

Minutes
100th Meridian Initiative 2007 Annual Meeting
November 27-28
Las Vegas, Nevada

Tuesday, November 27
(NOTE: Links to PowerPoints will be added Soon)

1. River Team Presentations

Columbia River Team

Paul Heimowitz, FWS, Portland

Rapid Response Plan created. They had a table top drill led by a consulting company, Incident Solutions. It was a chance to get higher level decision makers to come together and get to know each other. This team was in existence for quite awhile before it became a 100th Meridian team. They work with other ANS species.

Stephen Phillips, Pacific States Marine Fisheries Commission

Jim Athearn (retired Corps of Engineers) will be doing a project contacting commercial haulers bringing boats into Pacific Northwest. They are working on the permitting that is needed for zebra mussel control. They are putting tools on the 100th Meridian Initiative website, as well as state laws. CRB team minutes are on the website, as well as the annual newsletter.

Jim Irish at Bonneville Power Administration said they are looking at taking waters from Snake, Columbia and Willamette to see if zebra mussels can live there.

Rio Grande River Team

Bob Pitman, FWS Albuquerque

This new team held a meeting in Taos bringing together partners in Colorado and New Mexico. One of the problems was getting the law enforcement authorities to stop contaminated boats and to quarantine them. Both states will have to work to enact appropriate authorities.

Colorado River Team

Utah

Larry Dalton, ANS coordinator, Utah Division of Wildlife Resources.

Created team, law enforcement, engineer, state boating coordinator

Add ppt.

Missouri River Team

Eileen Ryce, ANS Coordinator, Montana Fish Wildlife and Parks

Message in Montana. Clean, Wash, Dry. Don't make it more complicated than this. If people ask for more information, they give more. Signs for different critters make it much more difficult for people to notice.

Notes from Jason Goeckler, Kansas Dept. Wildlife and Parks, who was unable to attend.

MO Basin Report:

Confirmed zebra mussels in Perry Reservoir (12000 Ac impoundment). Only 4 individuals were found but lake water plankton samples revealed reproduction occurring lake wide. This reservoir discharges into the Delaware River, to the KS River, and to the MO River at KC. The first individual mussel was discovered by public with immediate report to ANS coordinator via the internet report mechanism.

Arkansas River Team

Everett Laney, Army Corps of Engineers, Oklahoma

Arkansas is at the southern edge of where zebra mussels can survive because of hot summers and now high flows. Populations peaked at 150,000/sq.m. Most zebra mussels have died off. Recently went to Kerr reservoir and found only 7 zms. Oolagah had 154,000 zm per sq. m. Water clarity went from 6 inches to 10-12 feet. There was also a massive die off. They looked for 2-3 hours and found 6. It is possible that there are naturally occurring environmental conditions that might be controlling the population. In different situations, such as water supply for power plants, zm's seem to be doing better. Populations crashed in Kansas also. High heat effect: 28-30 degrees C. High water from rain. Is it alkalinity from rainwater? A few individuals seem to survive and reproduce. At about 24 degrees, they can't feed fast enough to sustain body masses. They are starving which may lower their thermal tolerance. The same thing happens in the lower Mississippi River every year. Zm's come from upstream populations but can't survive in the higher temperatures.

ACOE has created an invasive species leadership team. Everett will represent the SW district. They will beef up the internal program – document what the cost is – go to Congress to get more money.

Notes from Jason Goeckler who was unable to attend:

Arkansas River Team Report:

Cheney Reservoir (water supply for Wichita) confirmed infested this fall. First individuals found on Portland samplers. BOR DNA sampling reported Cheney as zm-free. The report was released the same day we found adults.

El Dorado Reservoir:

Record veliger densities occurred in June 2006. Unusual water levels hindered population expansion in 2007. Record low water levels during the fall 2006 killed many mussels. Near record rainfall caused 12 foot raise and then a 6 foot

'drawdown' to conservation pool. Zebra mussels are still present, but have been set-back somewhat from the water levels. Monitoring to continue.

Lake Tahoe Team

Ted Thayer and Jennie Francis

Creating action team

Ted described how Lake Tahoe evolved and then gave an invasive species introduction timeline. Eurasian watermilfoil (EWM) has spread around the lake which provides habitat for warm water fishes. They have concern about invasion of quagga/zebra mussels and NZ mudsnails. Calcium levels are very low, which makes it more of a low risk.

They held a Lake Tahoe Aquatic Invasive Species Workshop and had a watercraft inspection training. They have volunteers divers with samplers. A homeowners association put in a boat wash. Working Group. FWS is going to be coordinating the AIS committee – will be hiring a new staff person. An Integrated Management strategy is dealing with all invasive threats. ACOE has RFP out right now. There are many different agencies working together. Tahoe Resource Conservation District is taking a lead role.

They will coordinate with the states of California and Nevada. Currently the working group does not use chemicals. They have not done permitting – lots of regulations which don't allow use of pesticides. Boater surveys were done, they should match up well with 100th Meridian Surveys.

The Working Group has \$1.3 M to do the work for 2008. There are 10 public boat launches around the lake and many private launches as well.

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2. Online Laws Database and New ANS hot line **Rebbekah Waclawczyk, University of Texas, Arlington**

The database is being expanded to include Eastern states as well as Western. On the website, under Law Enforcement and then under Database of State Laws, click on an individual state and it will bring up information on laws and prohibited species. There is also a .pdf view. Please coordinate with Rebbekah on changes to state laws.

Invasive Species Hotline: 1-800-STOP-ANS, 1-800-786-7267. Bob Pitman responded to requests by law enforcement officers to have a hotline where there will be a response immediately. There is an answering service and the call is digitally recorded. It can be attached to an e-mail and sent to the appropriate person. Numbers are available through zap the zebras, watch cards, 100th meridian website. Calls are coming from all over the United States. Some calls are questions; others are reporting species or requesting brochures. There is a long list of species reported. Most people request further contact.

Benefit: Allows authorities the potential for an immediate response. Public gets immediate feedback and/or answers to their questions.

Rebekah is working on making a contact list nationwide.

The cost is \$60/month plus the time of the calls. So far, it has been about \$90/month.

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3. Control and prevention at the lower Colorado River dams: Hoover, Parker, and Davis Leonard Willett, Bureau of Reclamation

Leonard visited power plants in Ontario to view the water cooled transformer piping. Qm's would close up for several days when they sensed chlorine. Even when they are killed, the dead shells can clog up the systems. Found qms living at 200 psi. on the surface of the penstock.

They put out sampling plates at Parker Dam which were covered by qms in six weeks. Qm's attach to stainless steel, not to copper or brass. Right now they just want to know presence, not population numbers. The best substrates are rough.

Most of the dams will be reactive, treat periodically. They will clean off 1/2 of the sampling plates so they can follow new growth and accumulations. For external structures, they use high pressure waters or underwater divers to scrap and vacuum. Antifouling coatings can be non-toxic silicone based coating or toxic copper based coating. The expense to do the coating is more than the three dams are ready to spend at this point.

For the internal piping systems, they are using: hot water (104 degrees), mechanical cleaning, non-oxidizing and oxidizing chemicals, such as chlorine, bromine, chlorine dioxide, chloramines, ozone, and potassium permanganate.

Emerging option: bacterial project, being tested on quaggas now. Dams are looking at using a 40 micron filter in sand/media filtration or mechanical filtration. Waste discharge – will go downstream.

Proactive options: UV systems, (see slide) doesn't eliminate shells

Leonard is willing to share all information. He has a videotape that might be useful. Evaluating controls, 5 lines x 2 filters x \$40,000 each = \$400,000.

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4. **Case history: The what, when and why of the Lake Mead quagga mussel invasion: Effective state and federal responses**
Susan Ellis, CA Dept. of Fish and Game

There is now a long list of lakes where California has quagga mussels – all lakes from the Colorado River Aquaduct. Susan showed a long list of agencies which have been involved. The California governor approved \$2M 07 funds to cover boat wash stations, divers, and agricultural check stations at borders. They created an Incident Command structure with staff from Food and Agriculture, Fish and Game, and Oil Spill Prevention. They funded dive surveys as well as surface surveys. Agriculture check stations were set up 24/7 at key stations. So far, 80,000 boats have been inspected, 120 boats had mussels. These were cleaned at check station and there will be follow up later. People who have been through the inspection are prepared and cooperative. They created a CA hotline. The webpage has a running history of everything that has been done so far which is updated 2x per month. Fish and Game set up a Scientific Advisory Panel, provide outreach and training (eight WIT trainings so far). The multi-agency teams meets 2x per month. There are five new scientists will do sampling. They are also using dogs, (eventually 24 throughout the state) to sniff the mussels (also elk and abalone). These dogs will also be trained as attack dogs.

Hotline: 1-866-440-9530.

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Lake Mead and Lake Mohave NRAs
Bryan Moore, NPS

There are nine developed launch ramps; 5000 boats in peak summer holiday plus 3,500 slip boats. They have had a prevention program in place since 2002 with Portland samplers at nine marinas – in shallow water. Hindsight would have had them deeper. The infestation was well developed before any were found on the samplers. Wen Baldwin, Lake Mead Boat owners Association, is installing signs at boat launches.

There is an Interagency Response Team plus a science team. NPS created a HACCP plan. The highest concentration of quaggas are at 50-80 feet, not at marinas. They were probably introduced in 2004 and possibly 2003. They are living in deeper waters than expected. NPS set up 9 underwater transects. Veligers are counted lakewide. They found mussels at 300 feet but not in high concentrations.

NPS has concentrated on slipped boats. They mailed notification which required owners to let marinas know 72 hours before moving. They were inspected and decontaminated. Portable or permanent wash stations are installed at each marina. The portable systems are from Hydro Engineering. They can be expensive to install (electrical, etc.) The washing is done away from the lake, water goes onto ground. All marinas charge to wash boats.

Public messages: Clean, drained and dry
On-going monitoring
Problems with cultural resources getting covered
Larval monitoring

What others can learn:

Get agreements in place with agencies that can do sampling, PCR
Have rapid response strategy
Early detection program: get divers in the water, need to look under overhangs

NPS is still looking for zebra mussels.

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Lake Havasu

Kirk Koch, Bureau of Land Management

Lake Havasu has a very tourist-centered economy. There are a lot of different jurisdictions – but it hasn't really jelled as a group. Most folks are hoping it goes away.

Bob Pitman reported on an article in Lakeline from Lake Management Society. Veligers are taking over other zooplankton. It is expected to have a huge impact on game fish in Lake Mead. If you find adults quaggas, then it is a reproducing population. Bob McMahon noted you can't wait to find them, you have to be looking for them.

Lake Powell

Mark Anderson, NPS

We don't yet know for sure that there is a population of quaggas. In 2000, they first started screening vessels at entrance stations. In 2003, they required decontamination before launching. This year they washed 500 boats, in comparison to 45 boats the last two years. They have had to charge to clean boats this year. This year they launched a dashboard certificate – follow the instructions on the Protectyourwaters.org. The path forward is to keep up the prevention program. They also will move forward assuming there is an infestation. Require decontamination of boats before they move.

NPS is gearing up a laboratory to do microscopic analysis. Live samples are very recognizable.

NPS Incident Command System

John Wullschleger, NPS

This organizational system was first applied to fires in California in the 1970's. It has evolved to manage to wide range of incidents. NPS has used ICS for avian influenza and hoof and mouth disease. They have used national level team. NPS director delegates authority. They build on activities and responses that occurred at Lake Mead and Glen

Canyon, describe what coordination was needed. April 2007 met in Ft. Collins (6 people) plus technical experts for one week. They developed a draft product at end of week which was sent to reviewers.

What went well, what needs improvement?

- Containment – when do you start containment?
- How do we have enough money to respond to an invasion immediately?
- Prevention – need to be out in front, e.g. need cleaning stations before zebra mussels show up. Lakes should now be putting in place control systems at their intakes (chlorination). “insurance.”
- Public outreach using law enforcement
- Decontamination by government, then needs to be private enterprise
- Strategize on long-term funding
- Integrate ANS with aquatic species management
- Had foundation of collaboration to work on
- NPS worked very well, formed a regional group meeting quarterly

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5. Break out Sessions

a. Rapid Response, led by Linda Drees, NPS

What went well:

- Information traveled quickly because there was an established network
- Right decision to use ICS, in Ca and Lake Mead
- Good distribution maps
- CA involved the water industry
- Some states were able to access money quickly
- Good established ANS network: WRP, states, 100th Meridian
- Technical assistance was well-known and available
- Lots of materials available

What needs improvement

- Need multi-agency coordination – decision-makers who can get funding
- Missing some agencies who weren't fully engaged
- Information was not always complete and accurate
- Boat washing – still disagreement on what needs to be used
- Many places, no response plan or decision tree
- Need more expertise
- Need more resources that can be accessed quickly
- Limited number of divers
- Sampling protocols need to be standardized

- Level of authority different for agencies and states
- Different legal mandates with states

Top 5 actions:

- Improve access to emergency funding – look at private funding with National Fish and wildlife Foundation (**Paul Heimowitz**)
- Form or use existing Multi-agency Coordination Group (MAC) which is high enough level – look at Colorado River as the other prototype (Columbia River has already done this) (**Bob Pitman, Tina Proctor**)
- Have WRP endorse ICS as the preferred operational response mechanism (**Tina Proctor**)
- Training in ICS through the river basin teams (**teams can schedule this – get information from Columbia River Team**)
- Agreed protocols for release of information by 100th Meridian for new sightings. Suggest consistent language to describe level of certainty. (People identified who could identify zebra/quagga mussels) (**Work group: Steve Wells, *David Britton, Linda Drees, John Wullschleger, Susan Ellis, Bob Pitman, Bob McMahon**)

b. Control, led by Everett Laney, ACE

- Improve ability to identify and monitor veligers, alive and dead, improve field techniques (**Bob McMahon, Steve Wells, David Britton, Mark Anderson – information available on website**)
- Get buy-in by all agencies about the seriousness of the issue (**Bob Pitman, Susan Ellis – WAFWA, Colorado Fish and Wildlife Council**)
- Develop database of all environmental factors and limiting factors; get consistent Lower CO River protocols (**Bob McMahon, Dave Britton – references**)
- Notify all the water users that they have a future problem coming their way (**broad distribution of new video – quagga/zebra mussel educational video**)

Funding

- Piggyback existing programs, i.e. HCP through adaptive management clause
- Ask for special session on AIS from Congress
- Vector/User Fees
- Boater registration
- General public water use
- Water authorities
- Power authorities
- NPS
- Special interest groups
- Philanthropy
- UN/international support

- NFS proposals
- Sea grant

c. Outreach and Education, led by David Britton, FWS

- Get slide from David
- Standards for cleaning boats
(Work group: Wen Baldwin, Larry Dalton, Eileen Ryce, Eric Anderson, *Susan Ellis, Mark Anderson, Rick Francis, Marshall Davis)
Note: clearinghouse for outreach materials (PSU) – get on 100th Meridian website – (Tina get to Dave)
- Standards for cleaning gear (Brian Moore, Dave Britton)
- List of experts (USGS has already created this) on ANS Task Force website – contact Eileen Ryce to get on this list.
- River basin teams could have names of agency people with responsibilities – (Each river basin team should supply lists of participant. Dave will put on the website. Paul, Eileen, Everett, Jennie Francis, Dave)
- Include boat, tackle, etc. manufacturers – in owner’s manuals, include ANS information, how to maintain warranty when cleaning engines or ballast – this is tied to the standards for cleaning boats protocol above (Joe Starinchak. National Marine Manufacturers Association – Dave will contact Dominique Norton)
- Target younger audiences. Many state boating agencies have k-12 education programs. (Feedback to Dave – he will put on website)
- Outreach directed at PIOs and policy makers and specifically NGOs that can influence them (more long-term)
- Sustained funding opportunities from States and industry (more long-term)
- Involve law enforcement
- Outreach working group (David Britton, Jennie, Denise, Evan Freeman, Mike Watkins, Marshall Davis, Bill Zook, Rebbekah Waclawczyk, Brian Lang)

d. Prevention, led by Bob Pitman, FWS

- Develop a standard menu of options for monitoring and sampling
(Work Group: *Dave Britton, Steve Wells, Bill Taylor, Eileen Ryce, Mark Anderson, Ken Davis, Wen Baldwin, Bob McMahon), SNWA (Peggy Roefer)
Lake Mead and Mohave have already started to coordinate on this
- Improve the monitoring database at PSU – need to do more coordination between PSU and 100th Meridian (Steve Wells and Dave Britton)
- Prioritize risk assessment for where monitoring occurs (site locations) Steve Bynum*, Rodney Jung,
- Need more technical training for monitoring. (using standard protocol options)

Pathways for spread

- Education and awareness at state agencies, top and bottom

- Link 100th meridian to more websites (**Dave and Bob**)
- Develop a script for anyone to use when talking with potentially contaminated boaters (not boater surveys). (**Bryan will make Lake Mead form available**)
- Consult with human dimension experts to help with boater surveys (**Bob Pitman**).
- 100th Meridian briefing paper on financial impact to industry (**Stephen Phillips**)

Training

- Train the trainers (**Bill and Wen are working on creating this**)

Wednesday, November 28

6. Law enforcement – role of Lacey Act and state law in building and enforcement of inspection programs

Ed Dominquez, senior agent for FWS in Las Vegas

The Lacey Act is a list of species that has been identified that it is illegal to import into the United States or to transport throughout the U.S. Zebra mussel is named by genus. Quagga mussel is not on the list. Need to petition the FWS to get the quagga mussel on the list. FWS officers have to be careful about “illegal search and seizure.”

18 USC 42 – criminal penalties = \$500.00 and/or six months imprisonment.
Misdemeanor citation.

FWS does have the capability to file a ticket for the zebra mussel transport. Have to file a federal notice of violation. Have to prove identification. In Ed’s opinion, this is the only avenue available.

The other portion of the Lacey Act = 18 USC 3372
Violation of federal law, state law and foreign law and Tribal law.
Require that federal agency or state agency list the quagga as injurious or prohibited species. NPS could pass a regulation (CFR) that says quagga mussels are illegal to possess. NPS could address with a notice of violation.

If State lists quaggas as prohibited species, can also be charged under Lacey Act. FWS would have to prove that the violation was a violation of interstate commerce (boat moving from one state to another).

Nevada has quaggas on their prohibited list. If a boat with quaggas from Nevada moves to California, the owner could be charged with violating the Lacey Act. If the boat goes to a state that does not prohibit quaggas, the owner can be charged in Nevada.

Criminal section: misdemeanor = 5 years or \$5,000 fine. The most effective way is to let states take care of it in state court. Utah, CA, WA, MT have quaggas on prohibited list. Taking a case to the US Attorneys office is extremely difficult now.

Discussion on what increases the consciousness of boaters. Violations, or knowing they might be stopped, checked and delayed.

FWS has less than 200 special agents in the U.S. Too many priorities. It is better to work through state level. Better chance with a large commercial hauler.

Discussion of US attorney's office ruling that zebra mussel, *Dreissena* is only *Dreissena polymorpha*. Bob McMahon noted that the term zebra mussel has been used for all Dreissenids. Ed will approach US attorney's office to clarify this – he will forward to Bob.

Susan Ellis, CA Dept. Fish and Game

In California, the genus has been on the prohibited species list for many years.

New legislation:

www.leginfo.ca.gov – Assembly, AB1683

CA LE people can stop any boat that has water on it. Boat can be inspected, have it cleaned and dried, fine is \$300 to \$10,000. Any LE entity in the state can do it with a boat.

Other legislation: water providing authorities must create a planning document in partnership with CA Fish and Game.

Every CA FG warden is required to take the Boat decontamination training (WIT).

Stephen Phillips noted emphatically: STATES NEED TO HAVE CLEAR AUTHORITY TO STOP BOATS, TO REGULATE ACTIVITIES REGARDING AQUATIC INVASIVE SPECIES.

Eric Anderson, WA Dept. Fish and Wildlife Law Enforcement Officer for AIS

Eric trained all Ports of Entry and they are inspecting all commercial boats coming into the state. All State Fish and Wildlife officers have been trained on identifying zebra mussels and on what the laws in the state are. It helps to have another law enforcement officer give the training. Eric looked to see where there are gaps in law, did a presentation with the legislature. The legislature gave new authority – check stations can be set up anywhere and stop any boat. A gross misdemeanor is based on “failing to stop for a check station.” Changed wording on signs: Stop, it is illegal to stop and spread invasive species. You will be fined. 2nd phase has been to write tickets—3 commercial haulers have been given tickets. Highway signs on all highways into Washington.

Will phase into directing boaters into designated marinas and marine yards who will be certified to do the cleaning. Marina will charge the boater.

Important to get all law enforcement officers in states working together,

7. Linear-kinetic cell technology
Dick Cunvari, Ener-Tech

Tested product in Great Lakes at U.S. Steel for 4 weeks. Mussels died. At this point, he doesn't know why the mussels were killed. The product is designed for scale inhibiting – electronic device puts the calcium back into solution. They would like to test the product in a controlled system. Needs to be in a closed system like pipes. Dick asked people to contact him if they are interested in being part of a product test.

8. 100th Meridian Surveys at Lake Mead 2007
Sara Muetting and Dr. Shawn Gerstenberger, UNLV

Presentation on earlier survey 2002-2003. 100th meridian website – the paper is posted there. Funding for new surveys in 2007 came from the Western Regional Panel. NPS approved the new surveys and they started this fall

They added two questions to the original survey.
How do you clean your boat?
How long have you stored your boat in water?
(do you know the approved method of cleaning your boat?)

THEY NEED A STANDARDIZATION PROTOCOL TO HAND OUT

9. Watercraft Inspection and Decontamination for quagga/zebra mussels
Wen Baldwin and Bill Zook, Pacific State Marine Fisheries Commission

The WIT was originally for law enforcement, but has evolved to training biologists, marina operators, utility companies, fishing groups, etc. They briefly talk about decontamination. Evolved from the quagga mussel invasion and need to train responders. Also, they do not cover laws of local state. The state people prepare the law portion of the presentations. Everyone needs to be pro-active. LE cannot do it by themselves. Outreach is still critical.

104 degree water for an hour to kill mussels. 140 degrees will kill them much quicker.

Need funding for Train the Trainer for 2 (1/2 days) – haven't done this yet.

PSMFC has copywrite for all the material but is allowing people to use material plus raw material that will be on the website.

10. Strategic Discussion

Prevention – Regulatory Tools

- Use list of current laws to determine gaps in state ANS laws and regulations
- CFR for federal agencies to include prohibited species or perhaps white list (ACOE, NPS, etc.)
- Amend law or update injurious species list to include genus *Dreissena*
- Promote regulatory tools by non fish and game agencies to facilitate infrastructure or prevention actions to prevent spread
- Work with AFWA – Law enforcement chiefs and other law enforcement associations
- Outreach to state and federal judicial system plus attorney generals
- Explore difference in civil and criminal and felony penalties for use with ANS violations
- Disseminate information about state and federal laws which have impact on ANS activities

Prevention – Outreach

- Target younger audiences
 - National Project Wild or Aquatic Wild – develop units on aquatic invasive species
 - Traveling trunks
 - Link to National Science Teachers Association website
 - State Hunter Safety Education programs
 - Hunting and Fishing shows – free plugs
- Engage media on a more consistent level

Rapid Response

- More secure emergency response funding source
- Distribute current glossary on ANS terms
- Develop response plans for other high visibility species
- List species that may show up in the Western US
- Develop a regional response team
- Promote state summaries of permitting requirements
- Coordination with law enforcement during rapid response

Control and Management

- Research – open water technologies needed
- FIFRA waivers needed
- List of approved chemicals in specific situations
- Data (economic, ecological) need for prioritizing impacts and thus need for control
- Containment vs. Eradication – What is the threshold for management actions?

Early Detection and Monitoring

- PCR needs to be fine-tuned, promoted and more cost effective
- Need funding

- Encourage wide variety of monitoring techniques
- Evaluate current monitoring techniques and determine efficacy. Why and where do current applications work?
- Need to coordinate with other water quality infrastructure units.
- Need coordination infrastructure, database, risk assessment for ANS monitoring.
- Improve capacity and training for monitoring.

Evaluation

- Ensure effectiveness of 100th Meridian
- Apply adaptive management principles
- Survey of practitioners for each specific technique for outreach, i.e. How well are brochures working? and other materials and approaches.
- 10 year progress report