ul style="list-style-type: none"> • Probably a negligible issue
🟠 Online sales	<ul style="list-style-type: none"> • Education loophole?
🟠 Importation of non-native frogs	<ul style="list-style-type: none"> • <i>Xenopus sp.</i> (African clawed frog), cane toads
🟠 Turtles in the environment	<ul style="list-style-type: none"> • Red-eared sliders, painted turtles, map turtles, snapping turtles (common and alligator), softshell turtles
🟠 Turtle specific diseases	<ul style="list-style-type: none"> • Western pond turtle, among others • Turtle shell diseases • Upper respiratory diseases
➔ Bullfrogs in the environment to habitat fragmentation	<ul style="list-style-type: none"> • Aquatic footprint contracts increases contact between bullfrogs & native spp.
➔ Animal releases to competition	<ul style="list-style-type: none"> • Religious releases are uncertain
➔ Competition to frogs/toads	<ul style="list-style-type: none"> • Foothill yellow-legged frog, mountain yellow-legged frog, etc.
➔ Animal releases to cultural identity	<ul style="list-style-type: none"> • Religious animal releases
🟢 Reduced availability of bullfrogs as pets/classroom	<ul style="list-style-type: none"> • This is minor
🟢 Stops new introductions	<ul style="list-style-type: none"> • Minimizes relocation of bullfrogs, preventing redistribution
🟡 Recreation/ Tourism	<ul style="list-style-type: none"> • Banning contests could have negative economic effects
🟢 Reduction of bullfrogs as pets	<ul style="list-style-type: none"> • Reduction of bullfrogs as pets -- self-collection from the wild is the only pathway (same as OR) • Scientific collecting permit would be needed for classroom use: Title 14 Section 658. Commercial Take of Bullfrogs for sale to scientific or education institutions • New permit for classrooms would likely take Code modification
🟢 Reduction in Animal Releases	<ul style="list-style-type: none"> • Live market escapees • Classroom releases
🟡 Reduced risk of introducing new diseases	<ul style="list-style-type: none"> • High impact to this threat
🟢 More people start using bullfrogs as bait	<ul style="list-style-type: none"> • Effectiveness is dependent on the level of implementation/adoption • Potential side benefit of awareness
🟢 Reduction in releases	<ul style="list-style-type: none"> • from live markets, pet owners, educational facilities, religious purposes, aquaculture facilities
🟢 Assessment of rapid testing protocols	<ul style="list-style-type: none"> • APHIS?
🟡 Reservoir/Land management	<ul style="list-style-type: none"> • Muni code prohibiting sale • No bait, cooler inspections, signage
🟡 Flow management	<ul style="list-style-type: none"> • Interrupt the larval phase • More natural hydrography downstream, create sedimentation and hydrology/hydrography conducive to native species • Large scouring flow can recreate gravel bars, remove riparian vegetation,

	push bullfrog tadpoles away, increase complexity and decrease channelization, flow dehomogenization
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Threat Rating Details

Participants rated each threat-target pair as high, medium, or low in scope, severity, and irreversibility.

Scope - Most commonly defined spatially as the proportion of the target that can reasonably be expected to be affected by the threat within ten years given the continuation of current circumstances and trends. For ecosystems and ecological communities, measured as the proportion of the target's occurrence. For species, measured as the proportion of the target's population.

- **Very High:** The threat is likely to be pervasive in its scope, affecting the target across all or most (71-100%) of its occurrence/population.
- **High:** The threat is likely to be widespread in its scope, affecting the target across much (31-70%) of its occurrence/population.
- **Medium:** The threat is likely to be restricted in its scope, affecting the target across some (11-30%) of its occurrence/population.
- **Low:** The threat is likely to be very narrow in its scope, affecting the target across a small proportion (1-10%) of its occurrence/population.

Severity - Within the scope, the level of damage to the target from the threat that can reasonably be expected given the continuation of current circumstances and trends. For ecosystems and ecological communities, typically measured as the degree of destruction or degradation of the target within the scope. For species, usually measured as the degree of reduction of the target population within the scope.

- **Very High:** Within the scope, the threat is likely to destroy or eliminate the target, or reduce its population by 71-100% within ten years or three generations.
- **High:** Within the scope, the threat is likely to seriously degrade/reduce the target or reduce its population by 31-70% within ten years or three generations.
- **Medium:** Within the scope, the threat is likely to moderately degrade/reduce the target or reduce its population by 11-30% within ten years or three generations.
- **Low:** Within the scope, the threat is likely to only slightly degrade/reduce the target or reduce its population by 1-10% within ten years or three generations.

Irreversibility (Permanence) - The degree to which the effects of a threat can be reversed and the target affected by the threat restored.

- **Very High:** The effects of the threat cannot be reversed and it is very unlikely the target can be restored, and/or it would take more than 100 years to achieve this (e.g., wetlands converted to a shopping center).
- **High:** The effects of the threat can technically be reversed and the target restored, but it is not practically affordable and/or it would take 21-100 years to achieve this (e.g., wetland converted to agriculture).
- **Medium:** The effects of the threat can be reversed and the target restored with a reasonable commitment of resources and/or within 6-20 years (e.g., ditching and draining of wetland).
- **Low:** The effects of the threat are easily reversible and the target can be easily restored at a relatively low cost and/or within 0-5 years (e.g., off-road vehicles trespassing in wetland).

Permanence applies to the *effects of the threat* on the target, not the threat itself. In other words, it is not a measure of how difficult it is to stop the threat, but rather to undo the stress caused by the threat on the target. It is important to note that the use of the permanence rating as specified is largely in respect to prioritizing potential threats. If a threat is looming that will cause irreversible damage, then it makes sense to try to address that threat. However, if the threat has already occurred and the irreversible damage has already taken place, then it may not make sense to prioritize that threat for action.

Threat Ratings

	Threats \ Targets	Special Status Frogs	Turtles	Fish	Salamanders	Biodiversity	Snakes	Frogs/Toads	Special Status Turtles	Special Status Fish	Summary Threat Rating
■	Bd/Chytrid	High			Low	Not Specified		High			High
■	Competition	High			Medium	Not Specified		High	Very High	Medium	High
■	Direct Predation on Species	High		Low	Medium	Not Specified	Low	Medium	Low	Low	Medium
■	Habitat Fragmentation	High		Low	Low	Not Specified		Low	High	Medium	High
■	Habitat Quality Issues	High			N/A	Not Specified		Low	High	Very High	High
■	Increased demand for water	Very High		High	Low	Not Specified		High	Very High	Very High	Very High
■	Newly Introduced Diseases (B. Sal)				Medium	Not Specified					Low
■	Ranaviruses			Medium	Not Specified	Not Specified		Very High			High
■	Salmonella (Turtles)										Not Specified
■	Turtle Specific Diseases		Medium			Not Specified			Medium		Medium
■	Wastewater	Not Specified		Not Specified	Low	Not Specified		Low			Low
	Summary Target Ratings:	Very High	Low	Medium	Medium	Not Specified	Low	Very High	Very High	Very High	Very High

Special Status Frogs

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	High	High	High	High	
Direct Predation on Species	High	Very High	High	High	
Habitat Quality Issues	High	High	High	High	
Competition	High	Very High	High	High	<ul style="list-style-type: none"> • Good habitat may help alleviate the severity
Bd/Chytrid	Very High	High	High	High	
Wastewater	Not Specified	Not Specified	Not Specified	Not Specified	
Increased demand for water	Very High	Very High	Very High	Very High	<ul style="list-style-type: none"> • Low flows & slower waters allow bullfrogs to flourish

Turtles

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Turtle Specific Diseases	Low	High	Very High	Medium	

Fish

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Medium	High	Low	<ul style="list-style-type: none"> • Could be some negative aspects to habitat connection, such as bullfrog expansion
Direct Predation on Species	Medium	Low	High	Low	<ul style="list-style-type: none"> • Questions about density, life stages, particular spp that bullfrogs are eating • Sticklebacks
Wastewater	Not Specified	Not Specified	Not Specified	Not Specified	
Increased demand for water	High	High	High	High	
Ranaviruses	Low	Medium	Very High	Medium	<ul style="list-style-type: none"> • Particularly bullfrogs as a vector

Salamanders

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Low	High	Low	
Direct Predation on Species	Medium	Medium	High	Medium	<ul style="list-style-type: none"> • Mostly predation on larvae
Habitat Quality Issues	Not Specified	Not Specified	Not Specified	Not Specified	
Competition	Medium	Medium	High	Medium	<ul style="list-style-type: none"> • Primarily aquatic

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
					<ul style="list-style-type: none"> Baseline is already degraded severely, so incremental damages may be underestimated
Bd/Chytrid	Low	Medium	High	Low	
Newly Introduced Diseases (B. Sal)	Low	Low	Very High	Medium	<ul style="list-style-type: none"> No documented cases in CA. US? High risk if introduced
Wastewater	Low	Low	Medium	Low	<ul style="list-style-type: none"> Wastewater to environment - unknown, could be concentrated in some areas Main concern is dumping untreated water down direct to water Unknown effectiveness of water treatment on diseases
Increased demand for water	Low	Very High	High	Low	<ul style="list-style-type: none"> Full years of incomplete breeding due to desiccation -- how much is due to water demand?
Ranaviruses	Low	Not Specified	Not Specified	Not Specified	

Snakes

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Direct Predation on Species	Low	Low	High	Low	

Frogs/Toads

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Low	Medium	High	Low	
Direct Predation on Species	High	Medium	High	Medium	
Habitat Quality Issues	Low	Medium	High	Low	
Competition	High	Very High	High	High	
Bd/Chytrid	High	High	High	High	<ul style="list-style-type: none"> Scope: Some pockets that may not have seen chytrid Severity: Depends on new introduction vs. old, some populations may not exist without intervention, treatable
Wastewater	Low	Low	Medium	Low	<ul style="list-style-type: none"> Wastewater to environment - unknown, could be concentrated in some areas Main concern is dumping untreated water down direct to water Unknown effectiveness of water treatment on diseases
Increased demand for water	High	High	High	High	
Ranaviruses	High	High	Very High	Very High	<ul style="list-style-type: none"> Unknown scope

Special Status Turtles

Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	High	High	High	High	
Direct Predation on Species	Low	Low	Low	Low	<ul style="list-style-type: none"> • Bullfrogs only • Questions about snapping turtles eating special status turtles
Habitat Quality Issues	High	High	High	High	
Competition	Very High	Very High	Medium	Very High	<ul style="list-style-type: none"> • Turtle-turtle competition is key
Turtle Specific Diseases	Low	High	Very High	Medium	
Increased demand for water	Very High	Very High	High	Very High	

Special Status Fish

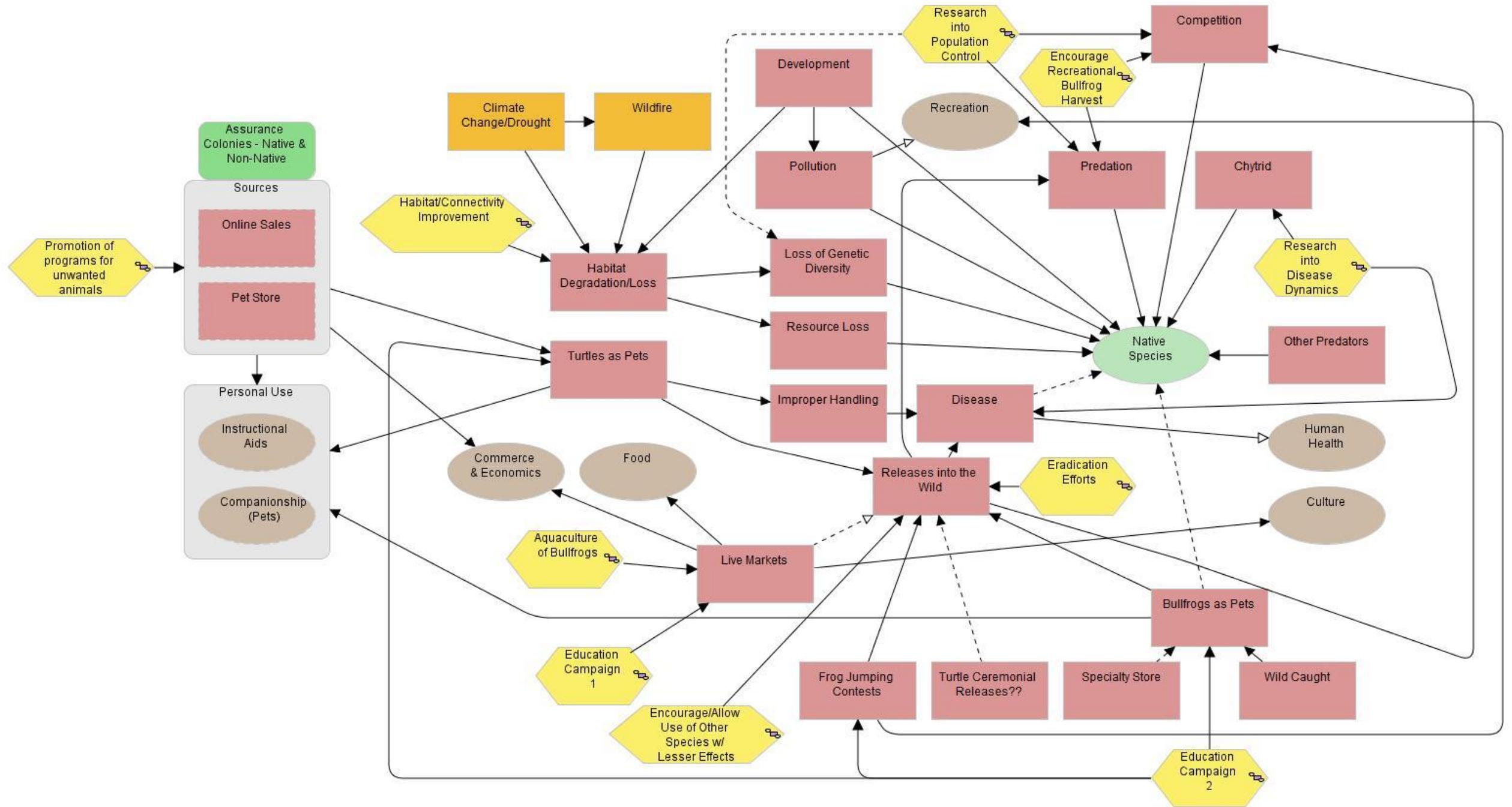
Threat	Scope	Severity	Irreversibility	Summary Threat Rating	Comments
Habitat Fragmentation	Medium	High	High	Medium	
Direct Predation on Species	Low	Medium	High	Low	
Habitat Quality Issues	Very High	Very High	High	Very High	
Competition	Medium	Medium	High	Medium	
Increased demand for water	Very High	Very High	Very High	Very High	

Industry Group Analysis

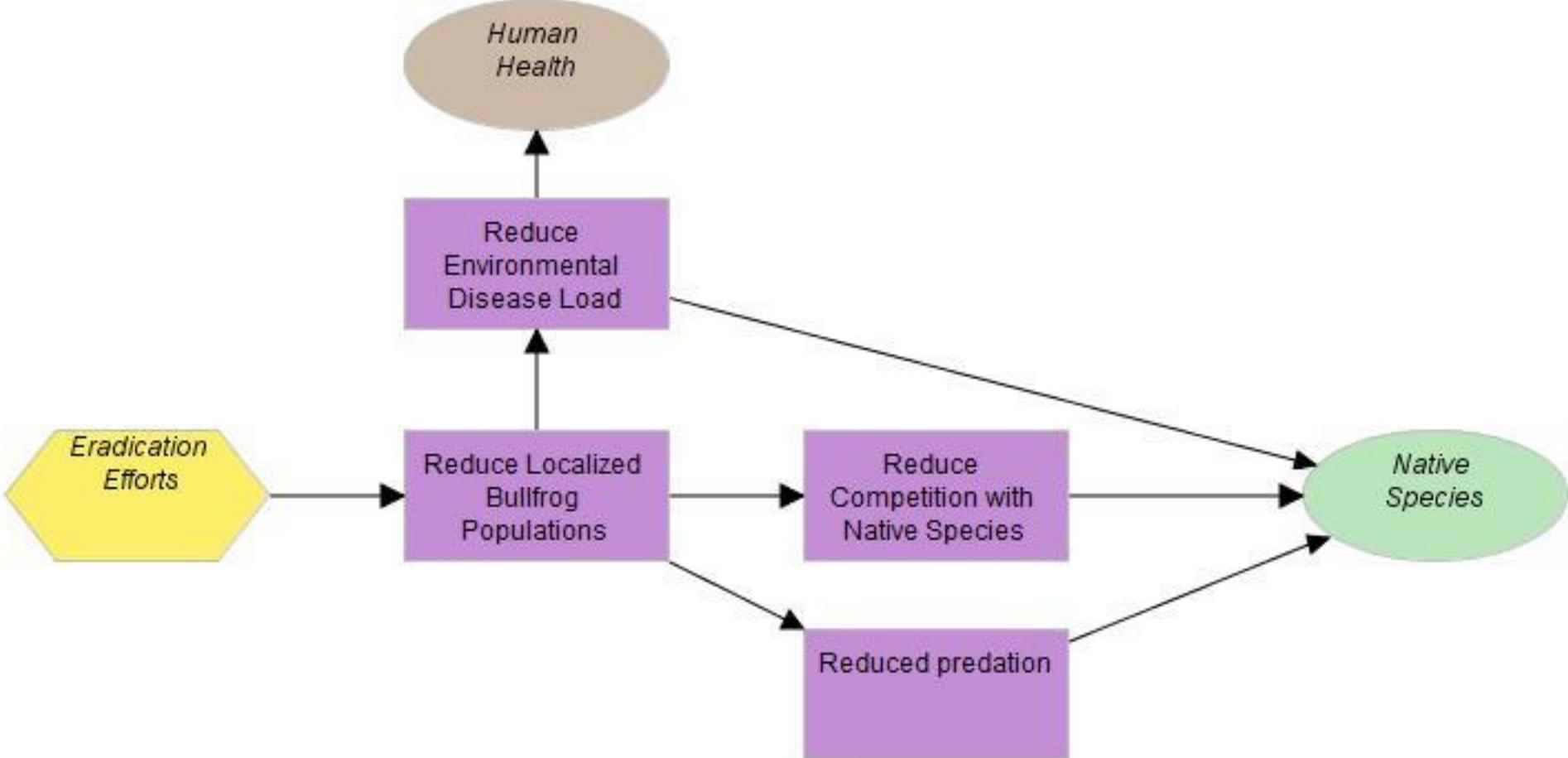
Scope and Vision

Scope/Site Name	California
Vision Statement Text	Our vision of California is one where conservation of native species coexists with access to culturally valuable animals for traditional foods, educational research, and companions, while promoting economic opportunity, recreation, consumer education, feasible management, and effective enforcement concerning harm to other species.
Comments	

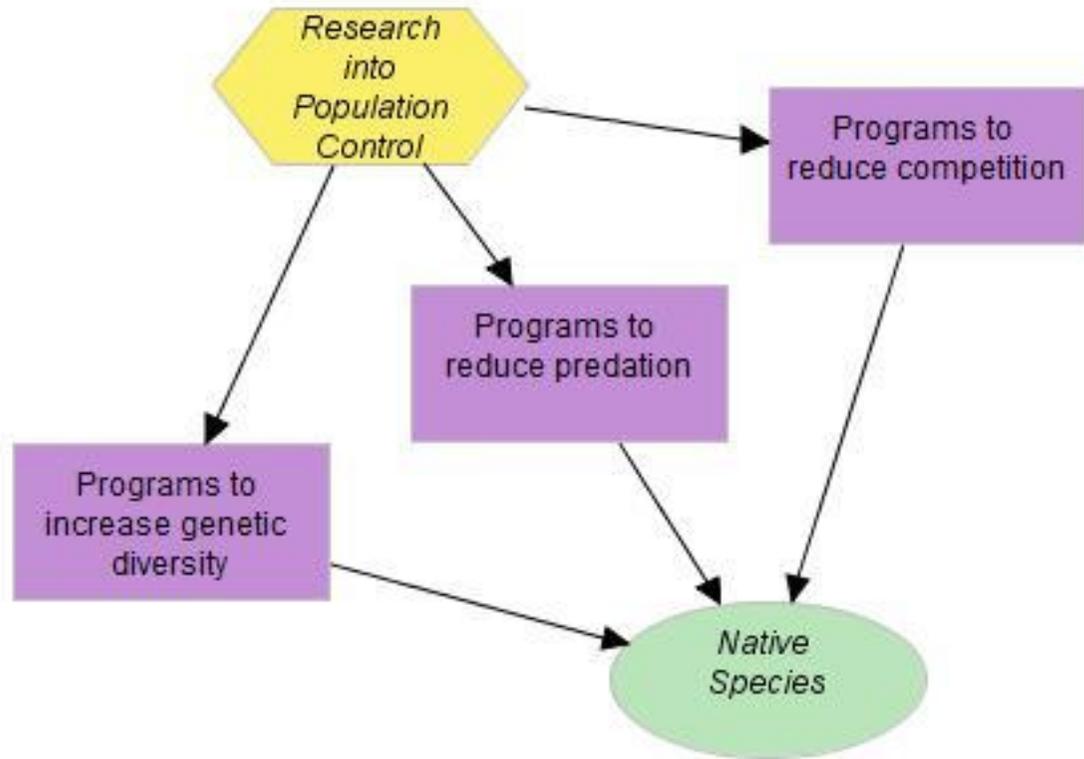
Main Diagram



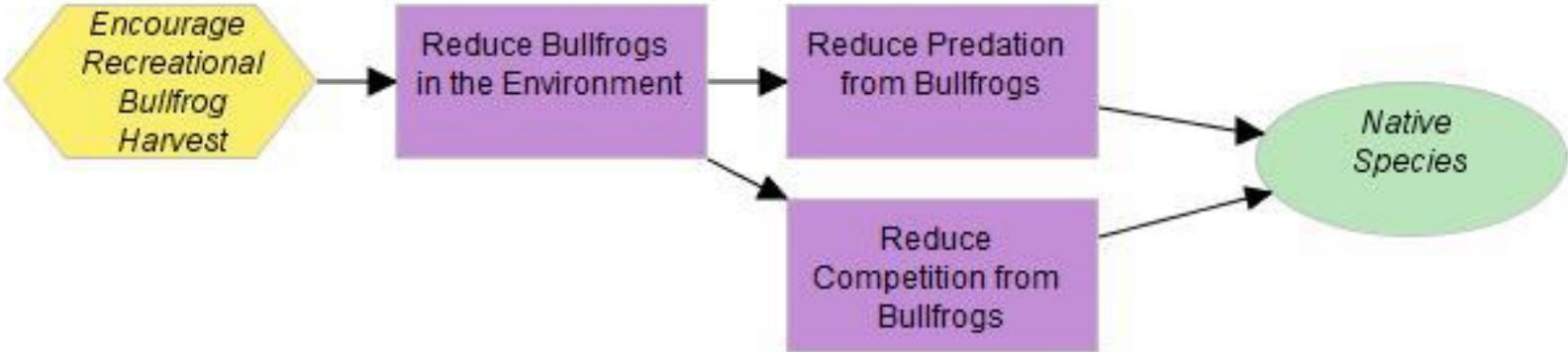
Results Chain: Eradication efforts



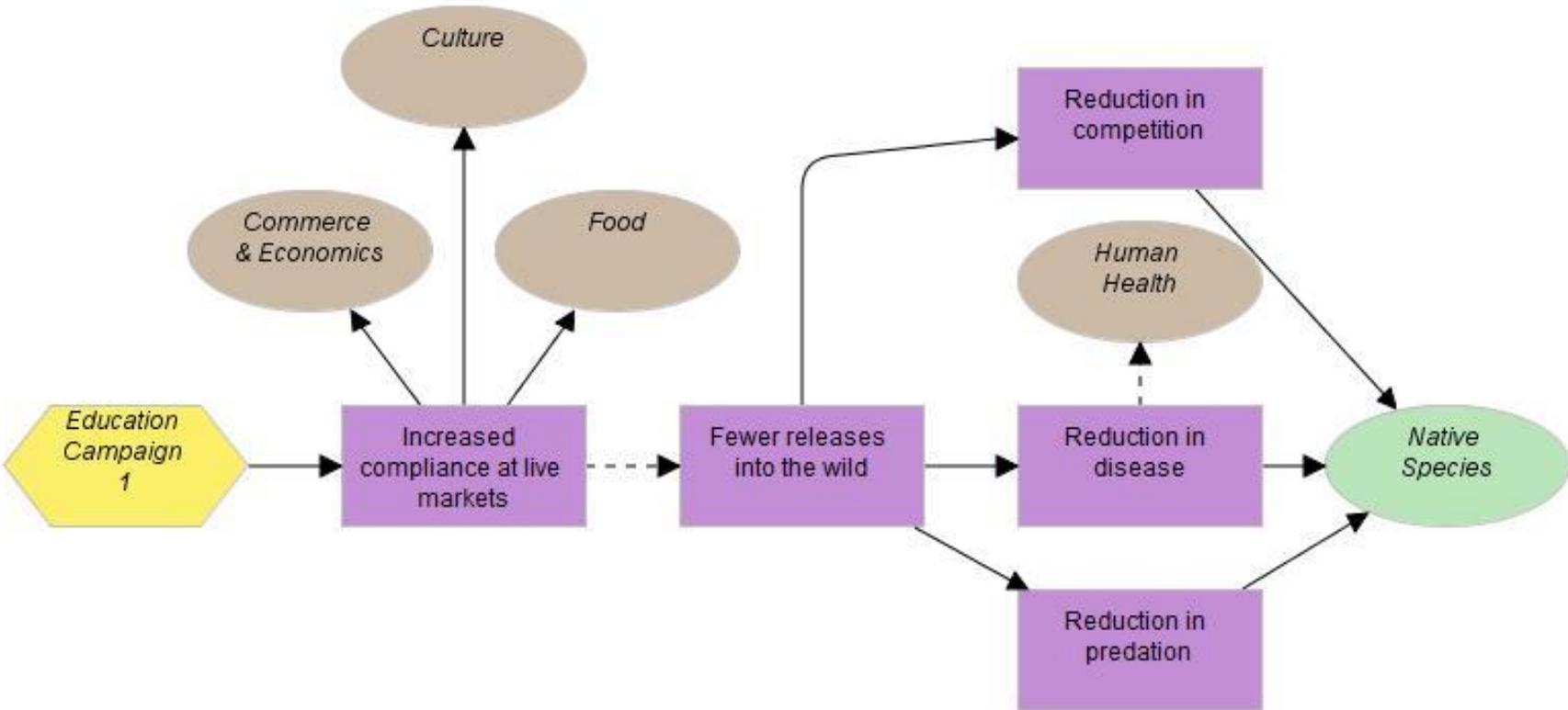
Results Chain: Research into population control techniques



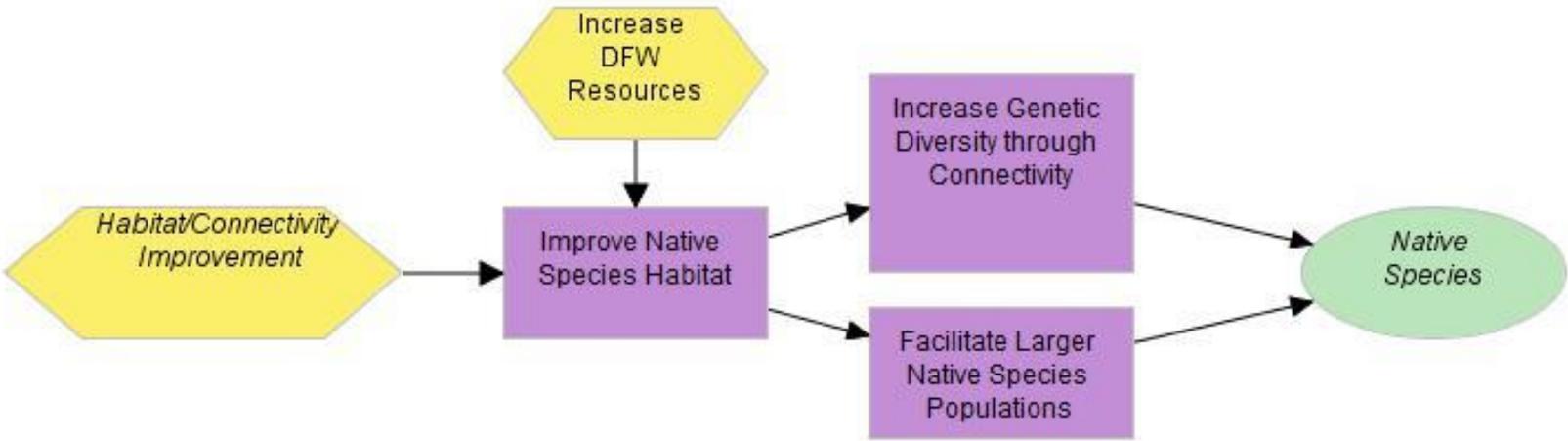
Results Chain: Encourage recreational bullfrog harvest



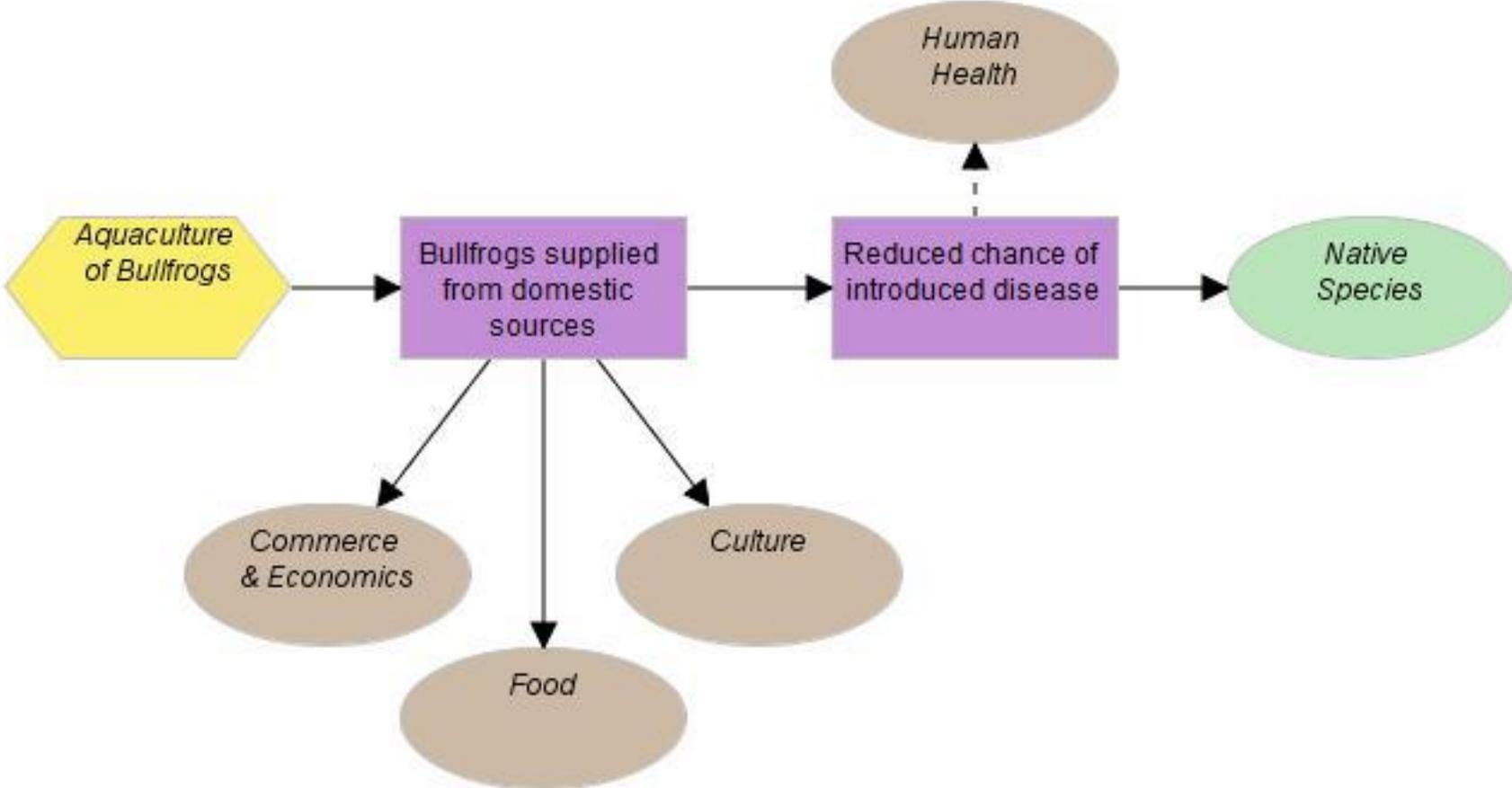
Results Chain: Education campaign 1



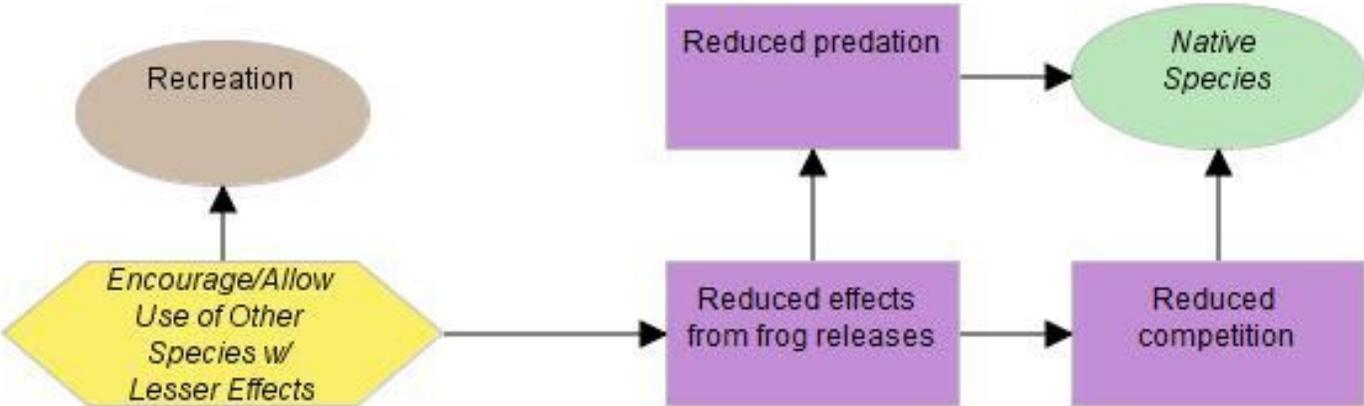
Results Chain: Habitat/connectivity improvement



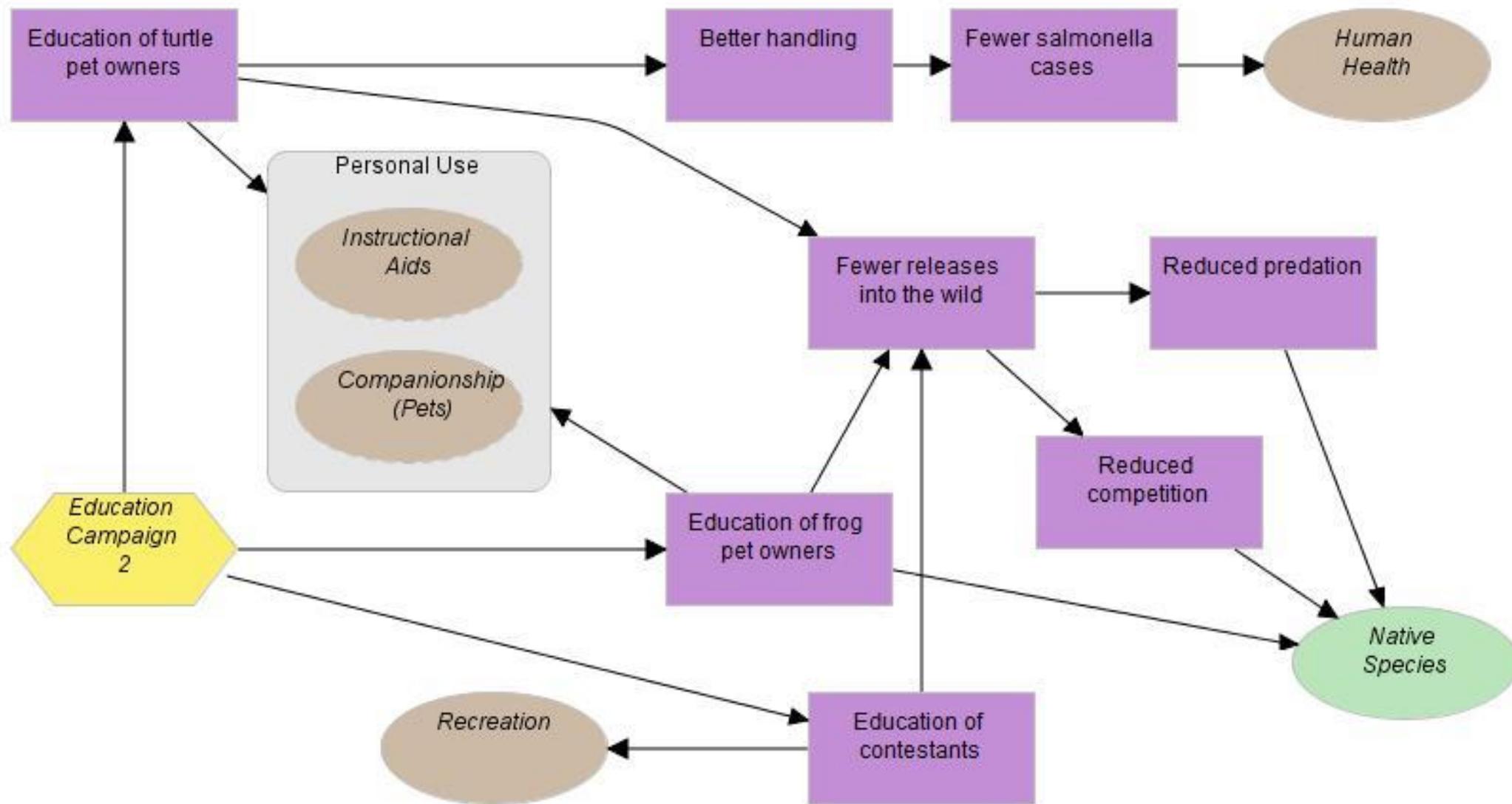
Results Chain: Aquaculture of bullfrogs



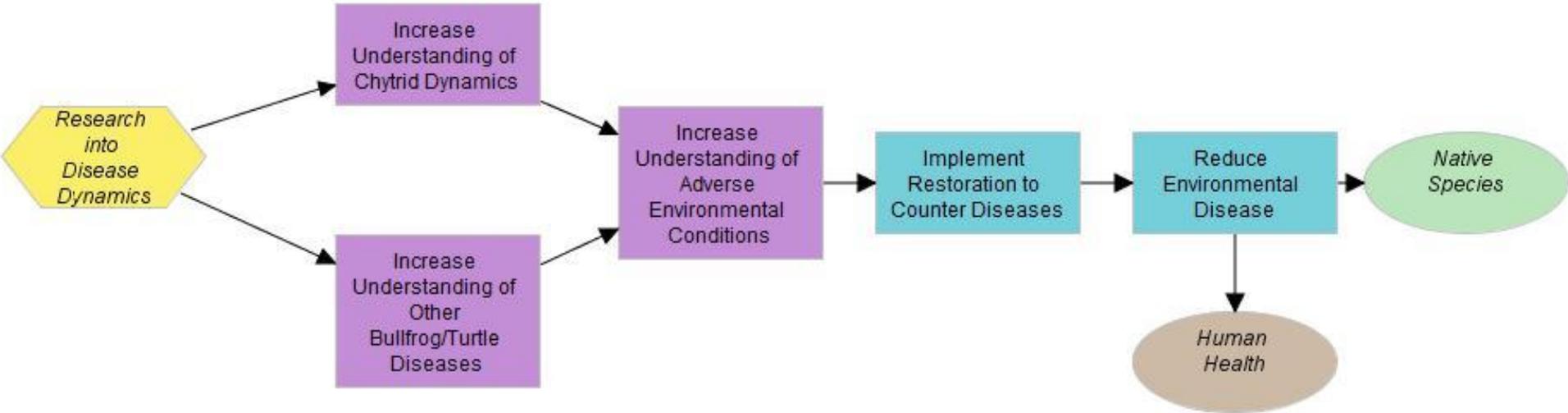
Results Chain: Encourage/allow use of other species w/ lesser effects



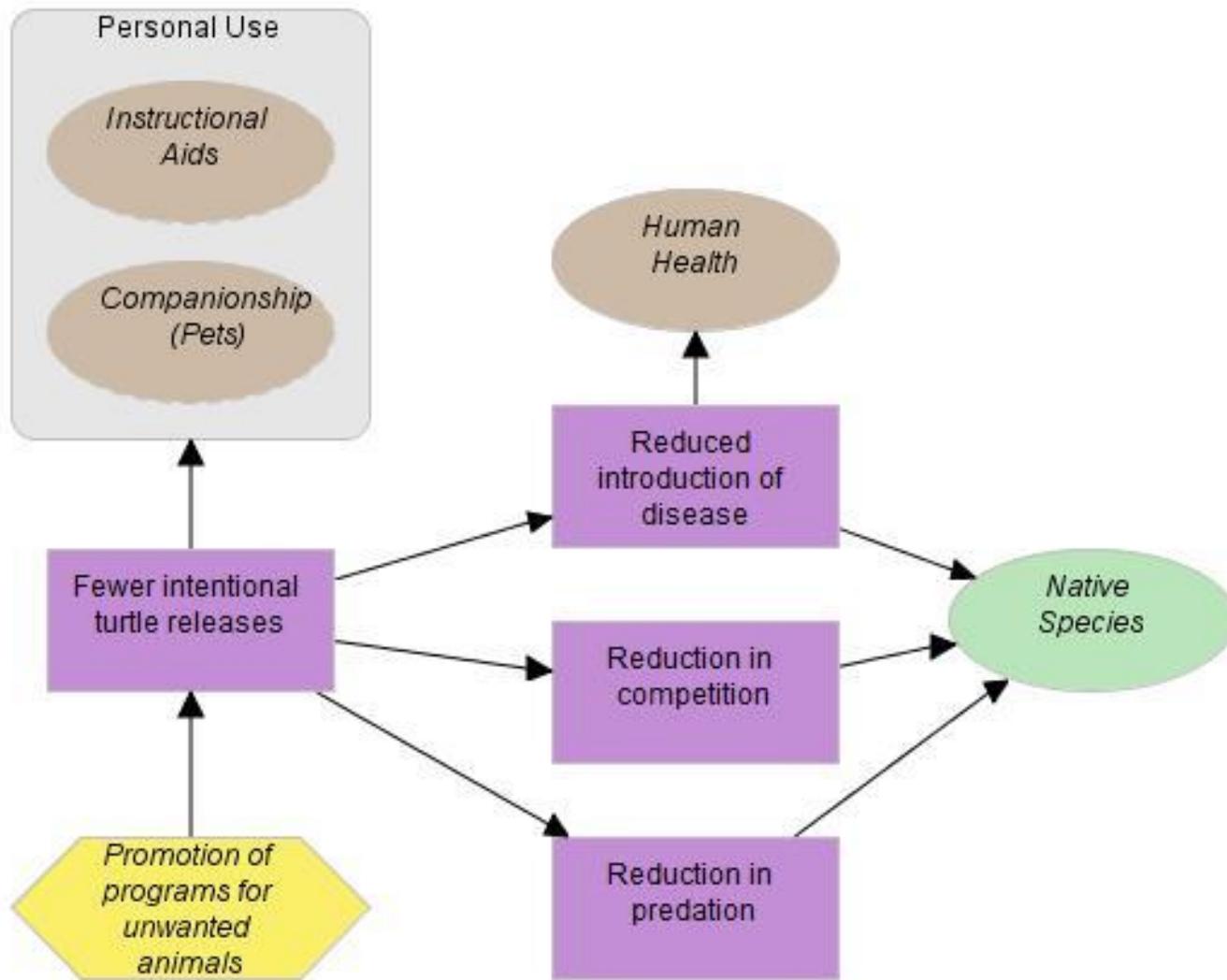
Results Chain: Education campaign 2



Results Chain: Research into disease dynamics



Results Chain: Promotion of programs for unwanted animals



Industry Notes

Item	Details
 Aquaculture of bullfrogs	<ul style="list-style-type: none"> • Likely only viable in the case of an import ban
 Education campaign 1	<ul style="list-style-type: none"> • Content: Handling, Releases, Food Safety • Venue: Live Markets • Audience: retailers
 Education campaign 2	<ul style="list-style-type: none"> • Content: Handling, Releases • Retail Stores • Aimed at prospective pet owners and current pet owners
 Encourage/allow use of other species with lesser effects	<ul style="list-style-type: none"> • Jumping frog contest education
 Promotion of programs for unwanted animals	<ul style="list-style-type: none"> • CA turtle & tortoise club has people that will take in unwanted turtles and give them for adoption • Pet stores also have programs to take back unwanted animals • "Don't let it loose" program • POS, or when supplies are bought
 Research into population control techniques	<ul style="list-style-type: none"> • Triploids
 Online sales	<ul style="list-style-type: none"> • Exotic species or special individuals
 Habitat degradation/loss	<ul style="list-style-type: none"> • Fragmentation
 Turtles as pets	<ul style="list-style-type: none"> • Red-eared sliders
 Loss of genetic diversity	<ul style="list-style-type: none"> • Fragmentation in turtles
 Resource loss	<ul style="list-style-type: none"> • Food, space, water, plants, breeding sites
 Live markets	<ul style="list-style-type: none"> • Consumers don't touch the animals; all are slaughtered before leaving the market • Held in regular fish tanks • Water goes into drains that lead to sewers, generally combined with cleaners
 Specialty store	<ul style="list-style-type: none"> • Farm & feed stores? • Water garden stores
 Bullfrogs as pets	<ul style="list-style-type: none"> • Does not include tropical species • Prevalence is probably low
 Human health	<ul style="list-style-type: none"> • USDA 4-inch rule
 Commerce and economics	<ul style="list-style-type: none"> • Positive for growers, negative for importers
 Companionship (pets)	<ul style="list-style-type: none"> • Pets

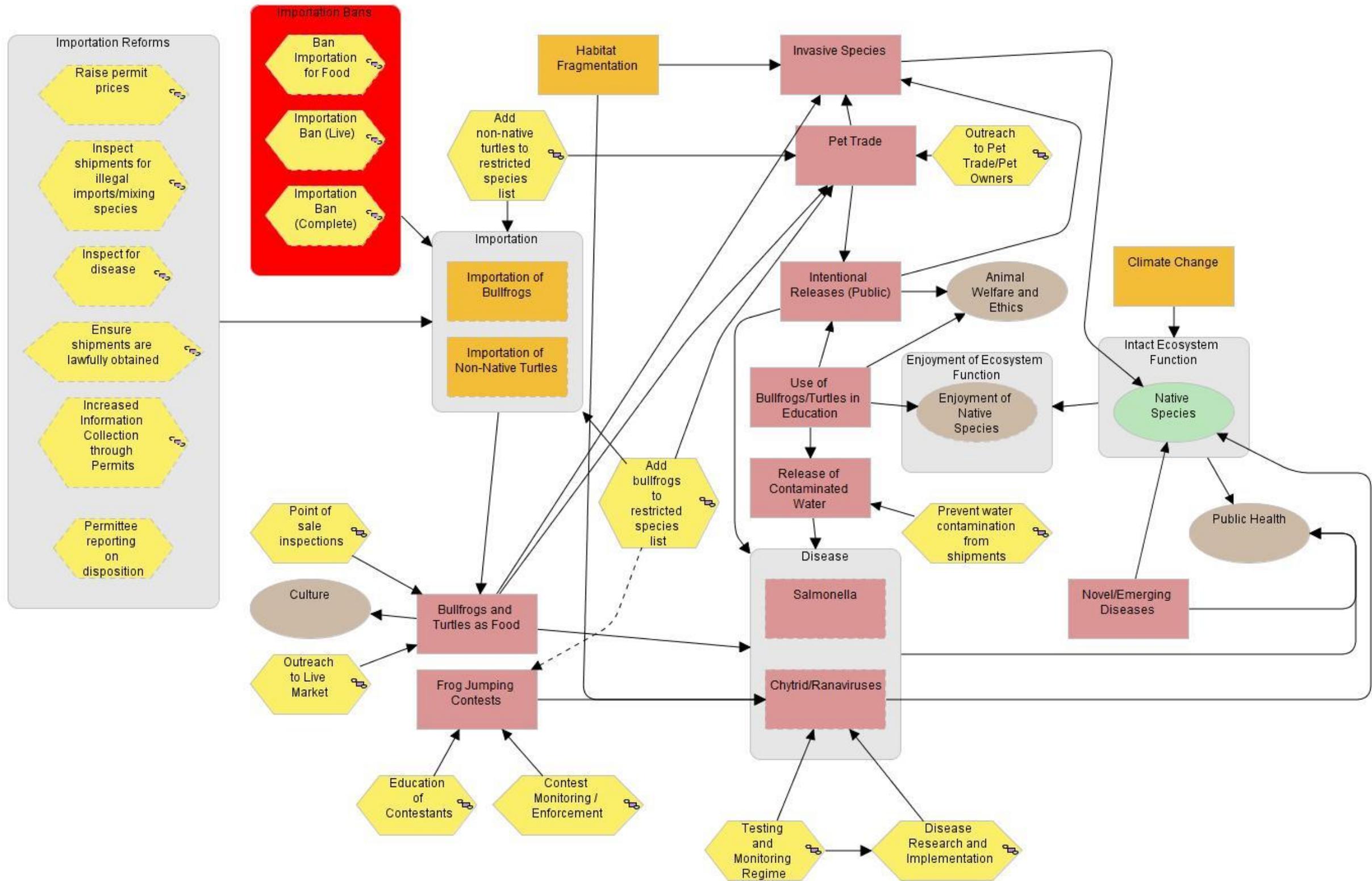
Item	Details
● Recreation	<ul style="list-style-type: none"> • Frog jumping contests, picture taking of turtles, gigging/fishing for bullfrogs
□ Assurance colonies – Native and non-native species	<ul style="list-style-type: none"> • Not really any licensing, but Captive Bred Wildlife Permit (FWS) allows possession of turtles • When transferring, both parties need a CBW permit • No colonies for red-eared sliders or soft-shelled turtles
-----> Live markets to releases in the wild	<ul style="list-style-type: none"> • This link is disputed
■ Increase Understanding of Adverse Environmental Conditions	<ul style="list-style-type: none"> • Ecological factors that promote or facilitate disease

Environmental/Animal Welfare Group Analysis

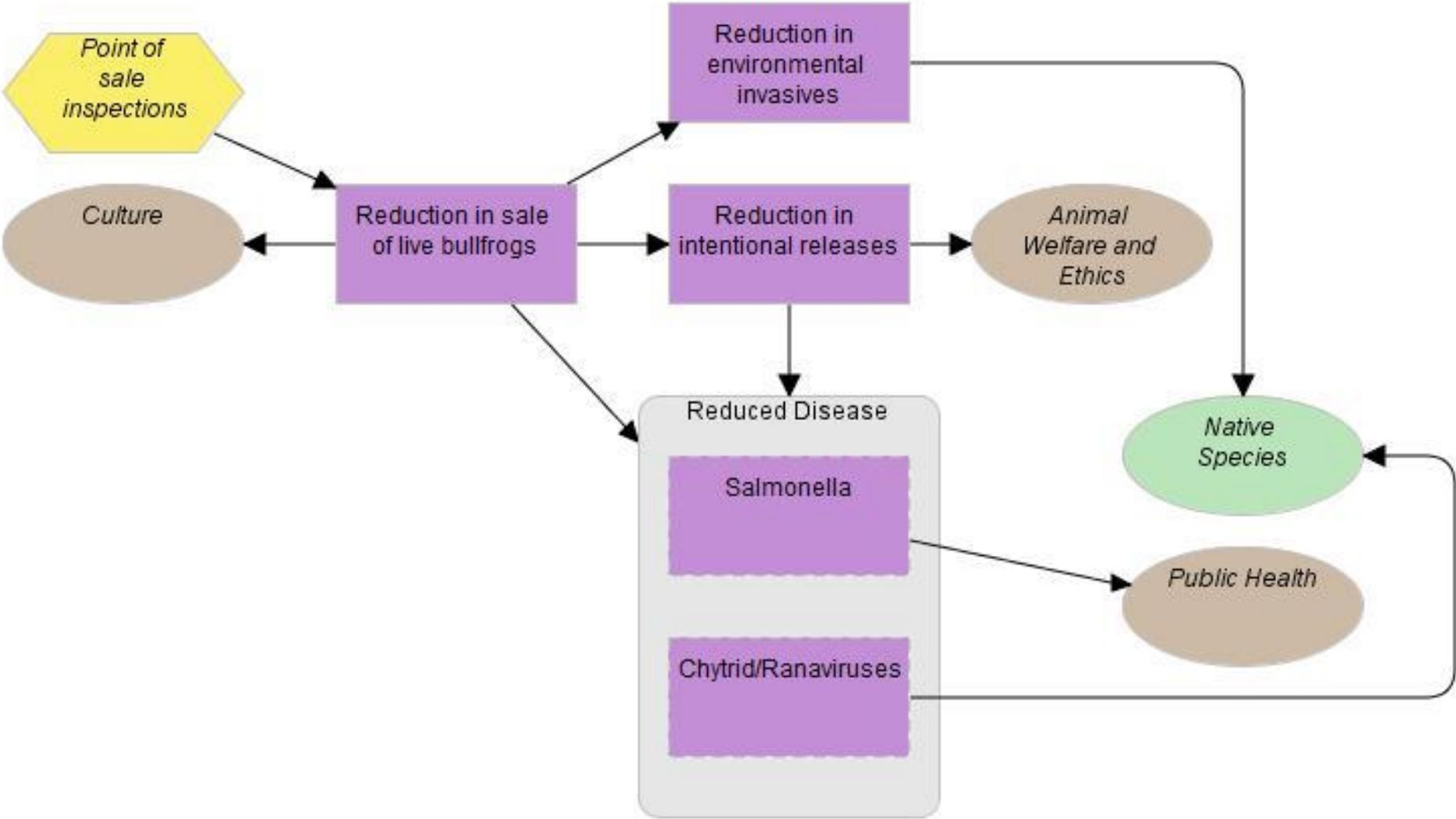
Scope and Vision

Vision Statement Text	A California with an enforced ban on the importation of bullfrogs and non-native turtles. A Department that lives up to its mission and stated purpose and upholds the public trust.
Comments	

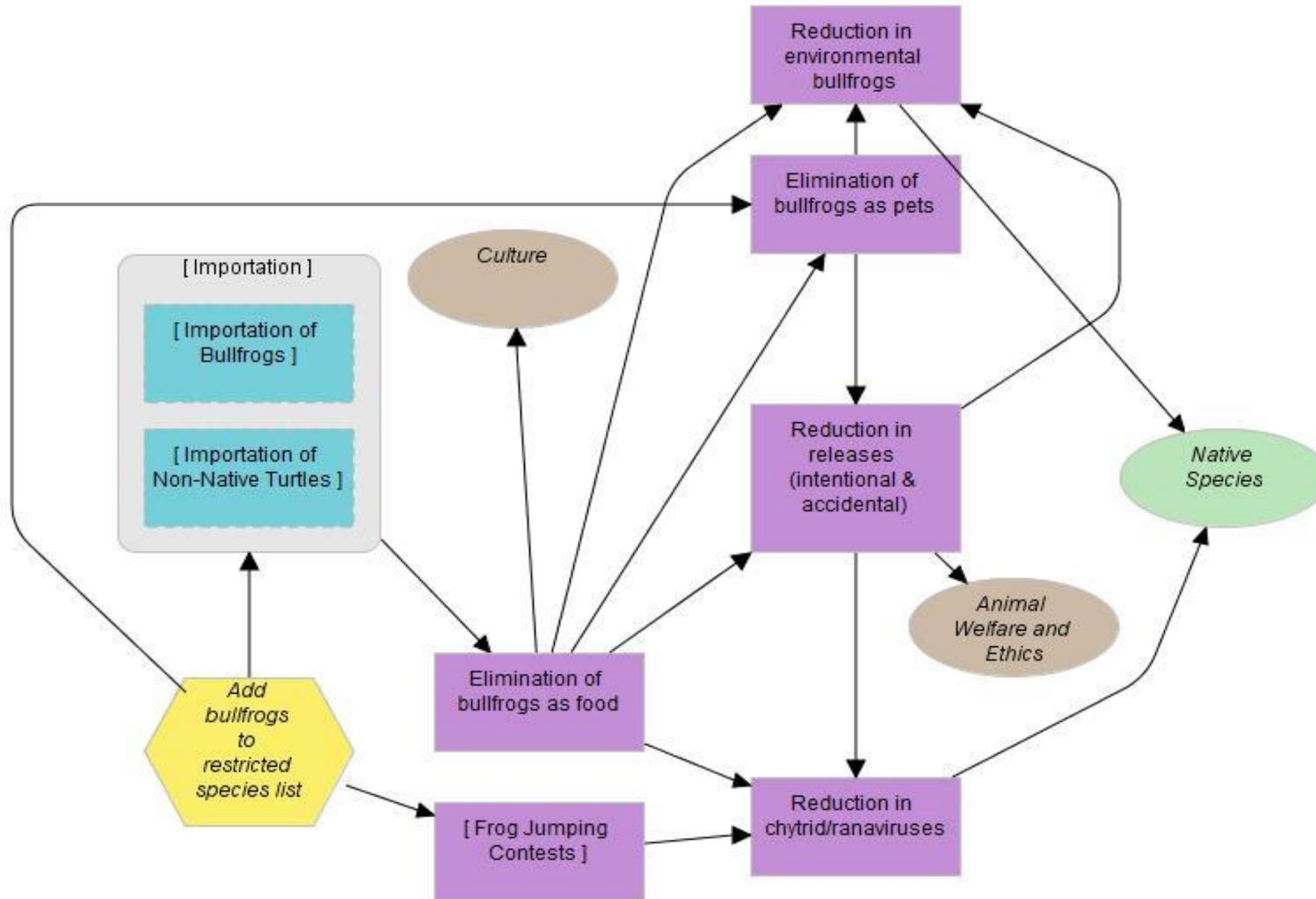
Main Diagram



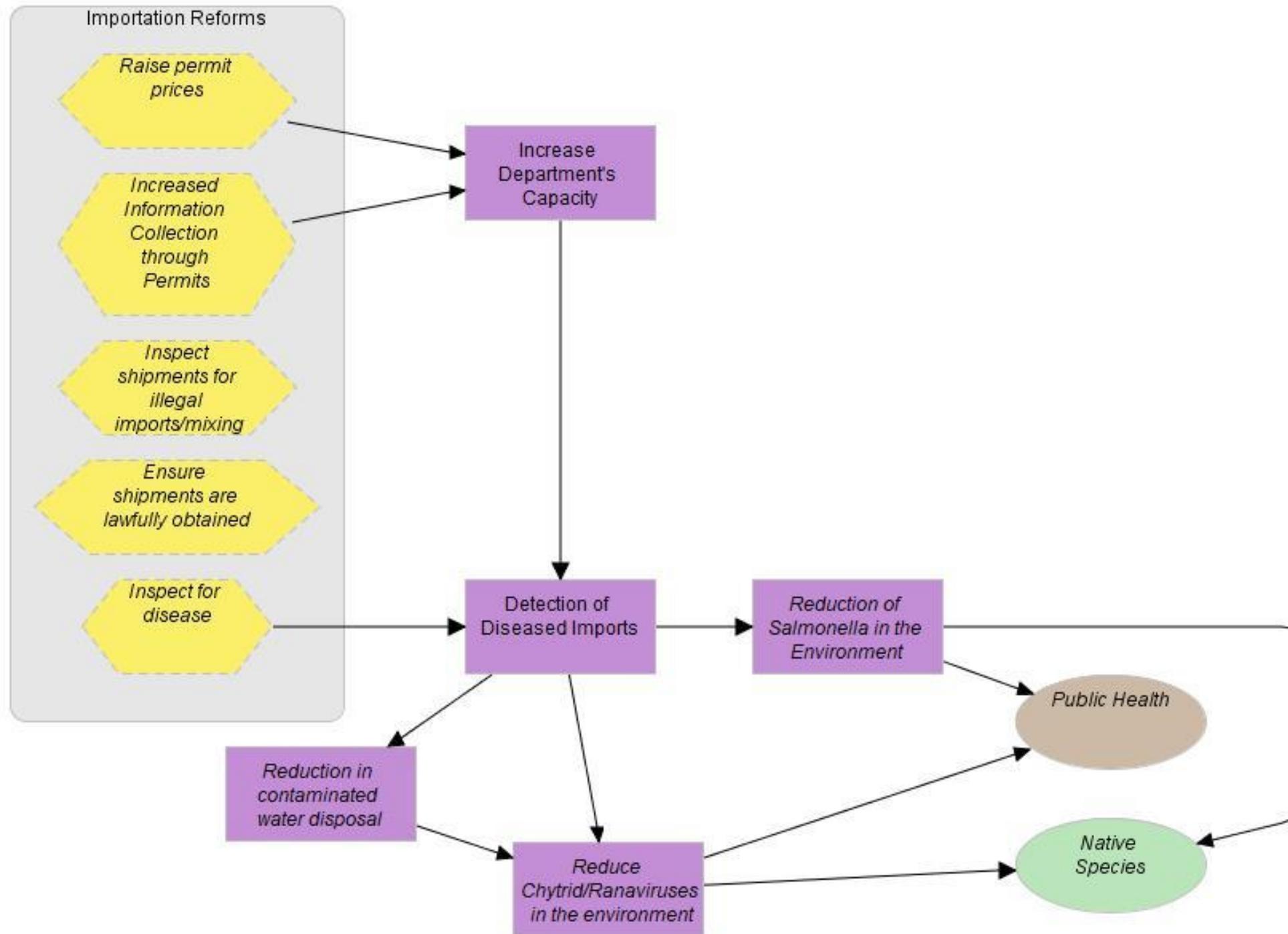
Results Chain: Point of sale inspections



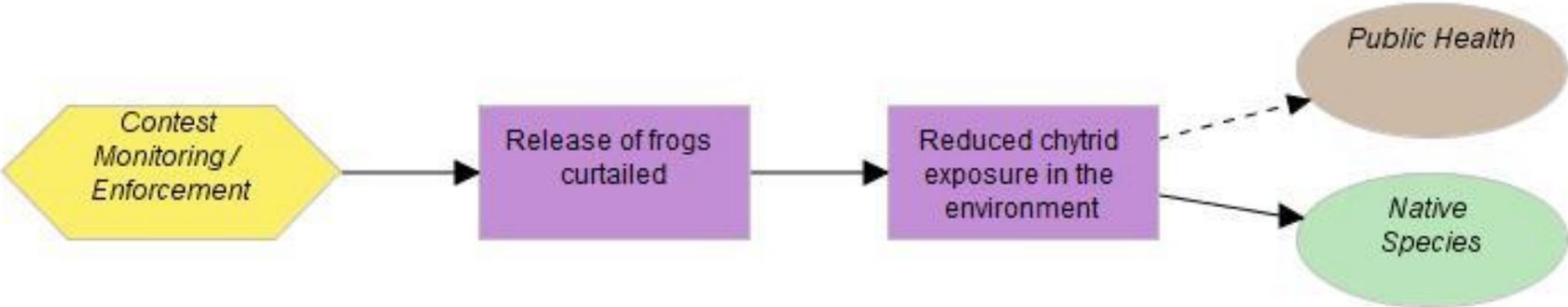
Results Chain: Add bullfrogs to restricted species list



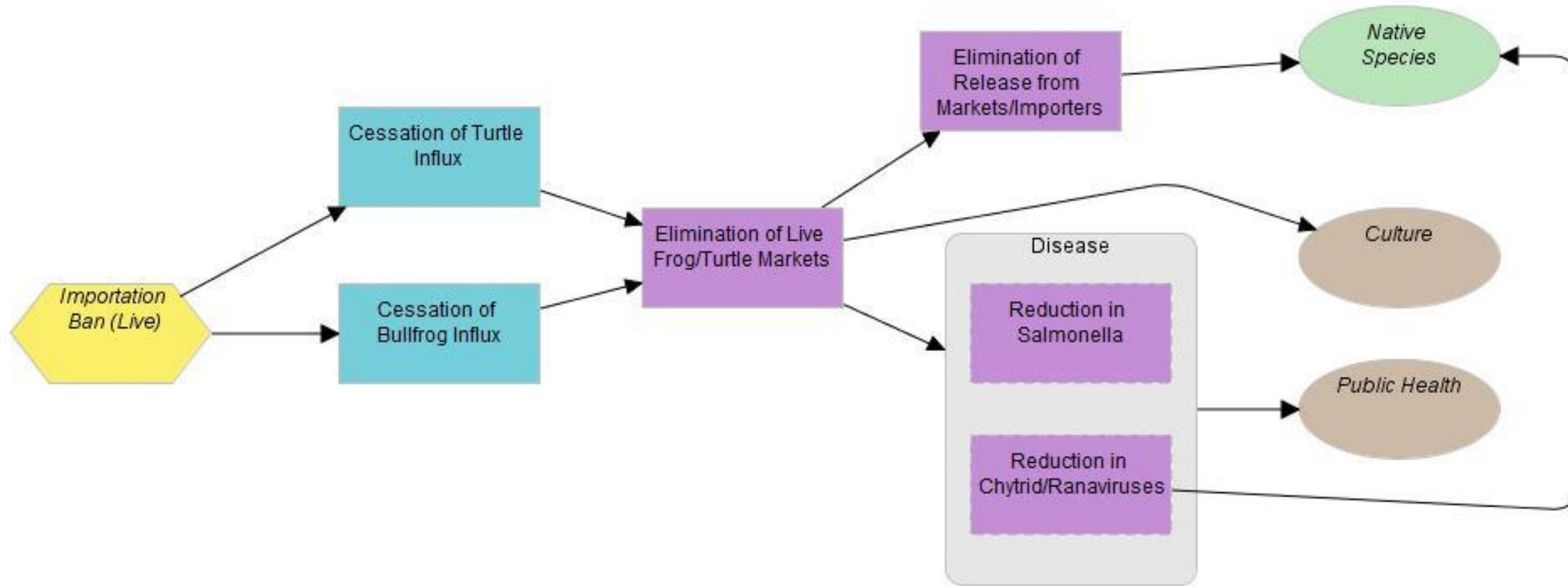
Results Chain: Importation reforms



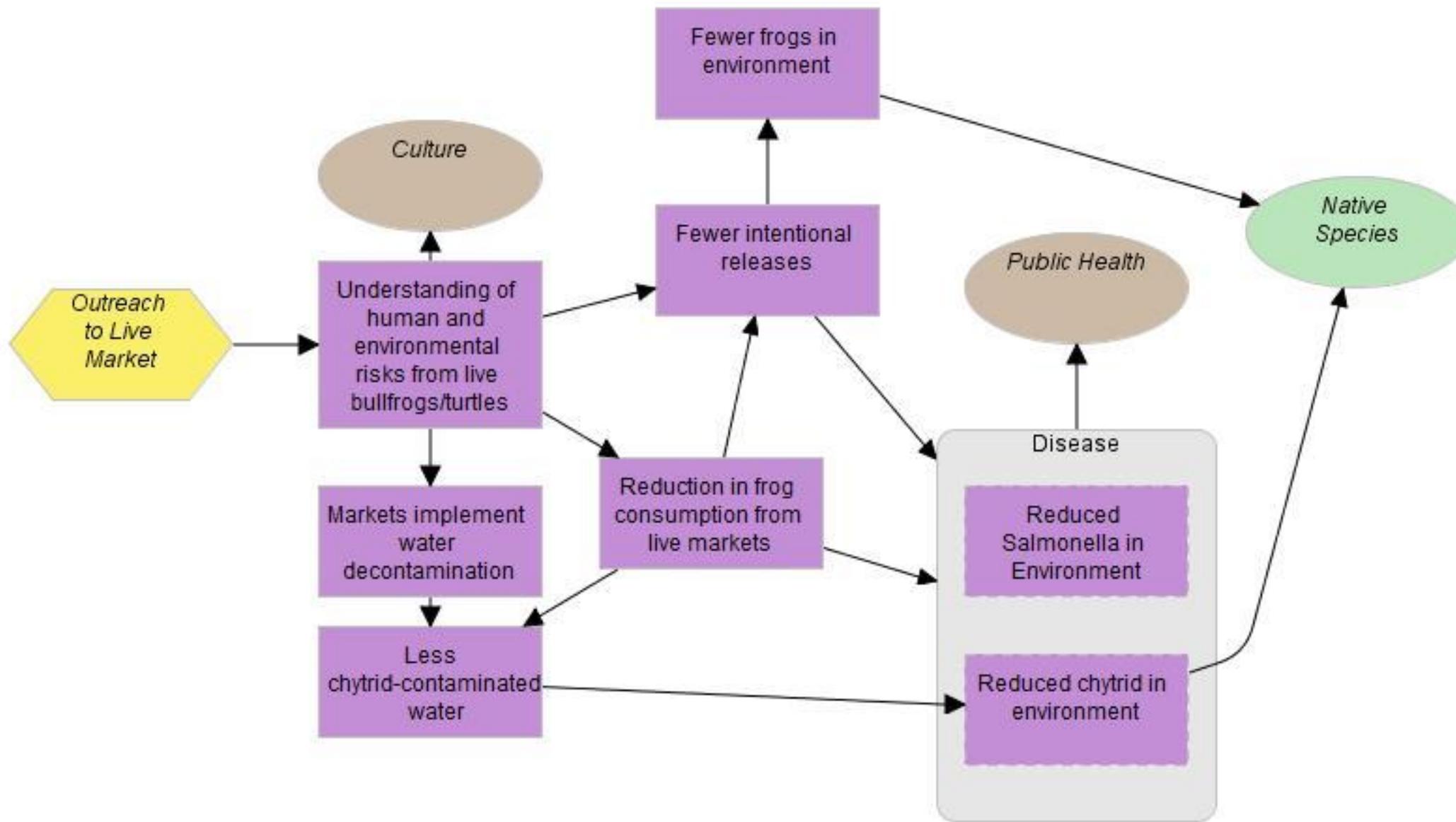
Results Chain: Contest monitoring / enforcement



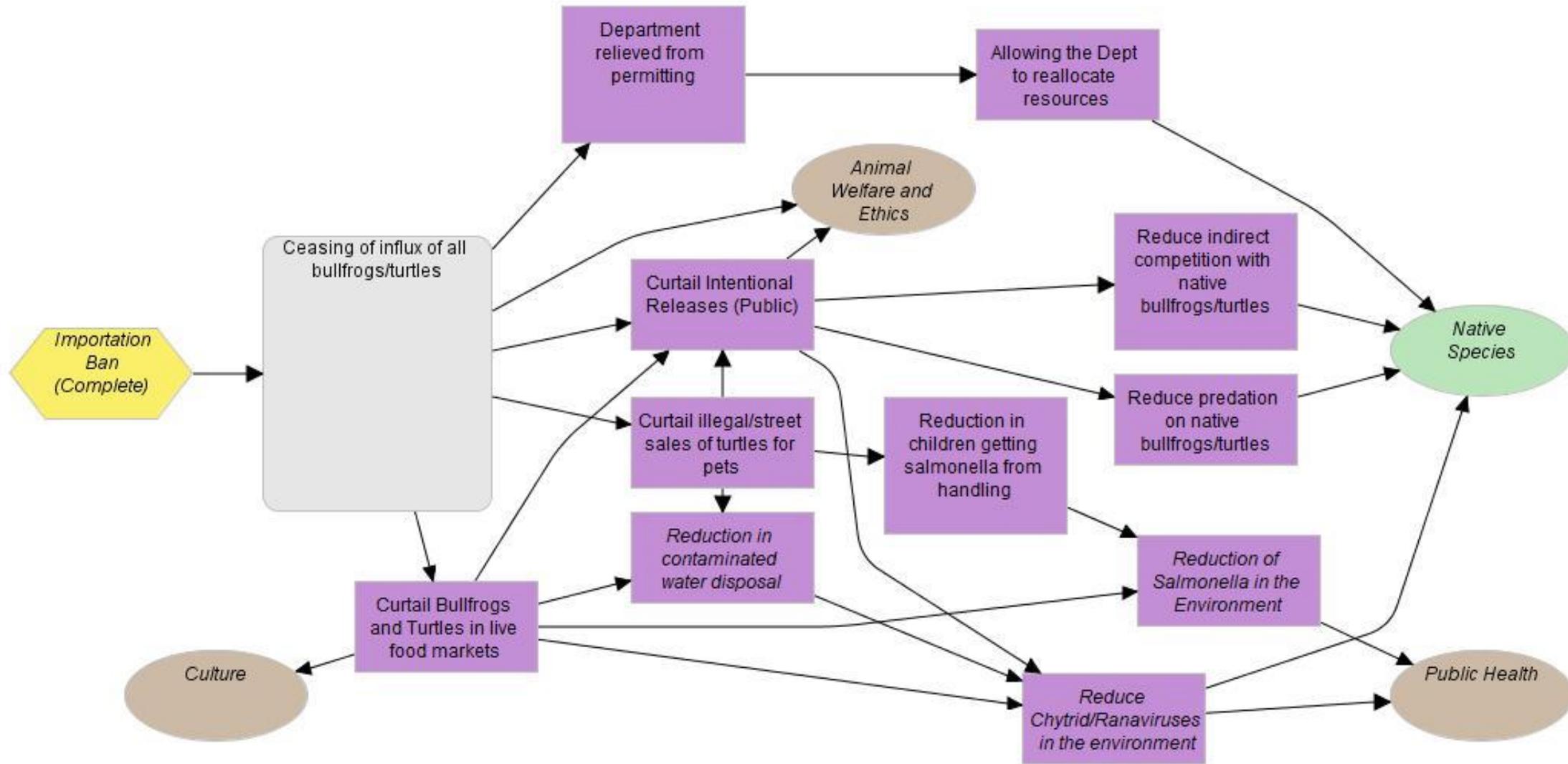
Results Chain: Importation ban (live)



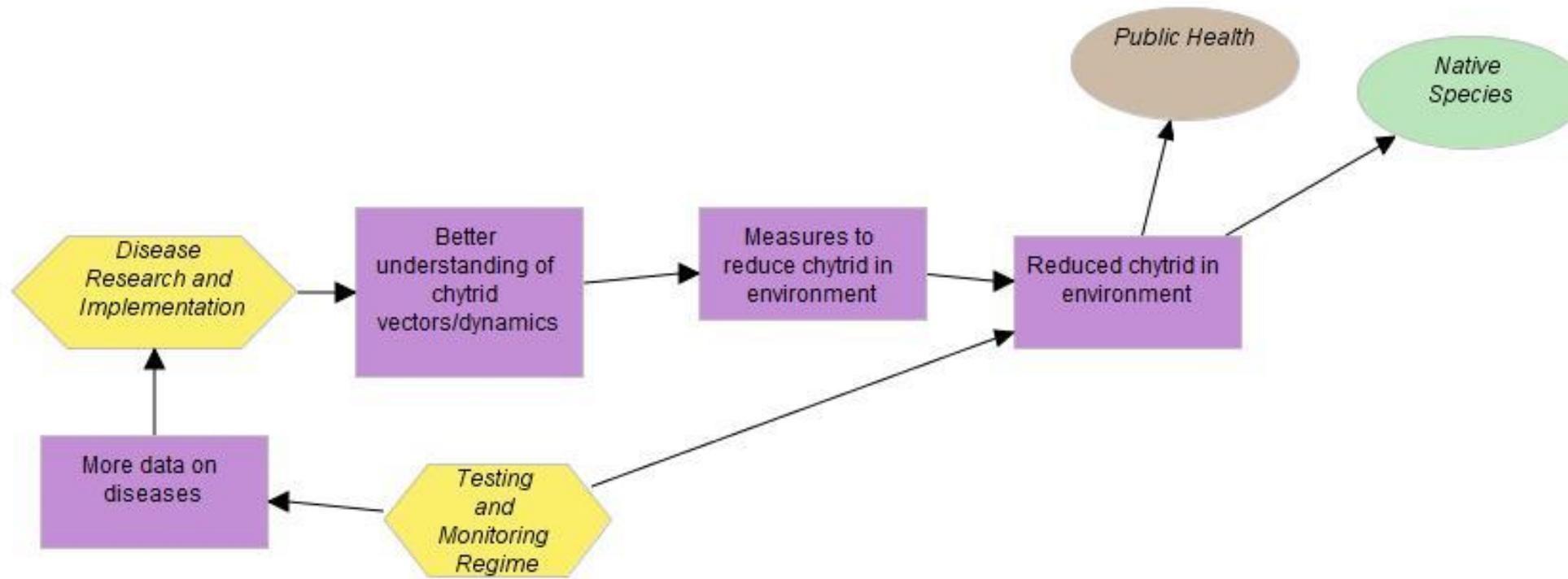
Results Chain: Outreach to live market



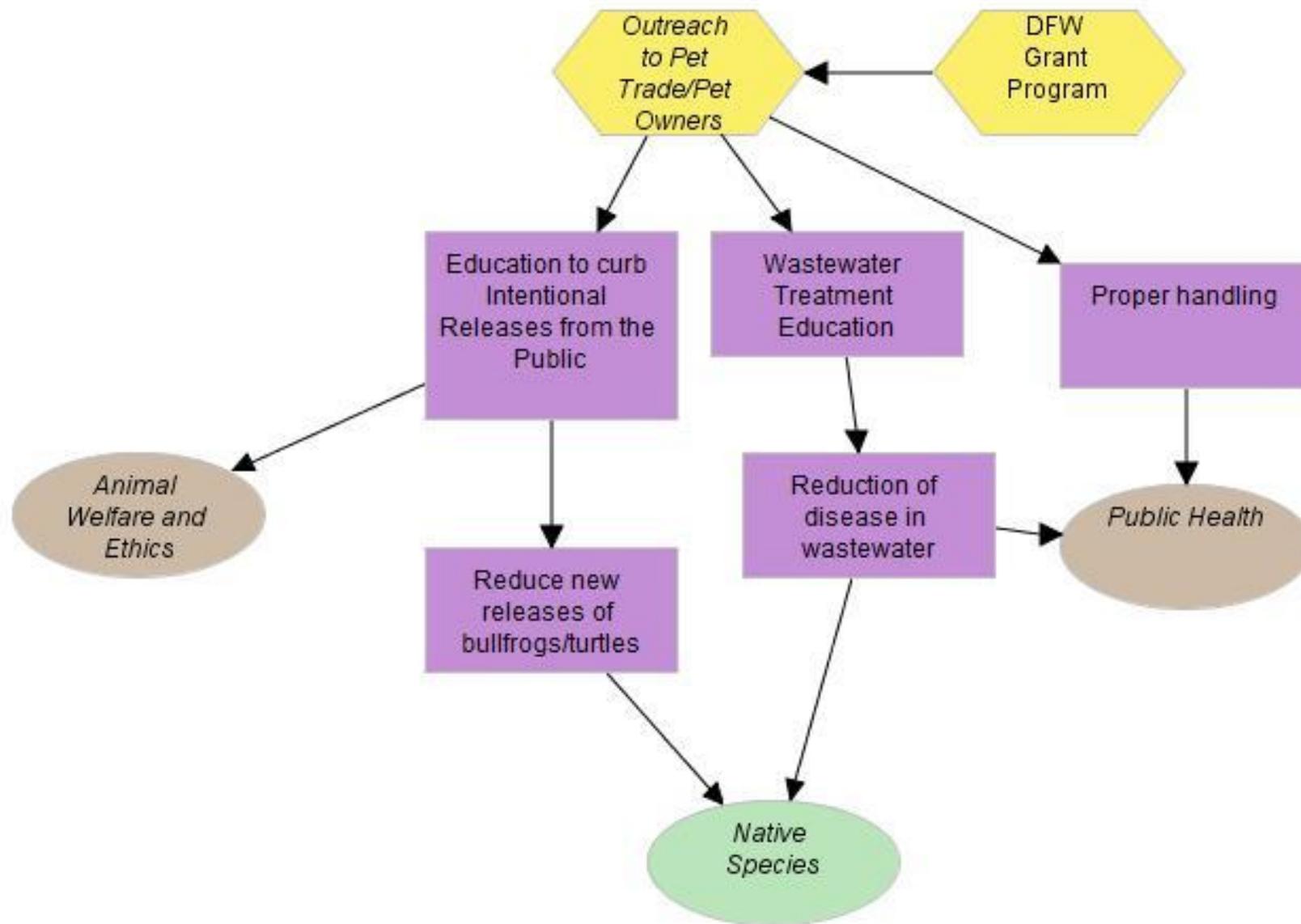
Results Chain: Importation ban (complete)



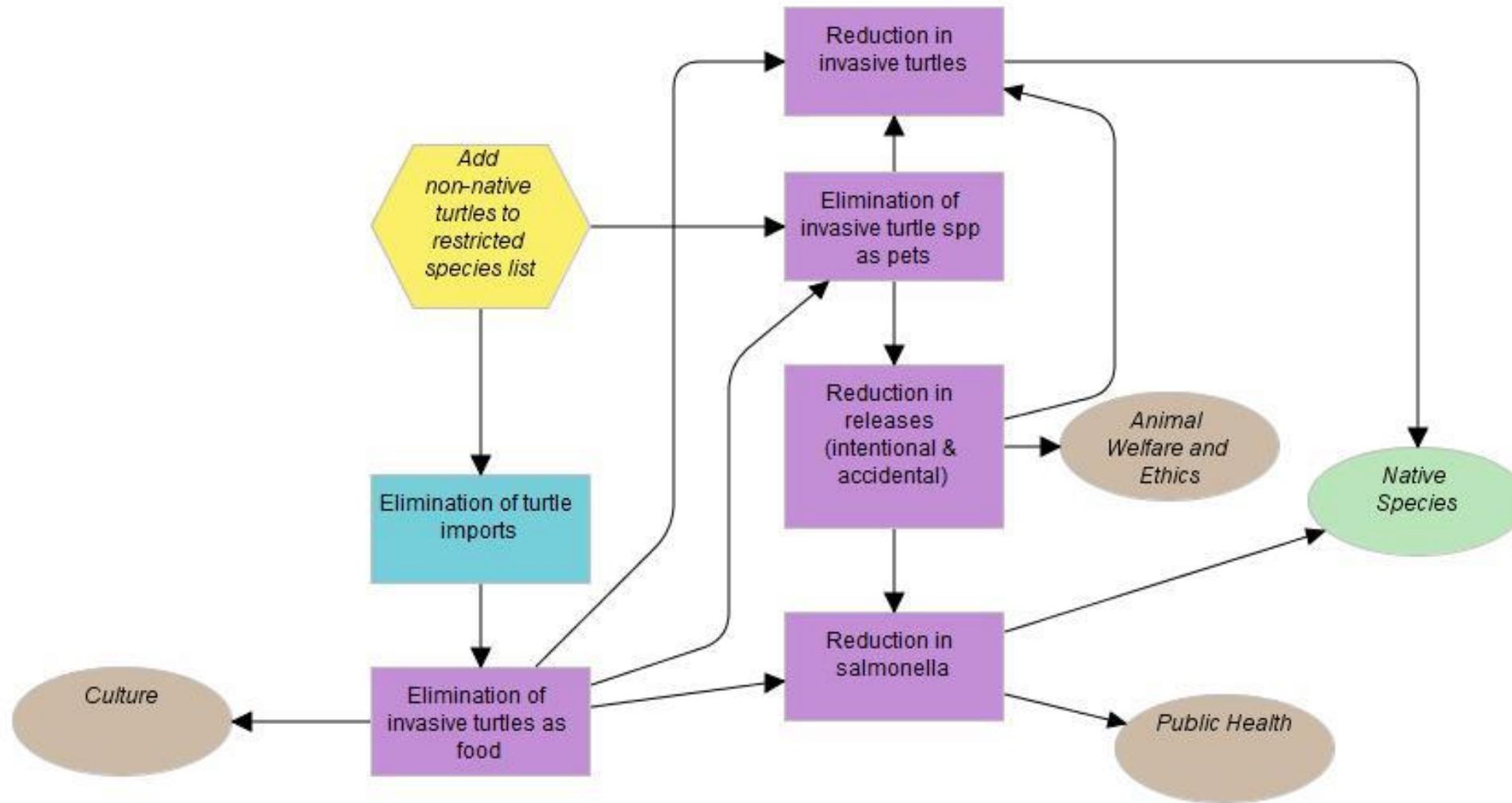
Results Chain: Disease research and implementation



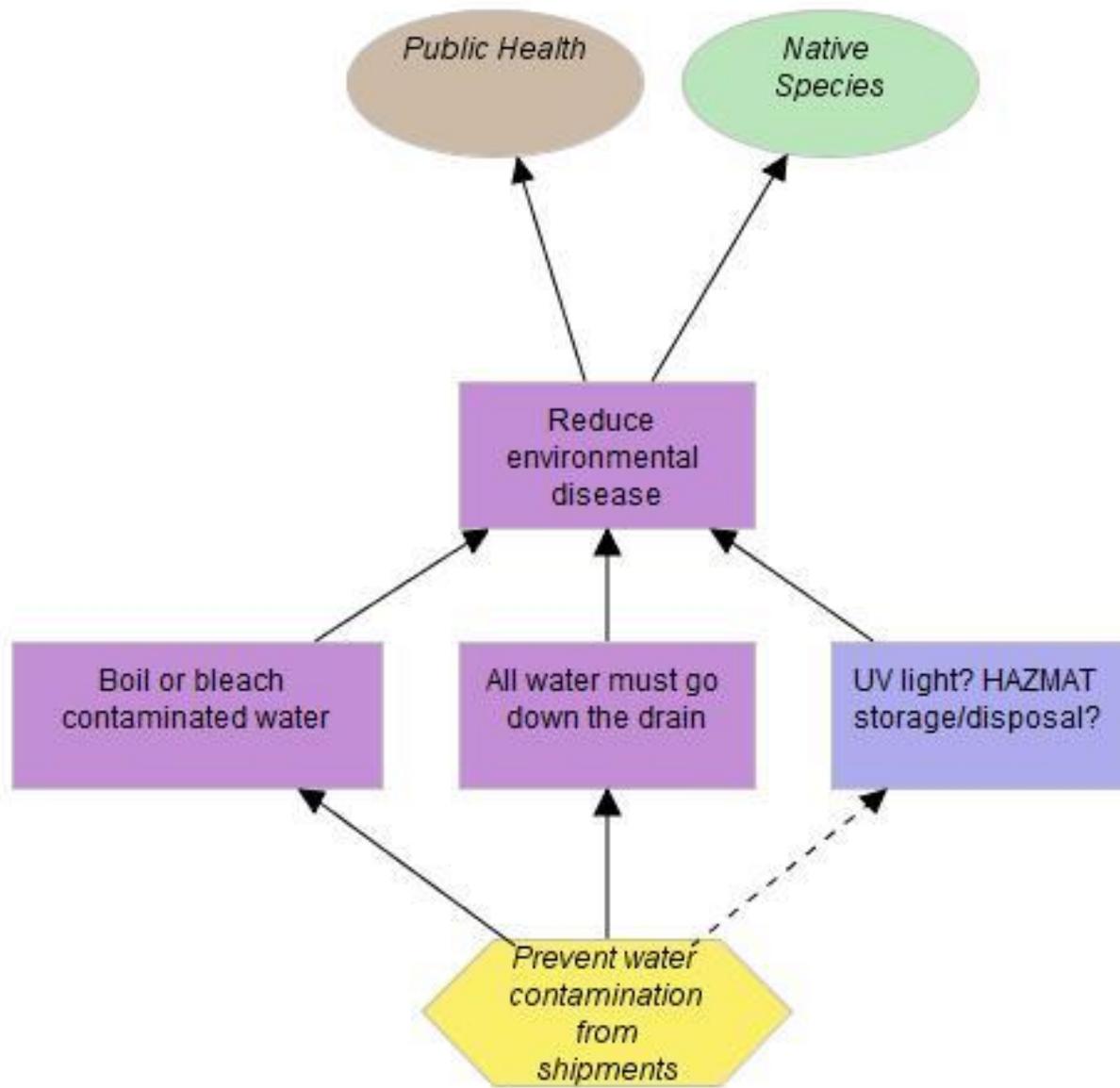
Results Chain: Outreach to pet trade/pet owners



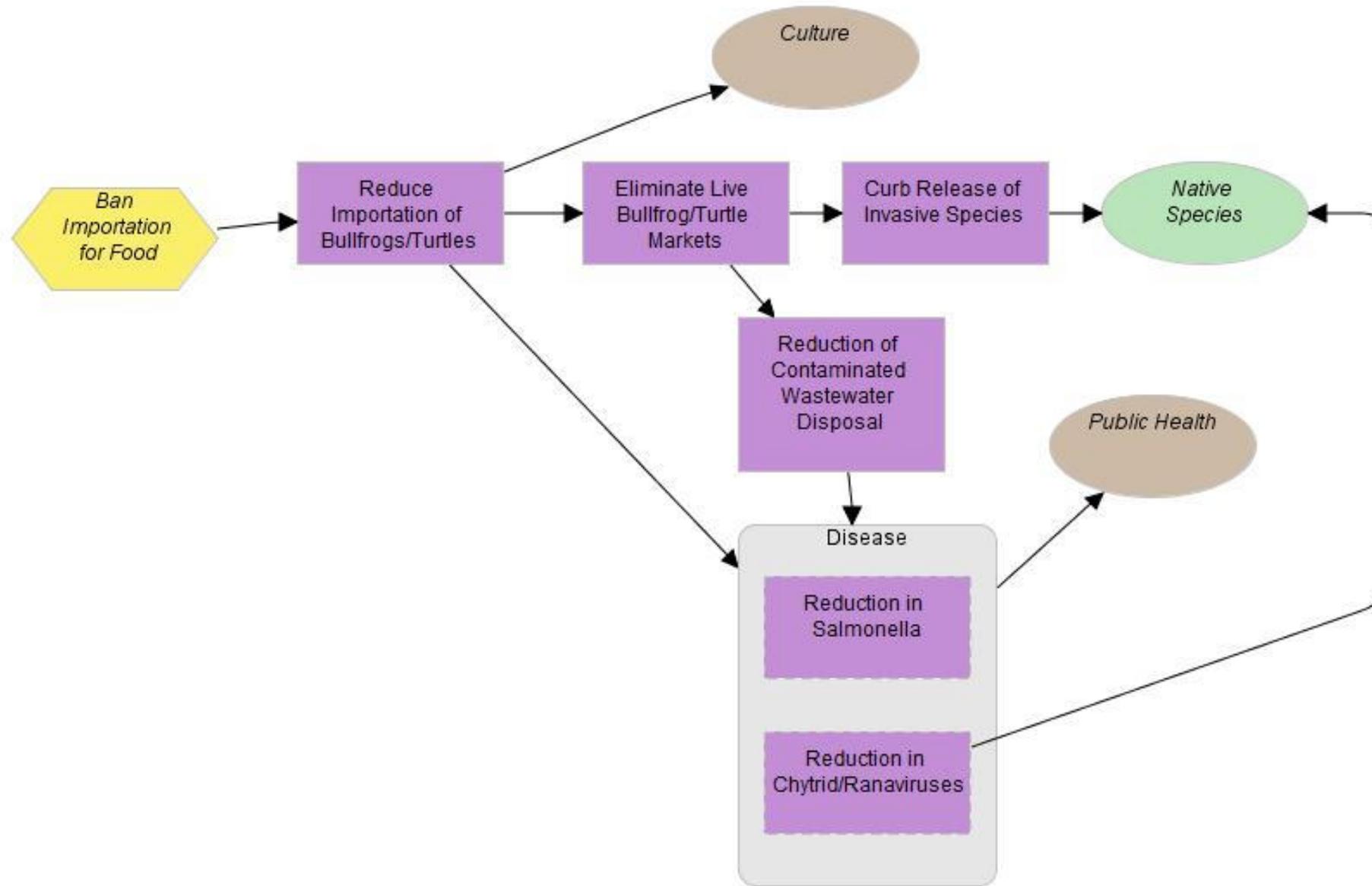
Results Chain: Add non-native turtles to restricted species list



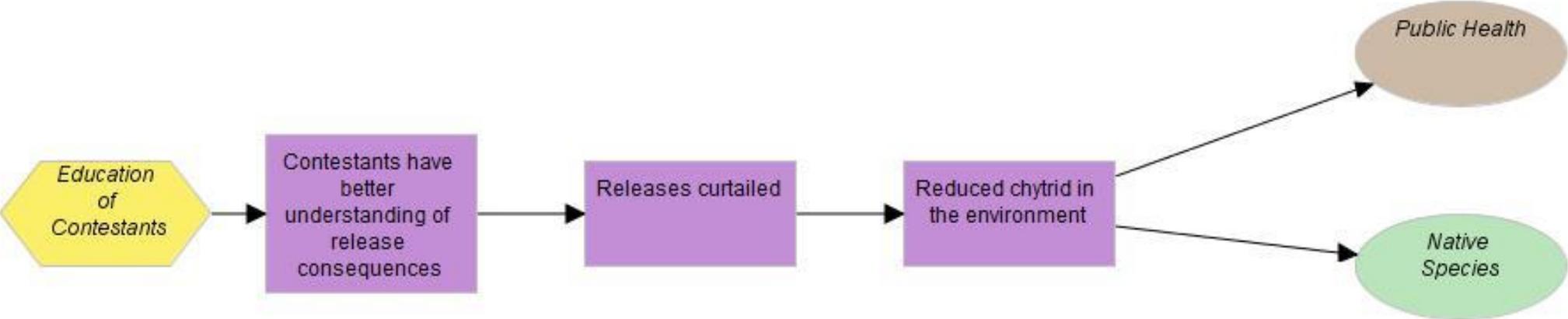
Results Chain: Prevent water contamination from shipments



Results Chain: Ban Importation for food



Results Chain: Education of contestants



Environmental/Animal Welfare Notes

Item	Details
<ul style="list-style-type: none"> ● Add bullfrogs to restricted species list 	<ul style="list-style-type: none"> ● Could be qualified with certain exceptions
<ul style="list-style-type: none"> ● Add non-native turtles to restricted species list 	<ul style="list-style-type: none"> ● Could be qualified with certain exceptions
<ul style="list-style-type: none"> ● Testing and Monitoring Regime 	<ul style="list-style-type: none"> ● Onus could be on the vendor to initiate testing. List of approved testers.
<ul style="list-style-type: none"> ● Ensure shipments are lawfully obtained 	<ul style="list-style-type: none"> ● See T14, section 236(C)(8) ● Pertains to the origin of the shipment. ● Perhaps more important for turtles?
<ul style="list-style-type: none"> ● Increased Information Collection through Permits 	<ul style="list-style-type: none"> ● Where are shipments coming from? How many are you bringing in? Do you have permission from the source?
<ul style="list-style-type: none"> ● Inspect shipments for illegal imports/mixing species 	<ul style="list-style-type: none"> ● Randomized sample
<ul style="list-style-type: none"> ● Raise permit prices 	<ul style="list-style-type: none"> ● Price proportional to number of individuals imported? ● Permit prices must cover the cost of the DFW bullfrog and turtle program, including inspections and enforcement
<ul style="list-style-type: none"> ● Contest Monitoring / Enforcement 	<ul style="list-style-type: none"> ● Ensure no use of protected species, information gathering, animal welfare enforcement
<ul style="list-style-type: none"> ● Outreach to Live Market 	<ul style="list-style-type: none"> ● Shark fin soup – generational ● DFW implements, cooperating with SF Library ● Could be a comprehensive initiative, should include a contextual component that explains the entire strategy ● Importers, retailers ● Asian language materials ● Benefits of frozen vs. Live animals
<ul style="list-style-type: none"> ● DFW Grant Program 	<ul style="list-style-type: none"> ● Grant program for organizations to develop education campaigns
<ul style="list-style-type: none"> ● Outreach to Pet Trade/Pet Owners 	<ul style="list-style-type: none"> ● Responsible wastewater treatment
<ul style="list-style-type: none"> ● Point of sale inspections 	<ul style="list-style-type: none"> ● Notice posted? ● Health and safety codes followed?https://codes.findlaw.com/ca/penal-code/pen-sect-597-3.html
<ul style="list-style-type: none"> ● Prevent water contamination from shipments 	<ul style="list-style-type: none"> ● Distributor to Retailer - Imported water/disposal ● Transfer water/disposal ● Market water/disposal
<ul style="list-style-type: none"> ● Novel/emerging diseases 	<ul style="list-style-type: none"> ● Threats to animals or people <i>Batrachochytrium salamandrivorans</i>, plus others that may not be known
<ul style="list-style-type: none"> ● Reduce new releases of bullfrogs/turtles 	<ul style="list-style-type: none"> ● Complications from returned animals? ● Nominal "rehoming fee"? ● Education about the reality of keeping/caring for animals before purchase
<ul style="list-style-type: none"> ● Reduction of disease in wastewater 	<ul style="list-style-type: none"> ● Salmonella? ● Cholera
<ul style="list-style-type: none"> ● Boil or bleach contaminated water 	<ul style="list-style-type: none"> ● Water or ice that has come into contact with frogs/turtles must be boiled or bleached (?%) ● Boiling is preferred ● Virkon is an alternative (more expensive)
<ul style="list-style-type: none"> ● Reduce environmental disease 	<ul style="list-style-type: none"> ● Chytrid ● Some ranaviruses

**COMMENTS OF THE PET INDUSTRY JOINT ADVISORY COUNCIL
ON ITEM 6 BULLFROGS AND NON-NATIVE TURTLES
OF THE JANUARY 13, 2022
CALIFORNIA FISH AND GAME COMMISSION
WILDLIFE RESOURCES COMMITTEE MEETING**

January 10, 2022

Position: Support process

The Pet Industry Joint Advisory Council (PIJAC) appreciates the opportunity to offer our views and expertise on item 6 of the January 13, 2022 meeting agenda for the California Fish and Game Commission's Wildlife Resources Committee which pertains to American bullfrogs and non-native turtles.

As the advocacy voice of the responsible pet care community, PIJAC represents the interests and expertise of retailers, companion animal suppliers, manufacturers, distributors, pet owners and others involved in the many aspects of pet care throughout the state of California and across the United States. Our association works to promote animal well-being and responsible pet ownership, foster environmental stewardship, and ensure the availability of healthy pets through our work at the state and federal levels—including the United States Department of Agriculture, U.S. Fish and Wildlife Service, and the Centers for Disease Control and Prevention. PIJAC routinely advocates on legislative and regulatory proposals to advance the public interest of protecting public health and the safety, health and availability of companion animals.

All of us in the responsible pet care community don't just care about animals, we provide care for them on a daily basis—and are dedicated to ensuring that appropriate care of animals is the primary focus of any law or regulation. As such, we offer an unmatched depth and breadth of experience on legislative efforts to verify and certify the health and well-being of pets from the time they are born all the way until they are taken home and made a part of families.

We at PIJAC thank the Commission for implementing this process and offer our support to continue ongoing conversations between stakeholders, Commission and Department staff, and facilitators regarding American bullfrogs and non-native turtles in California. We support continuing these conversations to address science-based concerns.

Thank you for the opportunity to share our views. We welcome the chance to discuss the issue of American bullfrogs and non-native turtles in California from the pet care community's perspective with you at greater length. PIJAC has a long history of collaborating to ensure that regulations and legislation are both workable and meet the intent of the jurisdiction and we would be happy to lend our expertise to help address these concerns.

Please do not hesitate to contact us at 202-452-1525 x 1040 or via email at josh@pijac.org for further information.



Tracking Number: **[(2021-017)]**

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, (physical address) 1416 Ninth Street, Suite 1320, Sacramento, CA 95814, (mailing address) P.O. Box 944209, Sacramento, CA 94244-2090 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Dan Ryan

Address: [REDACTED]

Telephone number: [REDACTED]

Email address: [REDACTED]

2. Rulemaking Authority (Required) - Reference to the statutory or constitutional authority of the Commission to take the action requested: Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details

3. Overview (Required) - Summarize the proposed changes to regulations: See Attached. I was a part of an R# subcommittee with the department where we looked at creative ways to change the licensing system. Adding change to the big Game structure was one topic discussed but not finalized. I have been working with Department staff on new ideas for solving problems with the Big Game draw as well as providing additional opportunity for hunters. The Department needs to be adaptable and flexible. In the attachment I have provided a number of Big Game changes including new hunts and seasons. I am not asking that we try and implement all in 2022 however I would like to start the discussion and have a phased approach.

4. Rationale (Required) - Describe the problem and the reason for the proposed change:

Though the department has seen a decline in hunting license sales it has seen a substantial increase in hunter participation/demand in big game tags. To better serve the outdoor enthusiast in the state as well as provide additional opportunity with no incremental increase in harvest the department must adapt and make changes.

Why is this important?

- Millions of dollars are generated through the Big Game application and tag system. This system should evolve to meet demands and increase opportunity, or it will be at risk of losing participation. From 2014 to 2020 there has



been over 17,500 additional applications, this is a substantial amount of money and interest generated. It would not make sense to not try and adapt to the increase.

- CDFW needs to manage Big Game herds and hunters in a flexible manner. Not making adjustments on an annual or bi-annual basis is not effective, nor is that method of active management in responding to changing resource conditions/hunter preferences.
- The Big Game opportunities are stagnant and have not changed or been modified (other than annual season dates and tag allocations) for years. Stagnant environments tend to lead to decreased participation and missed opportunities for improvement.
- Other states such as Idaho, Nevada, Arizona and Wyoming are constantly adding opportunities based on biological resources and hunter demand and have been successful. The results speak for themselves and this approach has been proven to work.
- Big Game hunters as a whole are incredibly frustrated with the preference point system and the number of years it takes to draw a “premium hunt”.
- Simply changing dates or adding a few premium hunts in general zones can increase draw odds and spread the point pool of applicants.
- Builds rapport with hunters and CDFW. Adds to the benefit of active management and responsiveness of the department to hunters.
- By spreading the already allocated tags to new hunts, this method should result in little change to overall harvest.

SECTION II: Optional Information

5. **Date of Petition:** 8/30/2021

6. **Category of Proposed Change**

- Sport Fishing
- Commercial Fishing
- Hunting
- Other, please specify: [\[Click here to enter text\]](#)

7. **The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*

Amend Title 14 Section(s) [\[Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details \]](#)

Add New Title 14 Section(s): Sections 200, 203, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Also see attached for more details

Repeal Title 14 Section(s): [\[Click here to enter text. \]](#)

8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** [\[Click here to enter text\]](#)

Or Not applicable.

9. **Effective date:** If applicable, identify the desired effective date of the regulation.

If the proposed change requires immediate implementation, explain the nature of the emergency: [\[The 2022 changes should be voted on in December in order for implementation to occur.\]](#)



- 10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Attached proposal showing justification and work with CDFW, partners and members of the public.
- 11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: All of these changes have direct and indirect impacts with communities, individuals, businesses, jobs and the department. They would generate additional revenue for the department as well as increase customer satisfaction.
- 12. **Forms:** If applicable, list any forms to be created, amended or repealed:

SECTION 3: FGC Staff Only

Date received:

FGC staff action:

- Accept - complete
- Reject - incomplete
- Reject - outside scope of FGC authority

Date petitioner was notified of receipt of petition and pending action:

Meeting date for FGC consideration:

FGC action:

- Denied by FGC
- Denied - same as petition
Tracking Number
- Granted for consideration of regulation change

Petition for Big Game Hunt changes

Submitted By: Dan Ryan

Coordination with:

CDFW:

Brian Ehler

Nathan Graveline

Mark Abraham

Lassen Fish and Game Commission

NGO:

Dale McDougal- California Deer Association

Kevin Vella- National Wild Turkey Federation

Public:

Over 15 members of the public have been apart of review and compilation of ideas going into this proposal.

Background:

I was a subcommittee leader for the 2019 R3 effort focusing on the Licensing restructuring. During this process our subcommittee generated creative ideas to simplify the licensing system and restructure some of the Big Game opportunities that have not been modified for decades.

Big Game opportunities are regulated through tag issuance. These tags are broken down throughout the state by locality, species, sex, time of year, method of take and whether its available for adults or apprentice (youth under 16). These tags/opportunities are allocated through the CDFW's online system where a user can purchase a hunting and fishing license as well as apply for tags.

Though the department has seen a decline in hunting license sales it has seen a substantial increase in hunter participation/demand in big game tags. To better serve the outdoor enthusiast in the state as well as provide additional opportunity with no incremental increase in harvest the department must adapt and make changes.

State	2014 Total Deer Applications	2019 Total Deer Applications	2020 Total Deer Applications
CA	71,810	81,513	89,403
*Estimates based on CDFW available data.			

What other states are doing:

This increase in demand is not unique to CA. All of the western states have seen substantial increases in the number of applicants entering the tag draws or purchasing tags. Nevada, Idaho and California are some that have seen the most substantial increases. Nevada and Idaho are looking of creative ways to provide additional opportunities without increasing harvest or negatively impacting big game populations long term. Changes are needed to reduce the increased frustration with the system as well

as ultimately not losing hunters/applicants in the future; the same hunters that will fund and advocate for conservation of our wildlife resources in the future.

Idaho adds, modifies, and removes big game tags/opportunities every season setting period (two years) based on local biologist recommendations and public input. This has allowed new hunts, season dates and opportunities to be provided and has in turn spread applications out based on hunter interest and changes in populations. Applicants are allowed one deer tag with an option to purchase second tags when available at a certain date or if tags are turned back by hunters that cannot participate in the hunt.

Nevada recently has seen a substantial increase in applicants in the past 5 years, they in turn have been implementing creative solutions for providing additional opportunity. Example: Starting in 2021, they are re-issuing tags that are turned back 30 days and less to hunters willing to go. This means if a tag is turned back the day before the season, they will work to reissue those, even if it happens during the season. It provides increased opportunity for hunters.

Why is this important?

- Millions of dollars are generated through the Big Game application and tag system. This system should evolve to meet demands and increase opportunity, or it will be at risk of losing participation. From 2014 to 2020 there has been over 17,500 additional applications, this is a substantial amount of money and interest generated. It would not make sense to not try and adapt to the increase.
- CDFW needs to manage Big Game herds and hunters in a flexible manner. Not making adjustments on an annual or bi-annual basis is not effective, nor is that method of active management in responding to changing resource conditions/hunter preferences.
- The Big Game opportunities are stagnant and have not changed or been modified (other than annual season dates and tag allocations) for years. Stagnant environments tend to lead to decreased participation and missed opportunities for improvement.
- Other states such as Idaho, Nevada, Arizona and Wyoming are constantly adding opportunities based on biological resources and hunter demand and have been successful. The results speak for themselves and this approach has been proven to work.
- Big Game hunters as a whole are incredibly frustrated with the preference point system and the number of years it takes to draw a “premium hunt”.
- Simply changing dates or adding a few premium hunts in general zones can increase draw odds and spread the point pool of applicants.
- Builds rapport with hunters and CDFW. Adds to the benefit of active management and responsiveness of the department to hunters.
- By spreading the already allocated tags to new hunts, this method should result in little change to overall harvest.

Increased harvest from “late” hunts

- There would be higher success in some of the proposed hunts below which occur during the “rut” breeding season. If tags and harvest is modeled and tag allocations are spread between hunts there would not likely be an increase in take in the zones.
- Reducing general tags to accommodate increase in higher success hunts would be easily done and allow for not net increase harvest.

Proposals

While there are many potential proposals, we would like to move the following forward some of the following for consideration for the 2022 Big Game hunting season. **A table is also provided of a proposed roll out in order to alleviate large workload of implementing multiple changes in one season.**

General

Party Applications Return Tags Rule

Current rule:

To return an elk, pronghorn, or bighorn sheep tag, you must mail the tag along with a written request for your preference points to be reinstated. The tag and request must be postmarked before the earliest date that the tag is valid for hunting. If approved, tag will be refunded (minus the 2021 nonrefundable processing fee of \$31.93) and your preference points will be reinstated, plus one preference point for the species for the current license year (CCR T14-708.14(k)). To return a premium deer hunt tag, you must mail the tag along with a written request for your preference points to be reinstated. The tag must be postmarked before the earliest date the tag is valid for hunting. If the request is approved, your preference points will be reinstated, plus one preference point for deer for the current license year (CCR T14-708.14(j)). Premium deer hunt tags cannot be exchanged and are nonrefundable.

Proposed Change: Add Language

A person surrendering a tag awarded through a group application is eligible for the following:

(a) if all group members surrender their permits more than XX days before the start of the season for which the permit is valid, all group members may:

- (i) have previously acquired preference points reinstated plus one for that years application period;
- (ii) applicants may be eligible for a refund consistent with Section XXXX;

Notwithstanding the limitations in this section, a person who obtains a permit through a group application may surrender that permit after the opening date of the applicable hunting season and have previously acquired bonus points or preference points for the permit species restored, provided the person:

- (a) is a member of United States Armed Forces or public health or public safety organization and is deployed or mobilized in the interest of national defense or national emergency;
- (b) surrenders the permit to the department, with the tag attached and intact, or signs an affidavit verifying the permit is no longer in their possession within one year of the end of hunting season authorized by the permit; and
- (c) satisfies the requirements for receiving a refund in Subsections R657-42-5(3)(c) and (d).

What does this prevent? Many in the hunting community refer to this as the “Grandma Rule” and it is utilized to circumvent the draw system. Example: John Doe has 0 points and his grandma has 12 points. They apply as a party for deer and have an average of 6 points $(0+12/2)$. They are successful drawing X4. John Doe plans on hunting while Grandma returns tag and request for points to be reinstated. CDFW reinstates points she now has 13 points and John Doe has zero and goes on the hunt. John Doe can then apply with Grandma next year and split 13 points....This can be done over and over again allowing John to get tags year after year using grandmas points.

Party hunt members in a group application are able to return their party tag to the Department but will not receive a refund or Preference points unless all members of that party also return their tags to the Department.

Pro: Prevents the draw system from being circumvented, increases draw odds, creates fairness.

Con: Additional programming and workload to track.

Who else Does this? Nevada Department of Wildlife implemented this in 2020, Utah implemented in early 2000’s.

Returned Tag Reissuance

Current Rule:

Hunters who have been issued a premium deer, elk, antelope, or a Bighorn sheep tag and cannot hunt may return their unused tag to the license and revenue branch by mail before opening day of the hunt. To return one of these tags, you must mail the unused tag along with a written request for your preference points to be reinstated postmarked before the earliest date that the tag is valid. If approved, the tag will be refunded, minus a processing fee, and your points reinstated, plus one for the current year. These tags are then issued to alternates. If tag is not accepted by the alternative the tag goes unused.

Proposed Change:

Elk, Sheep, Premium deer, and antelope tags returned by successful tagholders would be issued to alternates. If the tag is not accepted by the alternates then the tag would be made available and can be purchased online on a first-come first-serve basis. Tags that have seasons that have already started would still be available for those willing to accept the shorter timeframe and planning. Those who receive tags in this manner would forfeit preference points.

Pro: Tags have a less likely chance of going unused. Additional opportunity for unsuccessful hunters. Additional sales.

Cons: Additional work, online programming, and overhead cost.

Second Bear Tag Option

Current Rule:

Qualified individuals may purchase one bear tag per year. Tag quota, must cease hunting if bear harvest reaches quota.

Proposed Change:

Successful bear hunters upon completion of harvest report and CDFW validation may purchase a second Bear tag at \$XX.XX. ***Potential addition: If bear harvest reaches 80% of quota no second tags would be issued.

Pro: Increases opportunity, sales, revenue, bear harvest.

Con: Additional work, could reach quota faster, preventing people with one bear tag to lose opportunity- Low probability since bear harvest have not reach quota since 2012.

General Deer Tag Archery/Rifle Separation

Background:

General A, B, D zones tags allow hunters to hunt during the general archery and general rifle seasons. There are three sets of hunters that utilize these tags:

1. Archery only hunters- Hunters that only participate in the archery season
2. Rifle only hunters- Hunters that only participate in the rifle season.
3. Combo Hunters- Hunters that participate in both archery and general seasons.

Problem:

- Wildland fires have closed public lands during the months of July through October. This has created a hardship for many of the hunters listed above as well as additional work for CDFW on returned tags.
- Many rifle hunters (#2) have been extremely upset since they cannot turn tags since the closures have happened after the archery season has already started.
- Archery hunters (#1) are upset that they are missing hunting opportunity with the early season being impacted.

Proposed Change

1. General A, B, D zones tags are only valid for the General rifle seasons.
2. Propose adding an additional date(s) to the Current AO (Archery Only) tag for each zone.

Example:

Hunters who purchase and Archery Only (AO) tag may hunt an additional 9* days starting the following day after the rifle season in that zone closes. *Days can be shorter

Zone D6 Example:

- General Rifle Tag Season- September 18 through October 31, 2021
- General AO Tag Season for D6- August 21 through September 12, 2021 & November 1-7
- Tag allocation: TBD

Pro

- Additional opportunity for Archery hunters.
- Additional opportunity for Archery hunters whose season was closed due to wildfire
- Allows general rifle only hunters to turn tags bag later since the season has not started.

Cons

- Combo hunters lose opportunity.
- Difficult to track /Confusing initial release to public.

***Propose doing this as a test in all zones or just some zones.

General Premium Zones

Proposed Change

Split rifle C Zones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 8,150 tags

Proposed Tags- *Would be based on CDFW data.

- C1-1,766
- C2-1,766
- C3-1,766
- C4-2,852

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones, reduces hunter congestion and gives biologists better harvest data.

Cons- Reduces hunter flexibility by having to choose zone up front.

Split Zones X3b

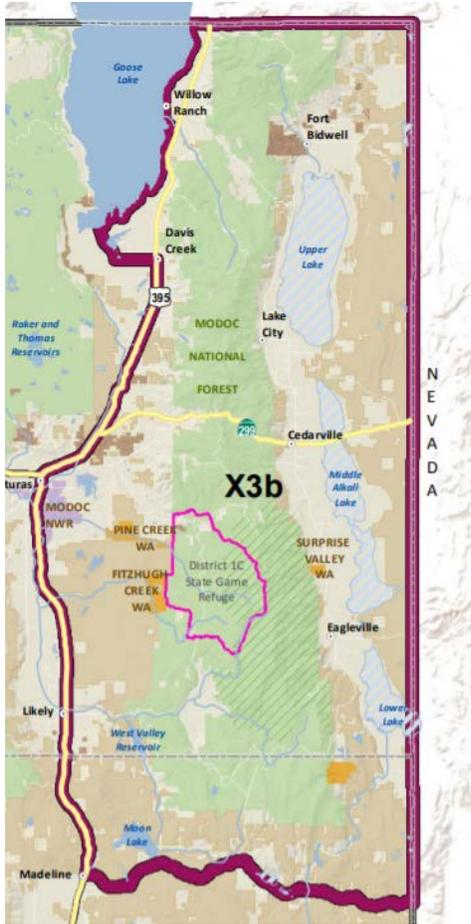
This zone is highly sought after and very large. There are high concentrations of use in specific portions of this zone leaving many portions of the unit not hunted or with low use. The zone has main roads that travers West to East through the Zone and could be used to split the zone into two. This would not result in a tag allocation increase but splits them based on population estimates.

Current Tag Allocations

- X3B-499

X3B North- Keep existing Northern, West and East Boundaries, however, change the southern boundary to Hwy 299. 220 tags

X3b South- Keep existing Southern, West and East Boundaries, however, change the Northern boundary to Hwy 299. 279 tags



Pros- Spreads draw applications. Adds two additional options for hunters to apply for therefore spreading the applications and cumulatively reducing preference point needed to draw other hunts.

Cons- Reduces tags in size and tag allocation in main unit. Reduces hunter's flexibility.

General Methods

Proposed Changes

1. **G40- A Zone North Late Rifle Tag**- 15-35 tags, Starts the following Saturday after A zone rifle and runs for 9 consecutive days. Tag is good for all public and private lands within the A North Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
2. **G41- A Zone South Late Rifle Tag** - 15-35 tags, Starts the following Saturday after A zone rifle and run for 9 consecutive days. Tag is good for all public and private lands within the A South Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
3. **G42- Snow Mountain Wilderness Early Rifle**- 5-15 tags, Starts the last Wednesday in July and runs for 5 consecutive days. Tag is good for all public and private lands within the B1 & B3 zone within the Snow Mountain Wilderness. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Adds a unique opportunity for backcountry rifle hunters. Other states like Wyoming and Colorado have these same hunts.
4. **G43- Late Season Buck Hunt in d6**- 20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D6 Zone. This tag allocation can be removed from the general 10,000 tags that are allocated for D6 zone.
5. **G44- Late Season Buck Hunt in d7**-20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D7 Zone. This tag allocation can be removed from the general 9,000 tags that are allocated for D7 zone.

Muzzleloader

Proposed Changes

1. **M8- Bass Hill Boundary Change**- Allow hunters access to all of the X6a zone. Current M8 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **M13- D3 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
3. **M14- D4 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
4. **M15- D5 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
5. **M16- Jackson State Forest Muzzleloader Buck Hunt**- 10-20 tags- Start the third Saturday in October and run for 9 consecutive days. Falls within the boundaries of the Jackson State forest in A Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.

Archery

Proposed Changes

Split Archery CZones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 1,945 tags,

Proposed Tags- Would be based on CDFW data.

- C1-400
- C2-400
- C3-400
- C4-745

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones. Give biologist better harvest data.

Cons- Reduces hunter flexibility by having to choose zone up front.

New Hunts

1. **A26- Bass Hill Late Archery Boundary Change-** Allow hunters access to all of the X6a zone. Current A26 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **A34- King Range Late Archery Buck-** 10-20 tags. Runs the last Saturday in October and runs for 9 consecutive days. Hunt falls within B4 zone. Can hunt private and public lands within the B4 zone. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.
3. **A36- Late Archery buck in C1-C3-** 15-35 tags, Starts the following Saturday after C3 rifle (latest date) and runs for 14 consecutive days. Tag is good for all public and private lands within the C1-C3 Zones. This tag allocation can be removed from the 12,870 tags that are allocated for C1-4 zones (includes rifle, general, archery and apprentice).

Apprentice

Proposed Changes

New Hunts

- **J23-Honey Lake Wildlife Area Early buck Rifle Hunt**- 5-10 tags. Apprentice can hunt on CDFW lands (Dakin & Fleming) wildlife areas. Starting the First Saturday in August and runs for 9 consecutive days. This tag allocation can be removed from the tags that are allocated for X6a.
- **J24- Late Season X4 hunt**- 10-20 tags. Start the First Saturday in November and runs for 9 consecutive days. This tag allocation can be removed from the 599 tags that are allocated for X4 zone.

Elk

Proposed Changes

Change Antlerless hunts in Marble Mountains and Siskiyou units. Increases hunter pressure during Bull hunts creates many hunter conflicts during the hunts and a poor hunt experience. Cow Elk opportunity is generally better in the late fall. Northeastern Elk Zone made this exact change a few years ago. Hunting cows during the breeding seasons could affect breeding patterns.

- Hunt Code 301- Marble Mountain Antlerless- ~~September 8-19~~ October 2-10 or later.
- Hunt Code 401- Siskiyou Antlerless- ~~September 8-19~~ October 2-10 or later.

Archery Opportunity- Provide an additional Archery opportunity for Tule Elk

- Grizzly Island Period 1 Either Sex- August 7-9

Non-resident opportunity

- Many non-residents do not participate in the Big Game Draw due to the fact that there is only One tag available for Elk and Antelope and 10% allocated for Sheep. The 10% rule should be for all three species. This would drive more non-resident applications while not impacting resident odds dramatically.

Alternate Back-up Dates or longer seasons

- If Public lands are closed due to wildfire tagholders would be allowed to utilize their tags during the current season or during another date later in the year
- Example1- Marble Mountains Elk Tags- September 8-19- USFS is closed, tagholders can turn their tag back or hunt for 2-3 weeks in October or November***TBD by CDFW staff
- Example 2- Siskiyou Elk Tag Dates- September 8 through November 30. Longer season allows for more opportunity as well as better success to meet Elk population objectives.

Bighorn Sheep

Add 2-4 tags allocated for Archery and Muzzleloader hunts Zone wide (Zones 1, 3, 10). These could also be conducted outside of the general season to reduce congestion.

- Currently the state has ranges with excess sheep. Once Sheep herds reach a certain population, they become more susceptible to disease. Removing excess sheep in higher population units would assist in reducing likelihood of disease.
- The 2019 ED that was completed by the department allowed for the cdfw to allocate additional tags for specific units. Some of these units are at the max of their allocations however other are not.
- Archery and muzzleloader is a more difficult method of take and offering up to 4 more tags could result in 100% take however it is unlikely.
- As shown in the below table, many of the units have 100's of sheep and would justify additional harvest.

Appendix 5: Desert Bighorn Sheep Surveys

Zone	Year	Survey Type	Number of Lambs	Number of Ewes	Number of Rams	Number of Unclassified	Total Counted
Marble Mountains	2007	Helicopter	12	84	46	0	142
	2009	Helicopter	34	88	65	0	187
	2015	Helicopter	8	48	23	5	84
	2016	Ground	42	73	35	2	152
	2018	Ground	18	78	35	1	132
Clipper Mountains	2007	Helicopter	0	8	11	0	19
	2009	Helicopter	4	13	16	0	33
	2015	Helicopter	4	20	22	0	46
Clark Mountain	2007	Helicopter	0	31	18	0	49
	2009	Helicopter	0	12	8	0	20
	2015	Helicopter	0	1	3	0	4
	2016	Helicopter	1	31	13	5	50
Kingston Range	2007	Helicopter	3	27	21	0	51
	2009	Helicopter	6	33	20	0	59
	2015	Helicopter	9	25	14	0	48
	2016	Helicopter	3	31	19	2	55
	2018	Helicopter	5	80	34	0	119
White Mountains	2008	Helicopter	16	59	52	0	127
	2009	Helicopter	16	60	29	2	107
	2015	Ground	46	69	82	20	217
	2016	Ground	26	43	9	22	100
	2018	Ground	36	124	62	1	223
Cady Mountains	2007	Helicopter	12	59	38	0	109
	2009	Helicopter	37	92	38	0	167
	2010	Helicopter	23	102	49	0	174
	2018	Helicopter	8	58	27	0	93
Newberry, Rodman and Ord Mountains	2016	Helicopter	49	70	52	0	171
	2018	Helicopter	35	95	72	0	202

Proposal Table

2022 Implementation

2023 Implementation

2024 Implementation

Proposal Number (not in ranking order)	Proposal Name	Page Reference	Year Implemented
1	Party Application Rule	4	2022
2	Tag reissuance	5	2023
3	2 nd Bear Tag	6	2022
4	General Rifle/Archery Deer tag separation	7	2023
5	Split C Zone General	8	2022
6	Split X3b	8	2023
7	G40- A Zone North Late Rifle Tag	10	2023
8	G41- A Zone South Late Rifle Tag	10	2023
9	G42- Snow Mountain Wilderness Early Rifle	10	2024
10	G43- Late Season Buck Hunt in d6	10	2023
11	G44- Late Season Buck Hunt in d7	10	2023
12	M8- Bass Hill Muzzleloader Boundary Change	11	2022
13	M13- D3 Late Muzzleloader Hunt	11	2022
14	M14- D4 Late Muzzleloader Hunt	11	2022
15	M15- D5 Late Muzzleloader Hunt	11	2022
16	M16- Jackson State Forest Muzzleloader Buck Hunt	11	2024
17	A26- Bass Hill Late Archery Boundary Change	12	2022
18	Split Archery (A1) C Zones	12	2022
19	A34- King Range Late Archery Buck	12	2023
20	A36- Late Archery buck in C1-C3	12	2022
21	J23-Honey Lake Wildlife Area Early buck Rifle Hunt	13	2022

22	J24- Late Season X4 hunt	13	2023
23	Marble & Siskiyou Antlerless Date Change	14	2022
24	Archery Grizzly Island Bull	14	2024
25	Alternate Elk dates for potential closures	14	2022
26	Archery BHS opportunity	15	2024

2022 Big Game Proposals

Completed by Dan Ryan in Coordination with Sportsman groups and
Local CDFW Biologist.



Background



- CDFW R3 Committee- Recruitment, Retention, Reactivation
- Licensing structure committee identified the Big Game tags/hunts were outdated and need reform.
- Over 15 years of working with hunter groups and hearing frustrations about CDFW hunts.
- Collaborated with CDFW to ensure proposals meet goals and objectives of department.

Why?

- Hunter environment is changing and CDFW should adapt to the needs.
- More applicants- Close to 20K new applicants in the Big Game drawing since 2014 making draw odds tough.
- Create better hunt opportunity and quality to continue to recruit and retain hunters.
- Increase revenue for CDFW.
- Increase Draw odds for Big Game Drawing
- Build Rappor with Sportsman- Shows that the Department is listening to the sportsman's complaints and request.

General Changes

- Party Applications Return Tags Rule

- Currently allows Any members of a party application to turn back a tag and get points reinstated.
- Many use this rule to their advantage by putting in party members that have no intent to hunt.
- Example: John Doe has 0 points, and his grandma has 12 points. They apply as a party for deer and have an average of 6 points $(0+12/2)$. They are successful drawing X4. John Doe plans on hunting while Grandma returns tag and request for points to be reinstated. CDFW reinstates points she now has 13 points and John Doe has zero and goes on the hunt. John Doe can then apply with Grandma next year and split 13 points...This can be done over and over again allowing John to get tags year after year using grandma's points.

Returned Tag Reissuance

- Currently tags that are turned back are given to the alternates that were assigned through the drawing.
- It is unclear if this occurs on tags that are turned back the day prior to the season.
- Propose that CDFW make available tags turned back later, where by the time CDFW process the season has started and alternates are now available.

Example:

- John Doe drew a X4 tag. He is planning on going however has an emergency the week before the hunt that prevents him from going. John follows CDFW rules and turns the tag back the day prior to the season. CDFW takes 3-4 days to process this return and places the tag back on the open market via Aspira where sportsman can purchase first come first serve.
- Colorado, Idaho and Nevada do this process and it works nice for providing additional opportunity as well as additional revenue for the department.

Big Game Proposals

- **Second Bear Tag Option**

Qualified individuals may purchase one bear tag per year. Tag quota, must cease hunting if bear harvest reaches quota.

- **Proposed Change:**

Successful bear hunters upon completion of harvest report and CDFW validation may purchase a second Bear tag at \$XX.XX. ***Potential addition: If bear harvest reaches 80% of quota no second tags would be issued.

General Premium Deer Hunts

Split rifle C Zones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 8,150 tags

Proposed Tags- *Would be based on CDFW data.

- C1-1,766
- C2-1,766
- C3-1,766
- C4-2,852

- **Pros-** C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones, reduces hunter congestion and gives biologists better harvest data.

- **Cons-** Reduces hunter flexibility by having to choose zone up front.

Split Zones X3b

- This zone is highly sought after and very large. There are high concentrations of use in specific portions of this zone leaving many portions of the unit not hunted or with low use. The zone has main roads that travers West to East through the Zone and could be used to split the zone into two. This would not result in a tag allocation increase but splits them based on population estimates.

Current Tag Allocations

- X3B-499

X3B North- Keep existing Northern, West and East Boundaries, however, change the southern boundary to Hwy 299. 220 tags

X3b South- Keep existing Southern, West and East Boundaries, however, change the Northern boundary to Hwy 299. 279 tags

Pros- Spreads draw applications. Adds two additional options for hunters to apply for therefore spreading the applications and cumulatively reducing preference point needed to draw other hunts.

Cons- Reduces tags in size and tag allocation in main unit. Reduces hunter's flexibility.

General Methods Deer Hunts

1. **G40- A Zone North Late Rifle Tag**- 15-35 tags, Starts the following Saturday after A zone rifle and runs for 9 consecutive days. Tag is good for all public and private lands within the A North Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
2. **G41- A Zone South Late Rifle Tag** - 15-35 tags, Starts the following Saturday after A zone rifle and run for 9 consecutive days. Tag is good for all public and private lands within the A South Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone.
3. **G42- Snow Mountain Wilderness Early Rifle**- 5-15 tags, Starts the last Wednesday in July and runs for 5 consecutive days. Tag is good for all public and private lands within the B1 & B3 zone within the Snow Mountain Wilderness. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Adds a unique opportunity for backcountry rifle hunters. Other states like Wyoming and Colorado have these same hunts.
4. **G43- Late Season Buck Hunt in d6**- 20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D6 Zone. This tag allocation can be removed from the general 10,000 tags that are allocated for D6 zone.
5. **G44- Late Season Buck Hunt in d7**-20-50 tags, Starts the first Saturday in November and runs for 5 consecutive days. Tag is good for all public and private lands within the D7 Zone. This tag allocation can be removed from the general 9,000 tags that are allocated for D7 zone.

Deer Muzzleloader Hunts

1. **M8- Bass Hill Boundary Change**- Allow hunters access to all of the X6a zone. Current M8 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **M13- D3 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
3. **M14- D4 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
4. **M15- D5 Late Muzzleloader Hunt**- 10-20 tags. Start the following Saturday after D3 rifle and run for 9 consecutive days. This tag allocation can be removed from the general 33,000 tags that are allocated for D3-5 zone.
5. **M16- Jackson State Forest Muzzleloader Buck Hunt**- 10-20 tags- Start the third Saturday in October and run for 9 consecutive days. Falls within the boundaries of the Jackson State forest in A Zone. This tag allocation can be removed from the general 65,000 tags that are allocated for A zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.

Archery Deer Hunts

Split Archery C Zones

Currently the C zones are lumped into one zone (C1-4). The zones currently have separate seasons established. While hunting occurs in all zones, C4 has the highest concentrations of hunters.

Current Tags

- C1-4- 1,945 tags,

Proposed Tags- Would be based on CDFW data.

- C1-400
- C2-400
- C3-400
- C4-745

Pros- C Zone tags are becoming harder to draw and if they were split it would allow hunters who want easier draw odds to look at the less popular zones such as C1-3. Spread applicants across zones. Give biologist better harvest data.

Cons- Reduces hunter flexibility by having to choose zone up front.

1. **A26- Bass Hill Late Archery Boundary Change-** Allow hunters access to all of the X6a zone. Current A26 zone boundary is the Lassen County portion of X6A. There was no management reasoning for this. Originally the boundary was set for weather access and location of majority of the deer.
2. **A34- King Range Late Archery Buck-** 10-20 tags. Runs the last Saturday in October and runs for 9 consecutive days. Hunt falls within B4 zone. Can hunt private and public lands within the B4 zone. This tag allocation can be removed from the general 35,000 tags that are allocated for B zone. Oregon has numerous late season blacktail hunts in dense forested zones. This could be similar.
3. **A36- Late Archery buck in C1-C3-** 15-35 tags, Starts the following Saturday after C3 rifle (latest date) and runs for 14 consecutive days. Tag is good for all public and private lands within the C1-C3 Zones. This tag allocation can be removed from the 12,870 tags that are allocated for C1-4 zones (includes rifle, general, archery and apprentice).

Apprentice Deer Hunts

- **J23-Honey Lake Wildlife Area Early buck Rifle Hunt-** 5-10 tags. Apprentice can hunt on CDFW lands (Dakin & Fleming) wildlife areas. Starting the First Saturday in August and runs for 9 consecutive days. This tag allocation can be removed from the tags that are allocated for X6a.
- **J24- Late Season X4 hunt-** 10-20 tags. Start the First Saturday in November and runs for 9 consecutive days. This tag allocation can be removed from the 599 tags that are allocated for X4 zone.

Elk Hunts

Change Antlerless hunts in Marble Mountains and Siskiyou units. Increases hunter pressure during Bull hunts creates many hunter conflicts during the hunts and a poor hunt experience. Cow Elk opportunity is generally better in the late fall. Northeastern Elk Zone made this exact change a few years ago. Hunting cows during the breeding seasons could affect breeding patterns.

- Hunt Code 301- Marble Mountain Antlerless- ~~September 8-19~~ October 2-10 or later.
- Hunt Code 401- Siskiyou Antlerless- ~~September 8-19~~ October 2-10 or later.

Archery Opportunity- Provide an additional Archery opportunity for Tule Elk

- Grizzly Island Period 1 Either Sex- August 7-9

Non-resident opportunity

- Many non-residents do not participate in the Big Game Draw due to the fact that there is only One tag available for Elk and Antelope and 10% allocated for Sheep. The 10% rule should be for all three species. This would drive more non-resident applications while not impacting resident odds dramatically.

Alternate Back-up Dates or longer seasons

- If Public lands are closed due to wildfire tagholders would be allowed to utilize their tags during the current season or during another date later in the year
- Example1- Marble Mountains Elk Tags- September 8-19- USFS is closed, tagholders can turn their tag back or hunt for 2-3 weeks in October or November***TBD by CDFW staff
- Example 2- Siskiyou Elk Tag Dates- September 8 through November 30. Longer season allows for more opportunity as well as better success to meet Elk population objectives.

Sheep Hunts

Add 2-4 tags allocated for Archery and Muzzleloader hunts Zone wide (Zones 1, 3, 10). These could also be conducted outside of the general season to reduce congestion.

- Currently the state has ranges with excess sheep. Once Sheep herds reach a certain population, they become more susceptible to disease. Removing excess sheep in higher population units would assist in reducing likelihood of disease.
- The 2019 ED that was completed by the department allowed for the cdfw to allocate additional tags for specific units. Some of these units are at the max of their allocations however other are not.
- Archery and muzzleloader is a more difficult method of take and offering up to 4 more tags could result in 100% take however it is unlikely.
- As shown in the below table, many of the units have 100's of sheep and would justify additional harvest.

Phased Approach

Proposal Number (not in ranking order)	Proposal Name	Page Reference	Year Implemented
1	Party Application Rule	4	2022
2	Tag reissuance	5	2023
3	2 nd Bear Tag	6	2022
4	General Rifle/Archery Deer tag separation	7	2023
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21	J23-Honey Lake Wildlife Area Early buck Rifle Hunt	13	2022
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23	Marble & Siskiyou Antlerless Date Change	14	2022
24	Archery Grizzly Island Bull	14	2024
25	Alternate Elk dates for potential closures	14	2022
26	Archery BHS opportunity	15	2024

Thank you!



From: Alexander Schaefer [REDACTED]
Sent: Tuesday, May 10, 2022 7:03 AM
To: FGC <FGC@fgc.ca.gov>
Subject: 5/19/22 Wildlife Resource Committee Meeting

[REDACTED]

[REDACTED]

WARNING: This message is from an external source. Verify the sender and exercise caution when clicking links or opening attachments.

Commissioners,

I'm writing to give my full support for any discussed changes to rule making around 2021-017 for black bear. Pending the findings of the updated bear management plan, I, as well as thousands of other sportsmen/women in this state would like to see significantly expanded opportunity around black bear hunting that we know can be done in a biologically sound way.

Discussion of a spring season equal in length to the current fall season, two bear tags for each season or one for each, as well as an overall increased take quota for a fall and spring bear hunt are the primary additions that I believe could be feasibly implemented and sustainable for our thriving bear population.

Thank you,
Alex

From: Michael Costello [REDACTED]
Sent: Tuesday, May 10, 2022 9:59 AM
To: FGC <FGC@fgc.ca.gov>
Subject: May 19 WRC Meeting - comments, support

WARNING: This message is from an external source. Verify the sender and exercise caution when clicking links or opening attachments.

Hello Commissioners and CDFW leaders and staff.

For the upcoming WRC meeting I want to express support and encouragement for the following items which I expect to be discussed or introduced:

1) From Petition 2021-017 - the call for a 2nd bear tag during the Fall hunt. I would like to see this inspire some action from CDFW and the Commission. We have seen data which shows our population is healthy and abundant, and that we have many zones w/in the state that have very high bear densities. I believe the spirit of the Petition can be maintained with the following opportunity: **(a)** A second fall bear tag shall be made available to any license holder from the beginning of tag sales up until 7-days after the reported harvest reaches 1500 bears killed; **(b)** the 2nd fall bear tag shall be valid in all of the zones showing medium to high population densities, based on the 2022 black bear report submitted to the FGC in April 2022; **(c)** the 2nd bear tag shall be sold at the same price as the first bear tag, for resident and/or non-residents respectively. *The hunting community supports this.*

- **Expected outcome:** (1) harvest will increase but not surpass quota. (2) 1000s of hunters will elect to purchase a 2nd tag immediately, yielded added funding of \$100k to \$300k (estimated) (3) zone specific 2nd bear harvests will mitigate population impacts, conflicts and prey-species impacts occurring locally where black bear populations are greatest.

2) From Petition 2021-017: Please identify 5 new premium hunt opportunities for deer, by reducing the general season tag allocation in select A, B and D zones from North, Central and Southern California areas, and converting those tags (and expected annual harvest) into premium hunt opportunities. Take into account season and method of take to manage expected harvest, and calibrate the new premium tag allocation accordingly. *The hunting community supports this.*

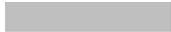
3) Inspired by Petition 2021-017: the California Elk population is > 7000 however our elk harvest each year is <400. I would like to see the CDFW, Commission and hunting community work towards a plan which starting in 2024 enables (1) increased tag allocations with more challenging seasons and methods

of take (2) manage for an expected average success rate of 20% instead of 100% (3) use the 3x to 10x # of tags sold to fund elk habitat and herd investment project. Starting in 2024, by 2030 California should be able to support 3000-5000 elk tags being sold with significant increase in population and herd range extended. Let's start working on this now. *The hunting community supports this.*

Thank you!

I am available to discuss these and other proactive ideas to improve wildlife mgmt, wildlife success and hunting opportunity in CA.

Mike Costello



California Fish and Game Commission
Wildlife Resources Committee (WRC) Work Plan
Scheduled Topics and Timeline for Items Referred to WRC
Updated April 8, 2021

		Jan 2022 Webinar/ Teleconf	May 2022 Redding	Sep 2022 LA/Inland Empire
Periodic Regulations				
Upland (Resident) Game Birds	Regulatory		X	X/R
Mammal Hunting	Regulatory		X	X/R
Waterfowl Hunting	Annual		X	X/R
Central Valley Sport Fishing	Annual		X	X/R
Klamath River Basin Sport Fishing	Annual		X	X/R
Inland Sport Fishing	Regulatory	X/R	X	X/R
Regulations & Legislative Mandates				
Falconry	Referral for Review			
Preference Points and Refunds for Hunting Tags	Regulatory	X		X/R
Restricted Species	Regulatory			X
<u>Wildlife Rehabilitation Updates</u>	<u>Regulatory</u>			<u>X</u>
<u>Upland Game Hunting Draws</u>	<u>Regulatory</u>			<u>X</u>
Special Projects				
American Bullfrog and Non-native Turtle Stakeholder Engagement Project	Referral for Review	X	X	X
Regulation Change Petitions				
Petition 2021-017	Referral for Review	X	X	X/R

KEY: X Discussion scheduled X/R Recommendation developed and moved to FGC

Items proposed for change are shown in blue underlined or strikeout font.

California Fish and Game Commission: Perpetual Timetable for Anticipated Regulatory Actions

Updated May 12, 2022

Regulatory Change Category	Title 14 Section(s)	FGC Teleconference May 19, 2022	WRC Redding May 19, 2022	FGC Los Angeles June 15, 2022	FGC Los Angeles June 16, 2022	MRC Napa/Sonoma Area July 14, 2022	TC Fortuna August 16, 2022	FGC Fortuna August 17, 2022	FGC Fortuna August 18, 2022	WRC Los Angeles / Inland Empire September 15, 2022	FGC Truckee October 12, 2022	FGC Truckee October 13, 2022	MRC San Diego Area November 17, 2022	TC San Diego Area December 15, 2022	FGC San Diego Area December 14, 2022	FGC San Diego Area December 15, 2022	WRC TBD January 2023	FGC TBD 1 February 2023	FGC TBD 2 February 2023	MRC TBD March 2023	TC TBD April 2023	FGC TBD 1 April 2023	FGC TBD 2 April 2023	
Recreational Clam, Sand Crab, and Shrimp Gear Emergency (Second 90-day Extension) ⁵	29.20, 29.80					EE 7/11																		
Recreational Clam, Sand Crab, and Shrimp Gear (Implementing Certificate of Compliance) ⁶	29.05, 29.20, 29.80					E 7/1																		
Central Valley Sport Fishing (Annual)	7.40(b)(4), (43), (66), (80)	A					E 7/16																	
Klamath River Basin Sport Fishing (Annual)	7.40(b)(50)	A					E 8/15																	
Waterfowl (Annual)	502					E 7/1																		
CA Grunion Limit and Season Changes (FGC Petition #2019-014)	27.60(b), 28.00			E 6/1																				
Pink Shrimp Fishery Management Plan Implementing Regulations	56.00, 56.01, 120, 120.1, 705			D/A						E 10/1														
Harvesting of Kelp and Other Aquatic Plants, Commercial Marine Algae Management Policies	165, 165.5, 705.1					E 7/1																		
Low Flow Fishing Restrictions Due to Drought Conditions	7.40(b)(40)(A)1., 8.00(a), 8.00(b)					EE 8/2																		
Low Flow Fishing Restrictions Due to Drought Conditions (90-day Extension)	7.40(b)(40)(A)1., 8.00(a), 8.00(b)				A		E 8/2			EE 10/31														
Game Fish Contests	230	D			A			EUf																
Sport Fishing Regulation Updates	2.00, 2.25, 2.30, 5.00, 5.15, 5.41, 5.75, 5.79, 5.85, 5.87, 7.40, 7.50, 8.00, 29.85				D			A									E 1/1							
Recreational and Commercial Fishing Regulations for Federal Groundfish and Associated Species for Consistency with Federal Rules in 2023 and 2024	27.20, 27.25, 27.30, 27.35, 27.40, 27.45, 27.50, 28.26, 28.27, 28.28, 28.29, 28.47, 28.48, 28.49, 28.54, 28.55, 28.56, 28.58, 52.10, 150.06, 150.16			N				D			A						E 1/1							
Clarification of Allowed and Prohibited Uses for State Marine Recreational Management Areas (SMRMAs)	632(b)(9), (b)(37), (b)(41), (b)(42), (b)(91)	D		A					EUf															
Western Joshua Tree Dead Hazard Trees 2084 Emergency (Second 90-day Extension)	749.11	EE 5/10																						
Western Joshua Tree Local Government 2084 Emergency (Second 90-day Extension)	749.12	EE 5/10																						
Recreational Sub-Bag Limits for Vermilion, Copper and Quillback Rockfishes Emergency	28.55					EE 7/6																		
Recreational Sub-Bag Limits for Vermilion, Copper and Quillback Rockfishes Emergency (First 90-Day Extension)	28.55			A		E 7/6				EE 10/4														
Pre-Existing Structures in Marine Protected Areas (MPAs), Marine Managed Areas (MMAs), and Special Closures	632									N					D				A					
Southern California Steelhead 2084 Emergency	749.13	E 5/16											EE 11/12											

Rulemaking Schedule to be Determined	Title 14 Section(s)	FGC Teleconference May 19, 2022	WRC Redding May 19, 2022	FGC Los Angeles June 15, 2022	FGC Los Angeles June 16, 2022	MRC Napa/Sonoma Area July 14, 2022	TC Fortuna August 16, 2022	FGC Fortuna August 17, 2022	FGC Fortuna August 18, 2022	WRC Los Angeles / Inland Empire September 15, 2022	FGC Truckee October 12, 2022	FGC Truckee October 13, 2022	MRC San Diego Area November 17, 2022	TC San Diego Area December 15, 2022	FGC San Diego Area December 14, 2022	FGC San Diego Area December 15, 2022	WRC TBD January 2023	FGC TBD 1 February 2023	FGC TBD 2 February 2023	MRC TBD March 2023	TC TBD April 2023	FGC TBD 1 April 2023	FGC TBD 2 April 2023	
Santa Cruz Harbor Salmon Fishing (FGC Petition 2016-018)	TBD																							
European Green Crab (FGC Petition 2017-006)	TBD																							
Wildlife Areas/Public Lands ⁴	TBD																							
Possess Game / Process Into Food	TBD																							
American Zoological Association / Zoo and Aquarium Association	671.1																							
Night Hunting in Gray Wolf Range (FGC Petition #2015-010)	474																							
Shellfish Aquaculture Best Management Practices	TBD																							
Ban of Neonicotinoid Pesticides on Department Lands (FGC Petition 2017-008)	TBD																							
Ridgeback Prawn Incidental Take Allowance	120(e)																							
North Yuba River Special Fishing Regulations (FGC Petition 2021-020) ⁸	TBD																							
Commercial Take of Pacific Herring: Lampara Bait Nets ⁷	163, 163.1																							

KEY
 FGC = California Fish and Game Commission MRC = FGC Marine Resources Committee WRC = FGC Wildlife Resources Committee TC = FGC Tribal Committee
 EM = Emergency EE = Emergency Expires E = Anticipated Effective Date (RED "X" = expedited OAL review) EUf = Effective Upon Filing w/ Secretary of State
 N = Notice Hearing D = Discussion Hearing A = Adoption Hearing V = Vetting R = Committee Recommendation
 4 = Includes FGC Petition 2018-003 6 = Includes FGC Petition 2019-012 7 = Includes FGC Petition 2020-015 8 = To be included in a future sportfishing regulations update