



# Southwest Tribal Fisheries Commission

Annual Meeting / March 29<sup>th</sup> 2016

National Indian Program Training Center / Albuquerque, New Mexico

**Meeting Convened at 9:10 AM**

**Membership Attendance (Tribe / Rep)**

1. Jicarilla Apache Nation	Jacob Mazzone (Chairman)
2. Laguna Pueblo	Adam Ringia (Vice-Chairman)
3. Southern Ute Tribe	Steve Whiteman (Secretary-Treasurer)
4. Mescalero Apache Tribe	Kenny Blazer
5. San Carlos Apache Tribe	Daniel Juan
6. Zuni Pueblo	Nelson Luna
7. Taos Pueblo	Michael Martinez
8. Isleta Pueblo	Michelle Keryte
9. Sandia Pueblo	Timothy Smith
10. Picuris Pueblo	Dominic Garcia
11. Nambe Pueblo	Not present
12. Cochiti Pueblo	Not present
13. Ohkay Owingeh	Not present
14. Santa Clara Pueblo	Not present
15. San Ildefonso Pueblo	Not present
16. Navajo Nation	Not present
17. Ute Tribe (U&O)	Not present
18. Pyramid Lake Paiute Tribe	Not present

**Other Attendees:**

Stuart Leon, SWTFC Executive Director  
Tim Smith, Sandia Pueblo  
Dominic Garcia, Picuris Pueblo  
Curtis Thompson, Isleta Pueblo  
Carlos Trujillo, Isleta Pueblo  
Raymond Lucero, Laguna Pueblo  
Kyle Tater, Jicarilla Apache Nation  
Tim Gatewood, White Mt. Apache Tribe  
David Kitcheyan, White Mt. Apache Tribe  
Kenny Blazer, Mescalero Apache Tribe  
Christie LaPaz Jr., Mescalero Apache Tribe  
Ben Martinez, Mescalero Apache Tribe  
Sandra Platero, Mescalero Apache Tribe  
Tyner Cervantes, Mescalero Apache Tribe  
Houston ?????, Mescalero Apache Tribe  
Eugene Evans, Mescalero Apache Tribe  
Shelley Battiest, Mescalero Apache Tribe  
Mike Montoya, Mescalero Apache Tribe  
Stewart Jacks, FWS Region 2 Fisheries ARD  
Joe Early, FWS Region 2 Tribal Liaison  
Jason Davis, FWS NM FWCO  
Chris Kitcheyan, FWS NM FWCO  
Kathy Granillo, FWS Sevilleta NWR  
Bruce Thompson, FWS Alchesay-Williams Creek NFH  
Joe Jojola, BIA SW Regional Office  
Lawrence Abeita, BIA Southern Pueblos Agency  
Norman Jojola, BIA Northern Pueblos Agency

LaTasha Wauneka-Anderson, US Forest Service  
 Arnold Atkins, Trout Unlimited  
 Pete Stine, FWS (retired)

**Welcome / Opening Comments (Stuart Leon)**

Stuart welcomed the group; an invocation was given, and introductions of participants were made  
 Stuart requested roll-call of member tribes; Steve confirmed 10 member tribes present and quorum achieved

**Secretary / Treasurer Report (Steve Whiteman)**

Steve presented minutes from the November 5 2015 meeting; minutes were emailed out and no edits were requested  
 Motion to approve November 5 minutes from Adam Ringia; 2<sup>nd</sup> by Jacob Mazzone; Vote was unanimous approval.  
 Steve provided the financial report for the SWTFC Discretionary, Feed/Fuel, and Investment accounts

	<b>Discretionary Fund</b>	<b>Feed &amp; Fuel Account</b>		<b>Investment Account</b>
Last reported Balance (as of 11/3/15)	\$59,204.06	\$180,824.29	Fund Value on 11/3/15	\$546,173.00
Period Revenues	\$21,220.87	\$91,756.15	Fund Value on 3/25/16	\$507,052.30
Period Expenses	\$35,694.76	\$71,977.74	Net Change	[ \$39,120.70 ]
Ending Balance (as of 3/25/16)	\$44,730.17	\$200,602.70		

Steve pointed out that the current Investment Account value is nearly back to its starting value in late 2012 of \$500K  
 Although we are “back where we started” with the Account, all annual payments to MAT (>\$60K) have been made  
 The annual payments to MAT (i.e., averaging \$20K/year, paid each Jan/Feb) are compensation for use of MTFH  
 There was no further discussion of the financial report

**Chairman’s Report (Jacob Mazzone)**

Jacob described a recent inter-agency meeting on the proposed Rio Grande Sucker and RG Chub ESA listings  
 Jacob would like to see tribal representation in a working group as it moves forward with recovery work  
 Jacob mentioned that the Desert Fish Habitat Partnership will be holding its meeting Nov. 16-20 in Albuquerque  
 Jacob looks forward to further discussion of various issues and challenges at today’s meeting

**Vice-Chairman’s Report (Adam Ringia)**

Adam described some of the water-related issues he’s working on for Laguna Pueblo  
 Adam would like to see fisheries restored at Laguna, but water shortage is a serious legal challenge  
 Adam introduced his new Natural Resource Manager at Laguna Pueblo, Mr. Raymond Lucero

**PARTNERSHIP UPDATES:**

*The Wildlife Society (Kathy Granillo)*

Kathy gave a brief history of the Wildlife Society as a conservation organization  
 The Wildlife Society’s annual conference will be held in Albuquerque at the Convention Center in September 2017  
 Kathy encourages tribal participation in the Society conference to help reflect the southwest  
 Kathy invites interested professionals to help out with organizing. Contact information was provided via handout

*Trout Unlimited (Arnold Atkins)*

Arnold gave a brief description of TU’s mission and purpose  
 Arnold has no new TU business to report since last meeting with SWTFC  
 Arnold expressed interest in Laguna Pueblo’s desire to restore Rio Grande cutthroat trout to Rio San Jose  
 TU is happy to partner w/SWTFC in native trout restoration and looks forward to cooperative projects in the future

*U.S. Forest Service (LaTasha Wauneka)*

LaTasha is filling in for Yvette Paroz; LaTasha’s work is focused more on rec/youth programming and partnerships

LaTasha spoke about USFS funding of tribal youth projects in Arizona and New Mexico, totaling \$164K  
LaTasha says USFS would very much like to expand on tribal youth engagement  
LaTasha spoke of USFS programs to help re-connect youth with natural resources and conservation education

*U.S. Fish & Wildlife Service – Tribal Wildlife Grants (Joe Early)*

The FWS' TWG award announcements will be coming out in near future  
The FWS' Native American Policy has been updated and recently approved  
The FWS wants to establish an Implementation Team for the new Native American Policy using regional tribal reps  
If interested in serving on the Implementation Team, tribal reps should contact Joe

*U.S. Fish & Wildlife Service – Fisheries Management (Chris Kitcheyan)*

Regional meeting on Rio Grande cutthroat held recently, as well as RG Sucker and RG Chub  
Chris says we should expect listing of RG Sucker and Chub, and encourages tribal participation in recovery work  
A tribal ESA Working Group meeting will be held May 5th at FWS Region 2 Eco-Services Office, ABQ  
For tribal catfish programs, Chris encourages water quality measurements at least 2x/year for stocking suitability

*U.S. Bureau of Indian Affairs (Joe Jojola)*

An intertribal Big Game Management Workshop is in planning stages; planned for June 7 – 9  
Workshop will be held in Gallup and all tribal wildlife/resource managers are invited  
A Workshop announcement will be emailed out to tribes in the near future  
Southern Rockies LCC is planning a Four Corners Forum on May4-5 in Durango, CO  
The following week, a similar forum will be held in Albuquerque on Rio Grande basin resources  
Organizers of the forum encourage tribal participation  
Topics at the Four Corners Forum will include: Deer/Elk, Cultural Resources, and Native Fish  
BIA recently sent out several RFP's (Endangered Species, Invasive Wildlife, Youth Initiative, Hatchery Maint.)  
Award announcements will be made very soon; Joe expects within next couple weeks  
Climate Change RFP has been released; Joe sent the RFP out to tribes in recent weeks; contact Joe with questions

*Native American Fish & Wildlife Society (Norman Jojola)*

Norman says the NAFWS SW Regional Conference will be held Aug 9-11 at Twin Arrows Resort in Flagstaff  
As usual, NAFWS planning committee will be looking for presenters and help with conference organizing  
The NAFWS National Meeting will be held in Green Bay, Wisconsin, May 16-19  
Norman indicates the Southwest Youth Practicum is again being planned; this year being hosted by Sandia Pueblo  
Practicum will be June 20-24; Norman is looking for help with organizing, please contact him if interested  
Practicum registration packet will be available next week; please spread the word  
Norman thanked David Kitcheyan for WMAT's support in hosting last year's Practicum

*Youth Outreach (Mike Montoya)*

Mike reminded the group he is no longer MAT Hatchery Manager; he is the MAT Youth Development Director  
However, Mike strongly supports youth involvement in natural resources, including projects at the MAT hatchery  
Last year there was a Youth Climate Leadership Congress, with strong participation of MAT youth  
The Congress will meet again in 2016, hopefully with much stronger representation from across Indian Country

*R2 Fisheries Program – General (Stewart)*

Stewart indicates the budget outlook is a mix of good and bad in terms of program support  
Strong funding support for hatchery maintenance, but fish management has taken a funding cut  
FWS received strong new support for youth-related programming; tribal participation is encouraged  
Stewart will provide contact information to SWTFC for tribes interested in youth programming opportunities

**USFWS – Bacterial Kidney Disease (BKD) Discussion**

Substantial information on BKD was discussed and provided in hand-outs at the meeting (see attached)

*BKD Distribution / Threat (Stewart)*

BKD has been detected in numerous state facilities as well as in the wild; it is a very widespread issue in the West  
BKD has been detected at Alchessay-Williams Creek NFH; significant impacts to fish stocking programs  
The BKD development will eliminate/reduce fish supplies allocated for tribes – some tribes immediately affected

Testing at the hatchery will determine the severity/duration of impact on fish production, and impact on tribes  
An update/informational letter will soon be going out to tribes on BKD situation  
Depending on testing results at the hatchery, fish production may not resume potentially for years  
Technology improvements result in greater test sensitivity to disease detection; detections are now more frequent  
Mike Montoya pointed out that, at MTFH, 1 of 4 lots of fish was positive for BKD  
National Fish Health Policy dictates how FWS has to handle/respond disease outbreak situations  
With BKD, infected fish are required to be disposed of and can NOT be stocked in the wild  
Tribal hatcheries (e.g., MTFH) are not directly subject to National Policy, but do need to follow health standards  
There needs to be more work on BKD occurrence in the wild and whether it's acceptable to stock "infected" waters  
There are many unknowns about BKD, what level of threat it presents to wild trout/salmonid populations  
A wild fish health survey was discussed as a potentially important step in evaluating the prevalence of the threat

#### *BKD Detection at Mescalero Tribal Fish Hatchery (Shelley Battiest)*

Shelley reviewed her latest quarterly hatchery report, November 2015-February 2016 (attached)  
Topics covered in Shelley's report include: fish production targets and deliveries; hatchery maintenance tasks; egg hatching/rearing; hatchery staff changes; disease testing at the hatchery; equipment replacement; fish growth monitoring; grading and moving of fish; cleanup of hatchery grounds; community/youth activities  
Dexter Fish Health Unit recently conducted standardized disease testing at MTFH; BKD confirmed in one lot  
Some fish stocking occurred post-BKD test, including lakes on the Mescalero Reservation  
Shelley is working to confirm whether waters outside of MAT might have received BKD positive fish

#### *BKD Panel Discussion (Stewart, Shelley, Stuart)*

Nelson inquired if it was possible if infected fish could have been provided to tribes, e.g., for eagle aviary use  
Stewart responded that risk-containment with infected fish was highest priority; too much uncertainty about effects  
Tribes have some flexibility in BKD stocking decisions, especially if NOT crossing state jurisdictions  
Jacob inquired about validity/research in support of BKD NOT crossing over to warm/cool-water species  
We need the expertise of a fish health specialist/pathologist to address BKD cross-species potential  
Fish health expertise is available through FWS to address specific questions around BKD infectivity, etc.  
Nelson inquired how FWS will mitigate the loss of fish allocations to tribes  
Stewart says that FWS is looking into sourcing fish from other clean sources throughout the country  
It is unlikely that 1:1 fish replacement will occur; but will reach out to other facilities  
Fish production at MTFH will continue where positive- tested BKD fish did not occur  
Shelley has inquired with NMGF on State position on transporting fish through State jurisdictions  
Stewart re-iterated that more work is needed on wild fish health assessment to determine BKD prevalence in wild  
Stuart proposed that SWTFC consider forming a tribal working group to assist FWS with fish disease response  
Stewart strongly agrees with the concept of forming a working group; perhaps a workshop on fish health is needed  
Stuart suggests that the workshop be planned for the near future; e.g., April or May 2016

#### **SWTFC Officer Elections (Stuart)**

Stuart indicated that, per bylaws, elections are needed for SWTFC officer positions: Chairman and Sec-Treasurer  
No pre-meeting nominations have been submitted by member tribes for the subject positions  
Stuart called for nominations for SWTFC Chairman  
Adam nominated Jacob Mazzone for Chairman, with 2<sup>nd</sup> from Nelson Luna; Vote was unanimous approval  
Stuart called for nominations for SWTFC Secretary-Treasurer  
Adam nominated Steve Whiteman for Sec-Treasurer, with 2<sup>nd</sup> from Nelson Luna; Vote was unanimous approval  
Jacob and Steve will hold the 2-year positions expiring Spring 2018; Vice-Chair position will be up in 2017

#### **Executive Director Update (Stuart)**

Youth Initiative proposals for Zuni and WMAT have been submitted to BIA; we are still waiting for award decision  
SWTFC-USFS cooperation has been great, and Stuart looks forward to continued support on youth programming  
Stuart continues to work with BASS Pro Shops; they will again provide funding support for the summer conference  
Stuart believes that BASS Pro Shops may be in a position to support/facilitate/advocate for tribal fisheries needs  
Our Natural Resources (ONR) will be meeting this year in Missouri, hosted by BASS Pro Shops  
Stuart will be presenting on behalf of SWTFC at upcoming meeting of Grand Canyon Adaptive Mgmt. Workgroup  
Stuart helped WMAT develop a rebuttal letter to FWS' proposed roundtail chub listing (due to bad science)

**Meeting adjourned at 12:00 PM.**

**Next Meeting:**

***SWTFC Quarterly BOD Meeting – Monday August 8<sup>th</sup> 2016  
In conjunction with NAFWS Southwest Regional Conference  
Twin Arrows Resort and Casino, Flagstaff, AZ***

**Meeting Minutes taken by:**

Steve Whiteman, Secretary-Treasurer  
Southwest Tribal Fisheries Commission  
[swhitema@southernutc-nsn.gov](mailto:swhitema@southernutc-nsn.gov)

## REPORT TO THE SWTFC MEMBERSHIP

### MESCALERO TRIBAL FISH HATCHERY

#### **DELIVERIES:**

For the months of November 2015 through February 2016 we have delivered 25,000 lbs. RBT at an average of 11.5 inches in length in support of two Tribal Fisheries Programs which included Sandia Pueblo and Isleta Pueblo. All trout were provided at a rate of \$2.35 a pound, plus transportation charges. In addition, Mescalero received 120 lbs. in their tribal waters/lakes, in lieu of rent for the Mescalero Tribal Fish Hatchery without charge as per the MOU agreement between the Southwest Tribal Fisheries Commission and the Mescalero Apache Tribe. The Arlee strain of fish eggs that we received in December of 2015 hatched on December 24<sup>th</sup>. They are now 3 months old. Their survival rate is about 90%. We have been emptying out tanks inside the tank house in order to make repairs. Once the repairs are made, we will be splitting up more of the Arlee-15's.

#### **HATCHERY BUSINESS:**

Since the last quarterly meeting, we have gone through several changes with our staff. Mr. Michael Montoya was given the opportunity to take charge of the Youth Development program. He has agreed to act as a consultant to the hatchery as needed. When he moved to the Youth Development program half of the staff went with him as they are employees hired under the youth programs. The hatchery staff now consists of Shelley Battiest, Director/Project Leader; Tori Marden, Assistant Project Leader Trainee; Jessica Rodriguez, Administrative Assistant; and Houston Fatty, Fisheries Technician. We also have John Salazar. He is working with the hatchery under the Youth Development program. Nolan Garcia works part time at the hatchery as our CDL Driver and vehicle maintenance personnel, but spends the majority of his time working at Youth Development.

#### **SPECIAL PROJECTS:**

In addition to the operation of the fish hatchery, the hatchery staff, volunteers and other grant programs have provided support for other programs and projects including:

- On February 24<sup>th</sup> the Southwestern Native Aquatic Resource & Recovery Center retrieved samples of 5 Lots of fish from the hatchery for disease testing. For a period of 30 days we have been closed to off-reservation deliveries.
- We have taken our 8-tank fish truck in for routine maintenance work. We plan to refurbish the inside of the tanks, replacing the oxygen blocks with new ones.
- We used Hatchery Maintenance funds to purchase 8 brand new plugs for our raceways. The original plugs that came with the hatchery in 2000 were corroded and had become weak from trying to repair them over and over.
- We monitored and recorded routine lengths of fish for all the raceways.
- We maintained our daily records of oxygen levels, water temperatures and fish mortalities for each inside tanks and outside raceways.
- We graded and moved fish as necessary to make room for the Arlee-15 fry that are growing rapidly.
- We retrieved total weights of each raceway so that we maintain a record of the total weight and number of trout for our facility.
- We have continued our clean-up efforts of the hatchery grounds. We first determine if we can recycle materials and equipment before we take them to the dump.

- We continue to assist in community activities such as the Elderly food distribution, the local Food Bank, Youth Development activities, community seasonal events and Prevention Program activities.
- We also assist in the Nde Farms/farmer's markets. We have helped harvest produce and filled in when the garden crew was not available to run the farmer's market.
- We continued to give tours, providing information about the hatchery.
- We assisted the Youth Development program as they were getting settled into their new work place. We were able to transfer hatchery property to help the Youth Development with their efforts.

Ms. Battiest put together the 2015 Annual Report for the Southwest Tribal Fisheries Management Program and submitted it just previous to this quarterly meeting. The Annual Report outlined the many changes the hatchery has gone through in the 2015 year. Our primary mission at the hatchery has always been to serve our community and the many Southwest member tribes to best of our ability. We will continue to do so.

## Bacterial Kidney Disease (BKD)

### I. Causative Agent and Disease

Bacterial kidney disease (BKD) is caused by *Renibacterium salmoninarum* (Rs) that can replicate extracellularly and intracellularly within macrophages. BKD, also known as Dee Disease, is a systemic bacterial infection caused by a small, non-motile, Gram-positive coccobacillus. Typically, the course of the disease results in slow chronic fish mortality that occurs in Alaska at much colder water temperatures of 1-2°C than reported elsewhere (11°C).

### II. Host Species

All salmonids are considered susceptible and the disease usually occurs in fish 6 months or older, i.e., juvenile and adult fish.

### III. Clinical Signs

In the acute stage, fish may die without exhibiting any clinical signs of disease. In the more typical chronic form of BKD fish may exhibit exophthalmia, petechial hemorrhages and/or vesicles of the skin, and abdominal distention due to the accumulation of ascitic fluid in the abdominal and pericardial cavities. The kidney, which is the target organ, is often enlarged and edematous and may exhibit off-white nodules varying in size. The whole kidney may appear gray, corrugated and swollen. White foci may also be present in other organs, chiefly the liver and spleen.

### IV. Transmission

The Rs bacteria can be transmitted horizontally from fish-to-fish or from a water supply containing infected fish. In early fish culture, feeding raw, unpasteurized viscera of infected fish to other fish increased the incidence of the

disease in hatcheries. Unlike many other bacterial pathogens of fish, *R. salmoninarum* can also be transmitted vertically within the egg. The bacteria gain access during egg formation or more commonly enter the yolk through the micropyle after ovulation from contaminated ovarian fluids of the female parent. Transmission from contaminated male seminal fluids during fertilization is another possible route. The organism may survive free in the environment for long periods of time.

### V. Diagnosis

Presumptive diagnosis of BKD is sometimes possible by observation of the gross pathology and the presence of intracellular and extracellular Gram-positive, small, non-acidfast, non-sporeforming coccobacilli in Gram stained impression smears of infected tissues. The organism does not grow on TSA but requires a specialized media at 15-20°C for 10 to 21 days of incubation. Organisms can be definitively identified with a specific fluorescent antibody test, enzyme linked immunosorbent assay (ELISA) or by polymerase chain reaction (PCR).

### VI. Prognosis for Host

This disease results in chronic fish mortality in both freshwater and seawater and can have a detrimental impact on fish populations, generally during the later stages of rearing. Once infected, fish are carriers for life. In Alaska, losses of coho and Chinook salmon fingerlings from BKD can range from 2-5%/month during final months of freshwater or seawater rearing. In numerous watersheds within Alaska, Rs antigen has been detected by ELISA in both wild and hatchery coho, Chinook, chum and pink



## BACTERIA

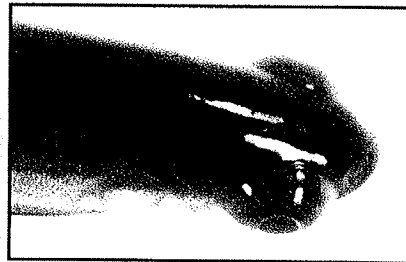
salmon. Prevalence usually is less than 10%, but some systems have had carrier rates as high as 90%. Trout, char and grayling in "wild" systems often show prevalences of up to 100%.

### VII. Human Health Significance

There are no human health concerns associated with the bacteria.



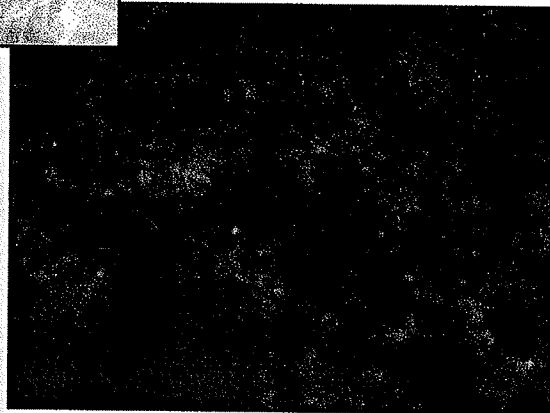
Petechial hemorrhages in a salmonid fish with BKD



Exophthalmia or pop-eye is commonly seen in fish with BKD and other infections that affect kidney function



White nodules in the kidney of a fish with BKD is a typical clinical sign of this disease



BKD bacteria, *Renibacterium salmoninarum* stained with a fluorescent dye (green) in the fluorescent antibody test

# Bacterial Kidney Disease FAQ

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## What is it?

- Bacterial kidney disease (BKD) is a chronic bacterial disease first reported in wild Atlantic salmon populations in Scotland in 1933. It has subsequently been reported in both wild and farmed populations of Salmonidae in North and South America, Europe and Japan.
- All species of the family Salmonidae are considered susceptible to BKD, in particular chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), rainbow trout (*O. mykiss*), Atlantic salmon (*Salmo salar*), brown trout (*S. trutta*) and brook trout (*Salvelinus fontinalis*).
- The causative agent is a small, non-motile, Gram positive rod-shaped bacterium (*Renibacterium salmoninarum*).

## How does it affect fish?

- In the acute stage, fish may die without exhibiting clinical signs of disease.
- In the more typical chronic form, signs can be variable ranging the absence of signs to protruding eyes (exophthalmia), darkening and hemorrhages of the skin, abdominal distention due to accumulation of fluid in the abdomen and swelling of the kidneys. Internally, kidneys may appear gray, corrugated and swollen and may contain off-white nodules of various sizes.
- Outbreaks can occur throughout the year but generally accompany rising water temperatures in the spring. Losses are generally chronic, occurring over an extended period of time.
- BKD has global importance primarily in cultured salmonids from fresh and saltwater environments with chronic losses ranging from 5–40%.
- Stressful conditions may increase mortality with decreased growth and consequent impact on production costs. Disease usually occurs in fish 6 months or older, i.e. juvenile and adult fish and occurs over a wide range of temperatures.
- Once infected, fish are carriers for life.

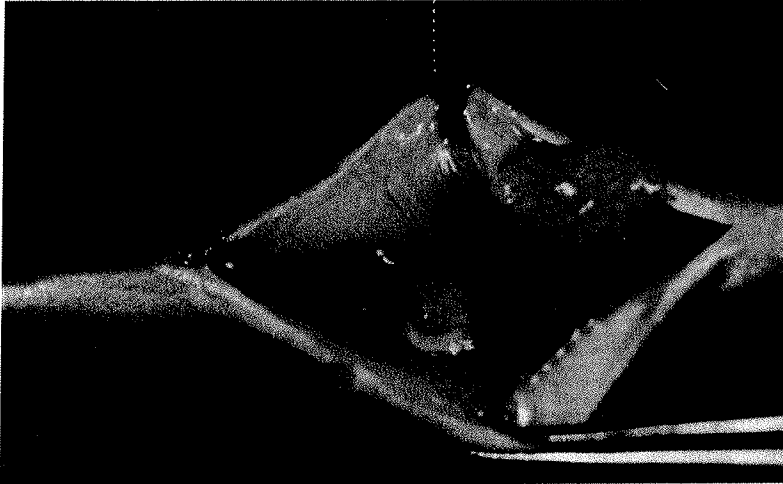
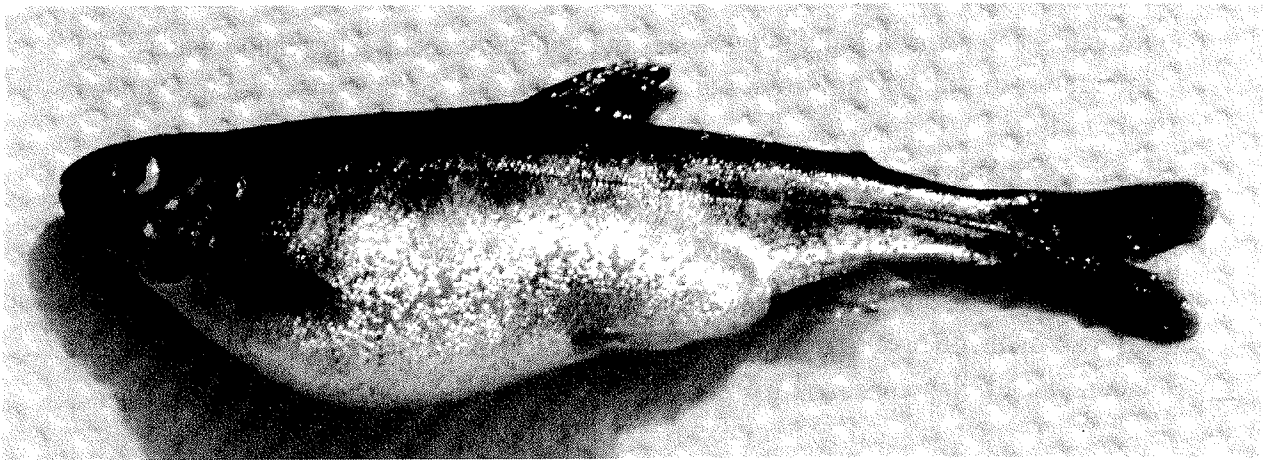


Figure 1. Kidney lesions in a juvenile Chinook salmon affected by BKD. Photo courtesy of Dr. Caroline O'Farrell.



Protruding eyes in juvenile Chinook salmon affected by BKD. Photo credit Ron Pascho



Abdominal distension associated with ascites in a juvenile Chinook salmon affected by BKD. Photo credit Ron Pascho

## **How is it diagnosed?**

- Enzyme-linked immunosorbent assays (ELISA) or direct fluorescence antibody testing (DFAT) are both used as a screening method on kidney and/or ovarian fluid samples. Confirmation is made using polymerase chain reaction (PCR).
- The bacteria can also be cultured but doing so is difficult as it is very slow growing and requires specialized media.

## **How is it transmitted?**

- The bacteria can be transmitted horizontally from fish to fish or from a water supply containing infected fish.
- Unlike many other bacterial pathogens, BKD can also be transmitted vertically within the egg as well as through seminal fluid from infected males.
- The organism can survive free in the environment for a period of time.

## **What is recommended for hatcheries found positive?**

- Despite research, there is no effective treatment for BKD. The most effective method of control is the prevention of movements of live fish and eggs.
- Good biosecurity and avoidance of infection are the most effective means of controlling the disease.
- Enhanced biosecurity measures include good hygiene, reducing stress, culling infected broodstock and/or total hatchery depopulation followed by disinfection.
- The chronic nature of BKD and the presence of asymptomatic fish in the early stages of infection can be problematic when adopting control measures. Effective health monitoring of farmed stocks and attention to biosecurity is crucial.

## **What effect does this have on humans?**

- There are no human health concerns associated with the bacteria.

## References

<http://www.thefishsite.com/diseaseinfo/2/bacterial-kidney-disease-bkd/> Accessed March 22, 2016

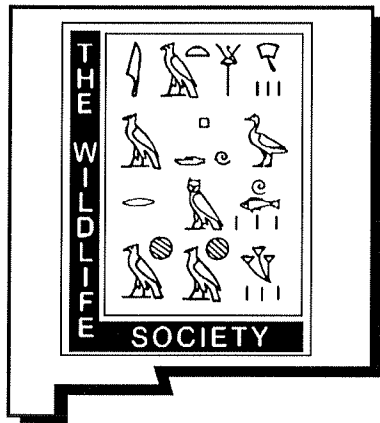
[http://www.michigan.gov/dnr/0,4570,7-153-10364\\_52259\\_10950-27345--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_10950-27345--,00.html) Accessed March 22, 2016

ICES. 2015. Bacterial kidney disease. Revised and updated by D. W. Bruno. ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish. Leaflet No. 21. 7 pp.

[https://www.adfg.alaska.gov/static/species/disease/pdfs/fishdiseases/bacterial\\_kidney\\_disease.pdf](https://www.adfg.alaska.gov/static/species/disease/pdfs/fishdiseases/bacterial_kidney_disease.pdf) Accessed March 22, 2016

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/317259/Notifiable\\_fish\\_diseases.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/317259/Notifiable_fish_diseases.pdf) Accessed March 22, 2016

<http://www.afs-fhs.org/perch/resources/14069228631.3.1bkd2014.pdf> Accessed March 22, 2016



Save the Date

September

23-27, 2017

Local Committee Chair Quentin Hayes (The New Mexico Chapter of The Wildlife Society),  
quentin.hayes@enmu.edu, 575-257-2120

We welcome your participation in the conference – local committees, presentations, workshops, symposia, field trips.

The calls for symposia, workshops and presentations should go out this fall, after the annual conference in October in Raleigh, NC. Check [wildlife.org](http://wildlife.org) for conference information.

# **The 24<sup>th</sup> Annual Conference of The Wildlife Society Albuquerque, NM**