

Summary of Comments Received by TU Concerning the Management Strategic Plan

As a courtesy for your participation in the review process, I have attached a summary of the comments forwarded by you and your willingness to comment on the plan to the state. The summary includes comments or concerns for which there was quite a range. I am lumping common themes into single topics or ideas, therefore do not necessarily reflect the specific views of any one individual. You may judge for yourself whether the concerns are legitimate.

In general everyone agreed that a trout resource management plan was a welcome idea. Ultimately, there was variation in the judgment of reviewers regarding adequacy, comprehensiveness, and focus of the plan.

- 1) The technical background data and information (as a factual basis) upon which the plan has been based was not presented. Therefore, the merit and rigor of the plan's approach can not be judged. This included biological data about trout and associated communities, data regarding costs and benefits of the different program elements or approaches, and sociological information about angler preferences or use patterns. There was also concern that decisions were being made without adequate information or in spite of information. The focus of the plan needs to be based on sound biological principles from which actions feed. In a related concern, several reviewers indicated the continued need for independent and "dispassionate" review of the scientific and technical documentation.
- 2) There was no clear focus or conceptual mission presented concerning the state's trout management program. Only when the mission, measurable objectives, and methods are clearly articulated can the scientific community and the public judge the logic and merit of the program. There needs to be a more thorough presentation of the conflicts and problems with trout management and persistence, so that issues, goals, etc. relate to the problems.
- 3) The plan is vague and offers little in terms of operational detail or a set of individual performance standards or objective outcomes against which success is measured and based on a biologically-meaningful basis (e.g., ecological resilience and persistence of populations) rather than license sale revenues, personnel, or numbers of trout produced. It is also unclear as to the primary audience for the plan.
- 4) The broad range of issues discussed in the document calls for a prioritization of the issues, especially where one issue goal contradicts another. There needs to be a "correlation" between management priorities and budget allocations (or personnel effort). For example, Issue 1: Habitat – protection and restoration of vital coldwater habitat – been specifically identified in the departmental mission, however, the pattern of recent expenditures do not indicate that trout habitat management receives

Bob,

Thanks for "copying" me on your letter. Lots to do CA as in CO. More later as this stuff comes together.

John

Summary of Comments Received by TU Concerning the 1998 CDFG Trout Management Strategic Plan

As a courtesy for your participation in the review process of the CDFG Trout Plan, I have attached a summary of the comments forwarded by you and others. Thank you for your willingness to comment on the plan to the state. The summary is a list of ideas, comments or concerns for which there was quite a range. I have taken the liberty of lumping common themes into single topics or ideas, therefore, they are in my words and do not necessarily reflect the specific views of any one individual (including myself). You may judge for yourself whether the concerns are legitimate or not.

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prominence. A number of the strategies are contradictory without adequate description as to how such contradictions will be handled. Alternately, the various goals need to be further integrated; they should not be treated in isolation.

- 5) Many of the approaches discussed are definition-dependent, that is, they can mean many things. Some of the terminology reflects ingrained, closed-culture of the Department. Therefore, definitions need to be based on commonly accepted or at least cited sources.
- 6) The Department has a broad constellation of public trust responsibilities. Therefore, there is a diverse suite of values that need to be addressed relating to trout and their associated ecosystems not delimited by economic value to the state. For example, native trout are a public trust responsibility, whose protection and preservation should receive highest priority. The state needs to develop, plan, and implement policies on preservation of native trout, such as harvest and use directed or regulated in ways to ensure persistence.
- 7) Concerns about the loss of anglers to other forms of recreation and protecting "vested political interests" indicate that *agency conservation* is more important than resource conservation.
- 8) Ecosystem Management:
 - The plan needs to demonstrate which "model" of ecosystem management CDFG is proposing to use. There is no discussion of how ecological integrity of the system will be maintained, preserved, or restored (or that it is considered vital).
 - It is unclear whether concepts such as "ecosystem management" and "genetic integrity" are truly management priorities or are merely catch-phrases.
 - Ecosystem management approaches will benefit a greater constituency than anglers including land-holders.
- 9) Biodiversity and genetic integrity:
 - Sweeping, yet unsubstantiated, statements such as "Steelhead are genetically identical to resident coastal rainbow trout" do not invoke much confidence in the technical merit or rigor of thought that went into the plan.
 - The plan does not accurately convey the range and depth of the genetic diversity issue (i.e., not only how *genetic integrity* and *diversity* are defined, but also the signals that genetic data send in regard to the persistence of populations).
 - The interplay between population-level genetics, biological diversity, ecosystem processes, and stocking (as a management tool) is unclear from the plan.

- The level of genetic concern appears to follow the more agricultural production-based series of concerns rather than the conservation or biodiversity-based concerns discussed in Issue 2. The 1994 AFS Point/Counterpoint Debate series identifies many of the general concerns, which may or may not be applicable to California.
- Genetic background of the full range of species needs further examination

10) The demand concepts are either outdated or incorrect.

- Consumptive and non-consumptive demand estimates need to be based on data from more recent study.
- The basic assumptions upon which the demand/needs are estimated are based on circular logic (i.e., projected needs are based on creating demands for “continued attraction of anglers” [Issue 4]). There is some confusion concerning the differences between meeting, creating, and controlling *demand*.
- There is no concomitant or comparable assessment of the demands or needs for wild or native trout angling experiences.
- If there is already too much demand for propagated trout, why stimulate more???
- The department should not be in the position of asking for facilities upgrades to meet demand created by their own marketing strategies.

11) Creating a diversity of angling opportunity

- In the name of “diverse angling opportunity” the plan defends and even grows its present artificial trout production and investment in propagated catchable-sized trout to *several times its present level* to meet projected “demand” including the potential for continued dispersal of non-native species or transfer of non-native stocks (contradicting the biodiversity and genetic diversity goals).
- The assertion that a multi-fold increase in the “put and take” stocking approach throughout the state diversifies angling “opportunities” (rather than homogenizes them) is inconsistent with a cogent concept of diversity.

12) Emphasis of management approaches

- Current put and take stocking effort may waste and usurp funds from other programs in light of the full range of costs (hidden, sunk, marginal, and opportunity).
- The foremost, overarching need is to manage for the conditions under which trout are adapted to thrive on their own. This requires managing the constellation of factors that leads to trout abundance rather than manipulating the fish itself.

- catchable trout programs receive 30% of total inland fisheries budget while providing less than 10% of the angler days of effort (as well as low quality or low value angler days).
- Funding for wild trout has traditionally been minimal. Should there be alternative approaches to funding/partnerships for wild trout?
- Changes in our thinking about appropriate scope and scale of management activities (i.e., at the watershed or ecosystem levels) will require changes in our thinking as to who is responsible for paying for programs as well.
- Explore the possibility of transferring the entire catchable trout program to a stand-alone, self-pay program. Needs further explanation and definition of the use of private facilities to meet demand.

13) Hatchery and stocking programs

- The plan fails to acknowledge or address ecological harm caused when hatchery trout are stocked into waters that support wild trout populations.
- Evaluate stocking programs for impact on resident native and wild populations.
- Explore the feasibility of a more conservation-oriented hatchery program.
- Develop husbandry practices that capture (or mimic) native diversity within and among populations.
- The selection for wild performance characteristics under captive conditions may not be feasible.
- Develop genetically "marked" lines of trout for ecological and genetic performance evaluations in the wild.

14) Public education

- Creative marketing strategy "smacks of Madison Avenue desk-jockeying." Hype intended to fool people into thinking that lousy fishing is good will fail.
- Public education has multiple goals, but one is the explanation of rational expectations by the public.
- The key to increasing interest in trout angling among all segments of California's population is to increase the public's understanding of fish biology, ecology, and evolution as well as the needs and limitations of resource stewardship.

15) Other comments:

Need to include strategies to develop and refine cooperation between other states, federal and tribal authorities to promote viability of trout ecosystems.

Many of the native and wild stocks of steelhead and coastal rainbow trout that previously attracted anglers have been extirpated. This has contributed greatly to a lowered angler participation. Propagated, especially put and take, trout are not a suitable substitute for either biological or social reasons. Therefore, no amount of increased supply of catchable trout will satisfy the demand for the true desires of anglers: aesthetics and experiences.

The integration of the trout and steelhead management plans is mentioned, but not presented.

The plan calls for updated guidelines from those required in the TSMCA of 1979. What is the rationale (biological) for the changes? Will these changes put more or less stream miles into wild trout management programs? The strategy specifically mentions "catch and release" streams. What are the differences between these and "wild" trout streams?



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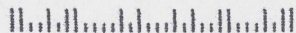
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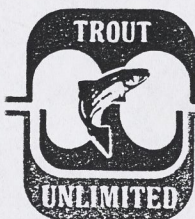
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MANUFACTURED FROM RECYCLED PAPER





David Nickum

Regional Conservation Director
Southern Rockies

August 16, 1996

Mr. Jim Bennett
Division of Wildlife
711 Independent Avenue
Grand Junction, CO 81505

Dear Mr. Bennett:

On behalf of Trout Unlimited and our Colorado members, I would like to thank you and the other members of the "blue ribbon panel" for your efforts in developing a report on whirling disease and the Division of Wildlife fishery program. We have many grave concerns about the report and have tried to offer constructive suggestions for change. In general, we were very disappointed with the status report portions of this review and more pleased by the brainstorming on alternatives. Shortcomings in the report are probably a reflection of the limited time and resources that were available to produce it. Perhaps a more comprehensive review is needed, conducted by a group of experts from both inside and outside of the Division. We would be pleased to assist in conducting such a review.

Because our comments are lengthy, we have enclosed a summary sheet that briefly outlines our suggestions. The more detailed comments appear below.

I. Philosophy

The report begins with a brief description of the Division's "dual mission" -- to protect and conserve aquatic resources and to provide recreational opportunity. In our view this mission is actually unified; if the Division conserves natural resources those resources will provide abundant opportunities for public enjoyment. This certainly seems to be the philosophy for the wildlife management program. That the two elements of this mission are seen as conflicting for the Division's fish management program suggests that there are problems far more deep-rooted than whirling disease.

TU believes that the Division's fish management decisions should be based on conservation of the resource. *Hatcheries should be seen first and foremost as a resource management tool, not as a means of generating recreation days.* Hatcheries are valuable in maintaining and reintroducing native species. They can also help maintain fishery resources in habitats which cannot support all life stages of trout (e.g., stocking of fingerling trout in waters with good habitat for juvenile and adult trout but poor spawning habitat). Catchable trout should then provide recreation in areas where opportunities for fish growth and reproduction are limited. Catchables should not be used, however, to provide a "superabundance" of fish in waters which, under proper management, would support sustainable wild or put-and-grow fisheries. We hope the Division will take this opportunity to take a more thorough look at the balance between its management programs.

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II. Whirling disease

The section on whirling disease provides a good historic overview of events in Colorado. We are encouraged by the range of research projects in which the Division is involved, and hope that it will provide the longer-term answers we need to address management in waters where *Myxobolus cerebralis* is found. We would suggest one change – the report recommends doing everything possible “to stop unwittingly exposing native cutthroat and wild trout” to *M. cerebralis*. Unfortunately, the Division also continues to deliberately plant WD-exposed fish in areas where they may effect wild trout (though no longer in habitats free of *M. cerebralis*). Current circumstances may make immediate elimination of this practice impossible, but it should be phased out as quickly as possible. This should be accomplished both through clean-up of hatcheries and through increasing reliance on wild trout management and put-and-grow stocking (from WD- hatch houses).

III. Native and wild trout management

We strongly concur with the panel that “protection of these native species and self-sustaining wild trout fisheries from adverse effects of WD . . . should not be compromised to sustain recreation use levels.” This is especially true for our native trout; as the panel says, (p. 27), “conservation objectives must take precedence over recreation” when it comes to Colorado’s cutthroat trout.

The report should provide a basis for its estimate of habitat that could ultimately be realized for native trout (10% of coldwater streams and 1% of coldwater lakes). Is this based on full implementation of existing recovery and conservation plans? While we agree that the lion’s share of fishing recreation will be supplied by other species, we do not want to see the importance of Colorado’s native cutthroat trout underestimated. The uniqueness of these fish makes them especially valuable to anglers and conservationists from Colorado and beyond.

We would like to call attention to the final paragraph on page 11:

Many streams in Colorado . . . support wild populations of . . . trout that are not officially designated as Wild Trout waters. Some of these waters are currently managed using catchable or subcatchable trout stocking to supplement the fishery provided by the wild populations. **It is possible that some of these waters could be managed as wild trout waters with little or no supplemental trout stocking.** [Emphasis mine]

Colorado’s wild trout resources extend far beyond officially designated waters. Given the cost-effectiveness of wild trout management, it is not only sound resource management but sound business management to expand this program. Under regulations that keep harvest in line with natural productivity, wild trout can play a significant role in providing recreation in light of the Division’s and the Commission’s move to reduce catchable trout production.

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IV. Catchable trout statistics

We are concerned with many of the statistics used in this report. Some are misleading and many have no evidence cited in support (other than a general statement that they are staff estimates). If better data does exist, readers should be made aware of the sources. We respect the professional judgment of Division employees and their knowledge of the resources they manage, but believe there is ample reason to question many of the statistics cited. We urge the panel to be more cautious in its use of numbers which do not have solid data to support them.

For example, the report cites Deloitte and Touche (1995) in claiming that 80% of coldwater recreation days in Colorado are supported by stocked fish. Given that Deloitte and Touche relied entirely on the Division staff for such information in its report, this number can hardly be presented as valid, externally-reviewed data. In fact, an earlier Division review (1986 hatchery review) reported that stocked fish provided approximately 30% of the fish caught in the state. It seems hard to believe that hatcheries would provide such a low portion of catch yet represent 80% of angling days. What is the basis for the 80% figure cited?

The report (Table 9) also indicates that 78% of anglers fished at put-and-take waters. This says nothing, however, about the number of days these anglers spent in put-and-take waters or about whether they also fished in "optimum" or "special" use waters. Also, many anglers fish "put-and-take" waters for species other than trout -- are they included as part of this 78%? If so, this statistic is extremely misleading.

Some description of the data used to provide the estimates of recreation days in intensive, optimum, and special use waters should be provided. Is good angler survey data available for all water types, or are these also staff estimates? Also, the statement that 85% of intensive recreation days depend upon catchable stocking seems extravagant, given the popularity of warm and cool water fisheries in many Colorado reservoirs. Past surveys of anglers using urban lakes have indicated that from 88-97% of anglers would continue to fish for warmwater species even if catchable trout stocking ceased (McAfee 1991).

Our greatest objection, however, lies with equating recreation days with changes in the catchable trout program -- an assumption that you admit is questionable:

there is a *direct and equal* correlation between the number of fish stocked and the number of recreation days generated. This assumption is an oversimplification and may lack validity as it does not account for factors, besides stocking level, which can affect fishing recreation use. (p.18)

In fact, there is information (from the Division itself) suggesting that this assumption does lack validity. Some examples:

- In 1984, Rifle Gap was stocked with 16,500 catchable trout and provided 58,000 angling hours. In 1987, 61,500 catchables were stocked and Rifle Gap

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provided 61,000 angling hours. Catchable stocking increased by 273%, while angling hours increased by only 5% (Bennett 1990, cited in McAfee 1991).

- On Bear Lake, catchable stocking rates for 1980-1982 were reduced by 75% for the years 1983-1985. Angling days did decline dramatically (from a three-year average of 20,000 to 11,700 or 42%), but the correlation was not direct and equal. The next year, catchable stocking was increased to 250 f/ha for one year, then returned to 100 f/ha. Angling days increased slightly when catchable stocking rates went up, but continued to increase when stocking rates were dropped again (McAfee 1991).
- On Stillwater Lake, research from 1980-1987 showed no correlation between catchable stocking rates and angling days provided (McAfee 1991).

These studies were not mentioned in the report -- nor for that matter were any studies supporting the proposed "direct and equal" correlation. It appears that this proposition has simply been accepted as an article of faith. This premise is highly questionable given the potential of other management options to provide recreation in the absence of catchable stocking and the importance of factors other than catch rates in angling satisfaction (Bergersen et al. 1982). While we appreciate the difficulty of predicting the impacts of different management options on angling days, we strongly object to your use of an assumption that is both questionable and biased towards emphasizing one management option -- catchable trout stocking. In this situation, circulating bad data may be worse than admitting that data is not available. Additional discussion on this issue can be found in Dr. Bob Behnke's comments (enclosed), in which we concur.

V. Economics

We strongly agree with the panel's recommendation for more intensive economic studies of Colorado's stocking program. As the panel notes, catchable trout stocking levels have been based less on angler demand and more on maximizing hatchery production -- thereby precluding questions about whether hatchery production is too large, too small, or about right. The panel is also correct in asking for angler demand to be considered in more of an economic light. Currently, it seems that the Division equates angler wants with angler demand. Demand, however, should reflect the willingness of anglers to pay. Angler *wants* for catchable stocking will be nearly unlimited. In contrast, angler *demand* captures the idea that trade-offs must be made and looks at what anglers are willing to pay.

Under the current system, where anglers pay a license fee up-front but can then harvest 8 trout per day throughout the year, the demand for additional fish can never be met. Since there is no cost incurred to harvest additional fish, angler demand will be unreachably high. If anglers that wish to harvest additional fish were responsible for the costs of those additional fish, the relationship would look far different. Economic analysis can help the Division better understand angler demand for catchable trout and then adjust supply accordingly. Existing research

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along this line (Johnson et al. 1995) suggests that the catchable trout program is inefficient, with marginal costs exceeding marginal benefits.

The Division also has an interest in maintaining "angler satisfaction." When anglers go on a fishing trip, they expect the opportunity to catch fish. However, studies have consistently shown that other factors are far more important to anglers than the opportunity to bring home a full creel. Of most interest for Colorado is the work of Bergersen et al. (1982), which found that factors such as a lack of traffic, attractive scenery, and opportunities for solitude away from the city were cited by anglers as the most important elements of their fishing experience -- more important than any factors relating to the fish they caught. It is also worth noting that anglers placed more importance on the opportunity to catch fish that were not recently stocked, large fish, and wild fish than they placed on catching a limit of trout.

The report also mentions the 1994 Standage Market Research report which found that demand for wild trout was more than five times higher than demand for put-and-take trout. We agree that this data "suggests that the angling public would accept a conversion of coldwater streams to wild trout management" (p.32).

The panel refers to the successful catch-out programs in Missouri and Arizona. These are models that should be explored. Additionally, the panel notes the possibility of requiring some form of trout stamp to fish in waters managed with catchable trout. Virginia has such a policy and should be used as a case study for the pros and cons of that approach.

Perhaps the most notable economic data included in this report are the costs per recreation day cited for different management strategies. The panel cites a cost of \$1.53 per day for intensive use waters, \$1.24 per day for optimum use waters, and \$0.19 per day for special use waters. If recreation days for catchable trout waters have been overestimated relative to wild trout waters, this difference would be even greater. While these are *average* cost figures, they suggest that *marginal* costs for providing recreation days through intensive use are far higher than for special use. This suggests that the Division could produce additional recreation days more efficiently by shifting resources from intensive use to special use (until the marginal costs come into balance). While management decisions should not be made based on the economics of providing recreation alone, even a cursory review suggests that a shift in emphasis towards wild trout is appropriate.

VI. Controlling whirling disease in hatcheries

We concur with the panel's recommendations for modifying fish hatcheries to eliminate whirling disease. We also agree with the panel's caution against investing in expensive technical solutions until they have been demonstrated to be effective. If these technical fixes are not 100% effective, simpler and less expensive efforts may be appropriate to minimize infection where it cannot be eliminated.

Also, before major investments are made throughout the hatchery system, the Division should conduct a more thorough analysis of the appropriate role for its

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hatchery system (including the economic study mentioned above). For example, it would make little sense to invest tens of thousands of dollars in efforts to clean up surface water for hatchery raceways if a better use for that facility would be to produce fry and fingerlings in a WD- hatch house supplied with well water.

VII. Alternatives and recommendations

We greatly appreciate the brainstorming work done by the panel to develop these alternatives for the fisheries program. You have captured a wide range of options, many of which we hope the Division will implement.

Assumed alternatives. We agree that alternatives 1, 2, 3, 4, and 6 (implementing the WD policy, managing native cutthroats, and conducting research on WD) are of obvious importance and should go forward. We also agree that purchase of WD-trout from the private sector (#19) should be investigated as a short-term measure, and that rigorous testing should be given to the purchased fish. Likewise, we support trades for WD- trout with federal hatcheries (#21). However, the possible presence of *Enterocytozoon salmonis* at Hotchkiss National Fish Hatchery may render this alternative unworkable. Until more is known about *E. salmonis*, it should not be loosed on Colorado's coldwater resources.

Alternative 5. We support the proposed public education program to inform anglers about preventative measures to minimize transfer of the WD parasite. TU, with support from the U.S. Fish and Wildlife Service and in coordination with the Division, will be developing prototype license holders and signs to educate anglers about WD. We hope to obtain corporate support to allow for broad distribution of these products before Spring.

Alternative 7. Balancing the use of WD+ and WD- fish throughout the state makes good sense and will help spread the impacts of stocking changes equitably. This balancing should be done in light of other alternatives for providing recreation. For example, areas of the western slope where warmwater fishing has been curtailed by endangered species protection may have greater needs for stocking of WD- trout in waters that cannot be managed for sustainable wild fisheries.

Alternative 8. We were surprised that increasing warmwater fishing opportunity was not listed as a recommended alternative. Improving access, facilities, and habitat and shifting species management could enhance fishing opportunities while reducing the Division's reliance upon catchable trout. In some currently-stocked waters that harbor large warm and cool water predator fish, catchable trout may offer little more than an expensive feeding program. We disagree with the panel's statement (p. 23) that these waters "may again become more important for stocking catchable trout . . . if catchable stocking in mountainous areas is reduced." This seems based on an assumption that the Division must stock a given number of catchables statewide, with cuts in stocking in one area offset by increases elsewhere. There is no valid basis for such an assumption.

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Alternative 9. Throughout the report, the panel highlights the possibilities for enhanced wild trout fisheries. At one point, you note that approximately 7,300 additional stream miles could be appropriate for wild trout management (p. 24). Elsewhere, you note the strong public support for wild trout and suggest that anglers would be ready to accept a shift to wild trout management for streams (p. 32). The potential of wild trout to provide outstanding recreation has been well-documented (the proceedings from Wild Trout I-V offer an overview). Ultimately, however, you appeal to the "general sense" of the DOW fisheries program and dismiss this option (p. 26). Given the success of wild trout fisheries in Colorado and elsewhere, we urge you to give the alternative more consideration. Increasingly, anglers are looking for fishing experiences other than catching a limit of stocked catchables (p. 30). There is room for an enhanced wild trout program in Colorado.

Alternative 10. We agree with the panel that habitat protection and enhancement is a vital component of Division programs, but that it will not provide *immediate* benefits for recreation. Habitat protection and improvement is a long-term investment, but one that will pay great dividends for the state's fisheries and anglers. These programs deserve greater emphasis.

Alternative 11. Shifting management from intensive use (catchable stocking) to optimum use (subcatchables or no stocking) should be investigated as broadly as possible. Given water supplies at Division hatcheries, it will probably be more feasible to clean up hatch houses than to eliminate WD from an entire facility. A shift towards optimum use management would take advantage of the production of WD- fry and fingerlings at these hatch houses. We were disappointed that the panel did not explore this option more thoroughly.

Alternatives 12-14. As noted previously, we strongly agree with the need to better analyze and understand angler demand and to use this data in determining the appropriate role of catchable trout stocking.

Alternatives 15, 17, 20. These alternatives are common sense measures for reducing the impacts of WD on Colorado's hatchery system. We would suggest only one clarification: existing WD- state facilities should be modified to increase production *so long as* the quality of the product is not unduly compromised. Hatchery managers should not be pressured to sacrifice quality for quantity.

Alternative 16. TU continues to support elimination of WD+ stocking in Colorado. However, we have indicated our willingness to accept a phase-out of this practice, so that the impact on anglers is more gradual. We remain comfortable with this approach, so long as the Division continues its steady progress.

Alternative 18. We agree with the panel's view of purchasing WD- hatcheries. The report accurately describes some of the potential pitfalls of this strategy. We would add that, given some of the angler demand and management questions raised elsewhere, expansion of the hatchery program may be inappropriate. Perhaps WD+ hatcheries could be taken off-line and production shifted to new

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WD- hatcheries. In the short term, we agree that leasing and purchase options are a better approach than outright acquisition of hatcheries.

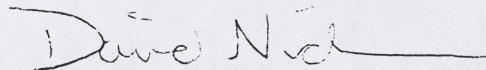
We would also encourage the panel to look at two other alternatives: adjusting regulations and educating anglers about underutilized fisheries.

For waters that will be stocked with fewer fish, it may be appropriate to consider changes in bag limits so that they will not be "fished out" as quickly. By reducing harvest, the Division could allow for a more equitable allocation of fish among anglers and increase recreation days by extending the time over which anglers would have fish available to catch. While there would be some vocal opposition to such a change, 1995 angler surveys from the Division found 61% of anglers supported a reduction in daily trout limits. Only 19% of anglers indicated that they would fish less if limits were reduced. Division biologists should explore this option and see if it would be appropriate for waters in their regions.

While whirling disease has compromised some fisheries, there are surely many others which could support greater fishing pressure than they currently face. The Division should make anglers aware of these untapped opportunities to mitigate losses in recreation days that may result from whirling disease and/or changes in management.

TU is excited by this opportunity to review and strengthen Colorado's fishery management programs, and we appreciate the work the panel has done through this report to raise critical issues for consideration. Thank you for this opportunity to comment.

Sincerely,



David Nickum

cc: John Mumma, DOW Director
Arnold Salazar, CWC Chair
Larry Harris
Doug Krieger
Tom Nesler
Barry Nehring

SUMMARY - TU COMMENTS ON DOW "BLUE RIBBON PANEL REPORT"

Philosophy

- The "dual mission" of conserving resources and providing recreation is actually unified; by caring for the resource the Division will sustain recreation.
- Hatcheries should be seen first and foremost as a resource management tool, not as a means of creating recreation days. Catchables should provide recreation in waters that do not offer potential for reproduction or growth.

Whirling disease

- Stocking of WD+ fish should be phased out as quickly as possible.
- Studies on the effectiveness of WD clean-up technologies should be conducted before large statewide investments are made. A thorough review of hatchery needs (including an economic review) should also take place before the Division makes major capital investments.

Native and wild trout

- Protection of native species and self-sustaining wild trout fisheries should not be compromised to sustain recreation use levels.

Role of catchable trout

- Previous studies suggest that the Division's estimate that 80% of recreation days depend upon stocking is inflated.
- Division studies contradict the report's assumption of a direct and equal correlation between catchable stocking and recreation days.

Economics

- Economic studies of Colorado's stocking program are needed. Existing studies suggest the current system produces more fish than is economically justified.
- Bergersen et al. (1982) found that factors such as scenery and solitude are more important to angler satisfaction than catch. Catching fish that were large, wild, or not recently stocked was more important than catching a limit.
- Wild trout management is considerably more cost-effective than catchable trout management (\$0.19 vs. \$1.53 per recreation day), and should be increased.

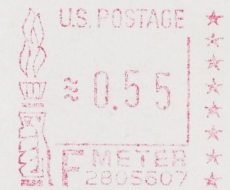
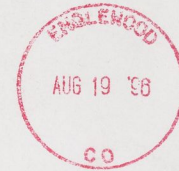
Alternatives and recommendations

- Assumed alternatives (implementing the WD policy, managing native cutthroats, conducting research on WD, acquiring WD- fish from private and federal hatcheries) should go forward.
- TU has launched efforts to educate anglers on how to minimize transfer of WD.
- The use of WD+ and WD- fish should be balanced between different parts of the state in light of other opportunities for fishing recreation.
- Warmwater fishing opportunities should be increased to reduce the Division's dependence on catchable trout.
- Wild trout management should be expanded to provide outstanding recreation at a lower cost. As many as 7,300 additional stream miles could be appropriate for wild trout management.
- Management emphasis should be shifted from intensive use (catchables) to optimum use (subcatchables), particularly if hatch houses can be shifted to WD- status more readily than outside raceways.
- Leasing and purchase options for private hatcheries should be pursued rather than immediate acquisition.
- Trout limits should be reviewed and reduced as appropriate so that waters with reduced stocking are not "fished out" as quickly and can support more recreation days.
- Anglers should be educated about underutilized fishery resources in the state.

COLORADO TROUT UNLIMITED



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Mr. John Mumma, Director
Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216

August 14, 1996

Dear John,

From time to time I am asked to dispassionately review documents for others. In this capacity I was recently asked to review *An assessment of fishery management and fish production alternatives to reduce the impact of whirling disease in Colorado*. I could not. Oh, I made the time to read the document. It was the "dispassionate" part I had trouble with. You see, reading it made me angry, very angry. So my review may tend to be rather passionate. I will try to be cordial, but if my anger shows through the prose every now and again I hope you will forgive me.

First, I would ask you to read the thoughtful review of Dr. Bob Behnke. In particular I would draw your attention to the last line in Bob's letter. "Not credible" is very strong language for a professor. Before a final version of this document is released I hope that a more credible set assumptions can be found on which to base your assessments.

Second, the bias of the Fisheries Section toward hatchery-based trout management is palpable. Equating recreation-days with catchable stocking, a clear and dangerous falsehood, dispels any possibility of rational discourse. To understand how this ill-logic colors the assessment, I suggest you undertake the following simple test. Replace every use of the term "recreation day(s)" with the term "hatchery budget(s)". I think this little test will disclose the bias I find so objectionable. You see, I determined years ago that the real mission of the Fisheries Section has been to "maximize the budget", not the eloquent one in CRS Title 33. Maintaining a high demand for "stockers" is a great way to do it. I do not intend to insult you or the majority of professionals at the Division, but at the highest levels, the Fisheries Section is beset by budget maximization.

I suggest that you decouple recreation-days from catchable stocking before progressing with your assessment. Further, the potential for wild trout management in Colorado is limited by the CDOW's current management bias toward stocked trout (or budget maximization) more than it is by habitat potential (page vi of the Executive Summary). Of course, that potential may now be somewhat limited by whirling disease. That wild trout management is desirable is clearly evidenced by the fact that private waters are increasingly being managed for quality wild trout fishing, and increasingly, for profit. A day's fishing on some of Colorado's better private water can cost from \$40 to \$200 (And if "A River Runs Through It" you can sell the family ranch for more than a hundred years of haying would net). These are actual costs and do not include all of the trip costs (gas, food, lodging, opportunity costs, etc.). Can you imagine someone paying \$200/day to fish for stockers? Today there are two trout management programs in Colorado. The public program, managed by the Division of Wildlife, apparently designed to maximize the Fisheries Section budget, and the private program, managed by the landowners and their agents to serve their clients and generate a profit. If wild trout potential is so limited in Colorado, why is it growing so rapidly in the private sector?

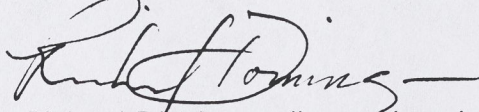
If I have not yet convinced you that the CDOW is too heavily invested in hatchery production I invite you to examine the dichotomy between the Fisheries Section and the

Wildlife Section on the issue of non-native introductions. The Division does not engage in game ranching (analogous to fish hatcheries) and under Len Carpenter, the Wildlife Section fought like mad to prevent the introduction of red deer into Colorado. At the same time the Fisheries Section was bringing in tiger muskies, mysis shrimp, and God knows what else. While not all of these introductions have led to unintended consequences, some clearly have. I believe that whirling disease is just one of the unintended consequences we will be forced to deal with if we cannot persuade the Fisheries Section to protect, preserve, enhance, and manage the *existing* fisheries and fish habitat of Colorado.

Before I conclude, let me make it clear that it is the Fisheries Section's emphasis on catchable trout production, not hatcheries per se that I find objectionable. There are sound **biological** reasons for state-run hatcheries such as species preservation and overcoming life stage bottlenecks to allow populations to meet a given waters' carrying capacity. But the Fisheries Section's emphasis on supporting recreation-days through catchable production will result in an ever-increasing demand for hatchery production (see page vii, *Demand*). I will steadfastly oppose CDOW acquisition of new hatcheries, even WD- hatcheries, until I am convinced that Division stocking policy is driven by biological need, not budget maximization. If existing state-run hatcheries are incapable of meeting the perceived need to stock catchables to support angling recreation-days then the state should purchase clean fish from private sources rather than expanding the state hatchery system. In fact, given the inexorable pressures to stock the entire hatchery system's production whether WD- or not, I believe the concept of privatizing the entire state hatchery system has some merits (although I do not advocate such a measure - yet). Consider for a moment the demand for catchable stocking from Area Fisheries Managers if the costs for those fish came out of, rather than into, the Fisheries Section's budget.

I am neither a pacifist nor a pessimist. I will continue my efforts to dissuade the Division from solving fishery problems with the band-aid of catchable stocking. If you want a more balanced assessment of how to better manage Colorado's trout resources in light of what we now know about whirling disease, I suggest you convene a panel comprised of Division professionals, academicians, and interest groups including private landowners. It could take some time to reach a consensus but the result would surely be better and more broadly supported trout management in Colorado.

Sincerely,



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c: David Nickum, TU
Dr. Bob Behnke, CSU
Dr. James Bennett, CDOW
Douglas Krieger, CDOW

Barry Nehring, CDOW
Larry Harris, CDOW
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