



## Legislative Fiscal Bureau

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May, 2019

Joint Committee on Finance

Paper #510

### Natural Resources Science Bureau (Natural Resources -- Departmentwide)

[LFB 2019-21 Budget Summary: Page 293, #2]

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#### CURRENT LAW

The Department of Natural Resources (DNR) has statutory authority to conduct research to improve management of natural resources. The DNR maintains an Office of Applied Science, which is housed in the Division of Fish, Wildlife, and Parks. The office is not formally constituted in DNR's organizational structure. Rather, it consists of several staff members working across the agency to conduct research and other scientific duties.

#### GOVERNOR

Create a Bureau of Natural Resources Science and provide 5.0 scientist positions budgeted in the Division of Environmental Management (4.0 positions) and the Division of External Services (1.0 position). Increase funding from the segregated (SEG) environmental fund by \$308,000 in 2019-20 and \$410,500 in 2020-21. (Funding in 2019-20 would include \$182,500 for salaries, \$88,000 for associated fringe costs, and \$37,500 for supplies and services. Funding in 2020-21 would include \$243,000 for salaries, \$117,500 for associated fringe costs, and \$50,000 for supplies and services.) Convert 14.0 positions currently in the Office of Applied Science (including eight from the Wildlife Management Bureau, five from the Fisheries Management Bureau, and one from the Natural Heritage Conservation Bureau) to the new bureau. Require the director of the new bureau to serve as science advisor to the DNR Secretary.

## DISCUSSION POINTS

### A. Background and Science Unit Structure

1. 2015 Wisconsin Act 55 eliminated 18.4 scientist positions from 57.4 positions in the Bureau of Integrated Science Services, as shown in the following table. The administration indicated at the time that it believed the work conducted by these positions was inconsistent with the mission of the agency. Additionally, proponents of the Act 55 reductions argued that the Department should not focus on controversial science projects, such as the study of climate change or mining impacts. Those opposed to the Act 55 provisions expressed concern about the loss of staff and capacity to conduct certain amounts or types of research.

#### Science Services Reductions - 2015 Wisconsin Act 55

| <u>Position Title</u>                                  | <u>Positions</u> | <u>Annual Reduction</u> | <u>Fund Source</u>    |
|--|------------------|-------------------------|-----------------------|
| Natural Resources Scientist - Advanced/Senior          | -9.25            | -\$914,000              | FED                   |
| Chemist - Advanced/Senior                              | -1.25            | -103,800                | PR                    |
| Natural Resources Research Scientist - Advanced/Senior | -7.40            | -793,000                | Conservation Fund SEG |
| Natural Resources Research Scientist - Advanced        | <u>-0.50</u>     | <u>-50,400</u>          | Nonpoint SEG          |
| Total  | -18.40           | -\$1,861,200            |                       |

2. 2017 Wisconsin Act 59 eliminated the Bureau of Integrated Science Services and transferred 37.0 scientist positions to the Divisions of Fish, Wildlife, and Parks (14), Environmental Management (2), and External Services (21). The Department reasoned that eliminating the Bureau and transferring positions would better align scientists with their area of research. The 2017 reorganization was intended to consolidate functions and according to the DNR, this decentralized approach to research was intended to better align research work with DNR program needs and priorities. Further, DNR noted the structure would ensure that research staff report to the same leadership and supervisors as operational staff. Additionally, DNR argued that the model would allow for flexibility to adjust to specific program needs as priorities change. The 14.0 positions transferred to the Division of Fish, Wildlife, and Parks are divided between the Bureaus of Wildlife Management (8.0), Natural Heritage Conservation (1.0), and Fisheries Management (5.0). They are members of the Office of Applied Science, a team that coordinates scientific planning and operations between bureaus.

3. Prior to 2017-18, the Integrated Science Services Bureau developed a biennial research agenda. In the past, a research review team convened by the Science Services Bureau Director, and Deputy Division Administrators from the Divisions of Air and Waste, Forestry, Land, and Water developed a biennial research agenda. Initially, Science Services management met with program staff and managers to review and discuss ongoing research related to each program, staff and funds available, anticipated resources available for new projects, and potential research priorities and future directions. Each division then developed a prioritized list of research needs for their programs and provided it to Science Services management, who consolidated the identified priorities and consulted with the Secretary's Office to identify departmentwide policy priorities and emerging issues. The agenda was typically presented to the Natural Resources Board as an informational item at a spring

meeting in each odd-numbered year.

4. DNR's internal manual code, which was updated pursuant to the departmental realignment, specifies a less centralized process for developing the DNR's biennial research agenda. Under new procedures, program and bureau leadership are expected to identify research needs germane to their specific projects. Division leaders then prepare a consolidated list of priority projects from the bureaus under their supervision. Division administrators prioritize research projects based on the needs and goals of DNR leadership as well as the administration. DNR does not anticipate updating the manual code if the Governor's proposal is accepted because the Department's scientific agenda would still reflect this approach.

5. It should be noted that the Governor's proposal does not specify in what capacity that the Natural Resources Science Bureau Director would serve as science advisor to the Secretary. Further, the bill does not direct DNR to promulgate rules regarding the Natural Resources Science Bureau Director's role as advisor to the Secretary. Under the bill, it would likely be determined by each DNR Secretary how the advice of the Natural Resources Science Bureau Director would be used in DNR policy-making, consistent with other DNR practices.

6. While the Governor's proposal creates a bureau, DNR does not anticipate creating a new budgetary subprogram. Each position would be housed in the budgetary program and subprogram that most closely aligns with the position's research area. Positions in the Office of Applied Science are currently funded under a similar structure. Under the Office of Applied Science, research positions work in a consultative capacity and may provide research support across divisions and the Department.

7. In his testimony to the Joint Committee on Finance, the DNR Secretary-Designee stated that the creation of a Natural Resources Science Bureau would further inculcate science into the Department's policy-making process. The statutory creation of a science bureau would also incorporate the Secretary's Office into the development of research priorities. Further, it would arguably create a direct line of communication and accountability between scientific staff and the Department leadership team. The Committee could consider approving the Governor's recommendation to create the Bureau of Natural Resources Science [Alternative A1].

8. It could be argued that the creation of a Bureau of Natural Resources Science would not significantly differ from the Office of Applied Science, which coordinates research between divisions as well as to help incorporate research into the Department's operations. Furthermore, the DNR Secretary may seek the opinion and scientific advice of the Director of the Office of Applied Science without statutory mandate. Additionally, without statutory or administrative guidance that would specify in what capacity the Bureau Director act as science advisor to the DNR Secretary, each DNR Secretary may vary in how or whether he or she uses the advice and reports of the Bureau Director when setting Department policy. The Committee could consider providing positions and funding without creating a Bureau of Natural Resources Science [Alternative A2].

## **B. Scientist Positions**

9. DNR argues that the new bureau would expand the Department's ability to conduct

scientific research and incorporate science and research into DNR's policy-making process. The Department determined that it would need 5.0 positions to meet unfilled research needs. Owing to a lack of staff capacity, DNR notes it is unable to adequately address several priority research areas. Prior to 2015, DNR reports it had five full-time researchers who focused on water issues. DNR reports that, due to staff reductions and staff attrition, the Department no longer has staff with expertise in research subjects including beach pathogens, such as E. coli or Cladophora algae, shoreland and lake restoration, contaminants from fish and wildlife populations, and lake eutrophication. Furthermore, DNR has reduced capacity in research subjects including blue-green algae, fish distribution, fire suppression and management, basic limnology and other basic research.

10. Though the Department employs many biologists, chemists, and other technicians, the bulk of these positions are not necessarily trained in scientific research. DNR's manual code defines research as "those activities that apply the scientific method and principals of experimental design to produce information, develop technologies, and support the application of science." According to DNR, staff in the Office of Applied Science differ from staff working as technicians or biologists in that Applied Science staff seek to answer research questions to discover "sound interpretations[s] of new facts and relationships." DNR scientific research aims also include "the synthesis of existing information, analysis of emerging concepts, and revision of accepted conclusions."

11. DNR researchers in the Office of Applied Science typically work on a mix of between 30 and 40 short and long-term projects at a given time. Some of these projects may be partnerships with university researchers or with other states, where feasible. DNR argues that five additional scientists would enable the Department to expand the number of projects that it may conduct at a given time. If research positions were added, the Environmental Management Division has listed five primary research themes that it would prioritize: (a) emerging contaminants, including per- and polyfluoroalkyl substances (PFAS), a class of over 3,500 chemicals involved in several industrial and consumer products; (b) waste management, including runoff and the behavior of biosolid contamination on land; (c) safe water, including nitrate and bacteria pollution; (d) aquatic habitat, including the protection of waterways and preventing the introduction of invasive species; and (e) climate-induced stress on the state's waterways, such as from changing precipitation patterns across the state.

12. DNR notes that new research has emerged on the effect of PFAS on human health. PFAS contamination has been found in over 170 sites in 40 states. The Environmental Management Division has identified over 20 specific research projects related to PFAS and other contaminants. The Department reports it currently does not have the capacity to undertake these scientific research projects. The Department is unable to reallocate staffing positions to water quality issues, as most scientific staff specialize in fish and wildlife issues. DNR lists Michigan, Iowa, and Minnesota as three neighboring states that have experienced PFAS contamination that are currently conducting research on these chemicals and other emerging contaminants. Michigan, for instance, has appropriated at least \$51.5 million in PFAS research, remediation and testing funding over its last two state fiscal years, according to a March, 2019, report from the Michigan House Fiscal Agency. Additionally, DNR reports Minnesota's Department of Health and drinking water programs have conducted research on PFAS contamination and other emerging chemicals. DNR reports it is unable to significantly engage in the research or provide information on PFAS contamination in Wisconsin

without additional staff capacity or capability.

13. The Governor's budget would provide \$200,000 GPR to DNR in 2019-20 to study PFAS contamination, discussed in a separate paper. DNR and the administration intend for 2.0 of the new positions in the Bureau of Natural Resources Science to work on PFAS issues. These positions, however, would not conduct the PFAS study. Rather, they would work on complementary research. Since PFAS is a priority area, DNR plans to use the PFAS study funding to contract in the near term with outside researchers. If the 2.0 PFAS research positions were created, DNR would use them to expand the PFAS-related research that the PFAS study would prompt.

14. In addition to groundwater and soil contamination, PFAS may harm wildlife. According to DNR, there is growing concern about the effect that PFAS contamination may have on fish and game populations. Fish may consume PFAS in streams. Through a process called bio-magnification, this contamination would become concentrated in a fish's flesh, potentially posing a risk of harm to anglers consuming fish from affected waters. Additionally, DNR reports that there is concern among hunters about deer that browse in PFAS-contaminated areas. The extent to which PFAS may be absorbed into plant mass and consumed by deer and other game species is unknown. This is another priority research area that DNR would plan to investigate with additional water quality researchers.

15. In addition to PFAS contamination, DNR argues it has several unmet research priorities, including fertilizer management and microbial contaminants that may harm water quality and pose health risks. Current DNR staff are unable to research these contaminants due to staffing constraints and a lack of knowledge of these chemicals. According to DNR, the U.S. Environmental Protection Agency (EPA) has been unable to perform research on many of these emerging research areas and has come to rely on state-led research. Due to the identified areas for future research, the Committee could consider approving the Governor's recommendation to approve 5.0 scientist positions [Alternatives B1 or B2].

16. Although DNR has several unmet research priorities, the Department may be unable to accelerate its research agenda at a pace to fully avail itself of the positions immediately. DNR notes that it is in the process of developing the Department's biennial research agenda. As of May, 2019, the Office of Applied Science is in the process of work planning and budgeting. At this phase of the agenda-setting process, DNR determines the funding and staffing available to conduct its research process. DNR indicates that while the agenda will not rely on the 5.0 proposed positions, the agenda is being written to fully use these positions.

17. It could be argued that because DNR has a clear plan including over 30 identified projects for research related to PFAS, the Committee could consider providing 2.0 positions that could focus on PFAS and other water quality concerns [Alternative B3]. This would allow DNR to begin the process of expanding its research agenda to meet unmet priority needs. As DNR takes on a wider breadth of issues, positions could be added in future biennia to allow DNR to conduct more research, dictated in part by the forthcoming research agenda.

18. Should the positions be created as proposed under the bill, they would be administratively housed in the Division of Fish, Wildlife, and Parks, but budgeted in separate programs and funded by the environmental fund. These positions would be atypical in that respect.

Two positions would be budgeted in the drinking and ground water program, two positions would be budgeted in the water quality program, and one position would be funded by the budgetary subprogram for watershed management. Additionally, four positions would be funded by the environmental management account of the environmental fund and one position would be funded by the nonpoint account of the environmental fund. The administration indicated that this funding arrangement was developed to reduce administrative complexity. The Department determined that it would be most feasible to expand an existing science office while allocating funding to respective program areas.

19. As noted above, according to DNR, research scientists often work in a "consultative" capacity, providing assistance to DNR bureau management in identifying research questions and devising research procedures. While research scientists may help to develop experimental designs, they seldom work in day-to-day field operations related to the research. Furthermore, given that research scientists may work on several projects at a given time, one scientist may work with a series of different teams across bureaus. Given this arrangement, the program through which research scientists are funded may differ from the reporting structure for other non-research staff similarly funded. DNR does not believe this arrangement would be problematic because science staff have specific personal performance goals and are directly accountable to the Office of Applied Science Director. Under the Governor's proposal, the Bureau of Natural Resources Science Director would be directly accountable to the DNR Secretary.

20. As of June 30, 2018, the environmental management account had a balance of approximately \$6,104,900. Revenues are expected to total approximately \$59.2 million in fiscal year 2019-20, and \$59.4 million in fiscal year 2020-21. Under the Governor's budget proposal, the account is expected to have a closing available balance of \$26.6 million on June 30, 2021. The account would have sufficient funding to add up to all 5.0 positions funded at \$308,000 in 2019-20 and \$410,500 in 2020-21.

21. On June 30, 2018, the nonpoint account had a closing cash balance of \$11.1 million and an available (unencumbered) balance of \$5.9 million. Under separate provisions of the bill, it is expected the nonpoint account of the environmental fund would have authorized expenditures that exceed anticipated revenues by approximately \$7.7 million each year of the 2019-21 biennium. Thus, under the Governor's proposal it is expected the nonpoint account would have an estimated closing cash balance of -\$5.3 million and available balance of -\$10.8 million on June 30, 2021. Therefore, adding an additional position funded at \$61,600 in fiscal year 2019-20 and \$82,100 in 2020-21 would worsen the account condition. The Committee could consider placing 5.0 positions in an environmental management appropriation to avoid over-expending the nonpoint point account [Alternative B2].

22. The Committee could also take no action [Alternative B4]. Additional scientist positions could be considered under future agency requests or budget legislation.

## ALTERNATIVES

### A. Science Unit Structure

1. Approve the Governor's recommendation to create a Bureau of Natural Resources Science. Require DNR to convert the Office of Applied Science to the Bureau of Natural Resources Science, and specify the bureau Director shall report to, and serve as the science advisor to, the DNR Secretary.
2. Take no action to create a Bureau of Natural Resources Science.

### B. Scientist Positions

1. Provide \$308,000 SEG in 2019-20 and \$410,500 SEG in 2020-21 as well as 5.0 scientist positions. Fund 4.0 positions with the environmental management account of the environmental fund, and fund 1.0 position with the nonpoint account of the environmental fund.

| ALT B1 | Change to Base |           | Change to Bill |           |
|--------|----------------|-----------|----------------|-----------|
|        | Funding        | Positions | Funding        | Positions |
| SEG    | \$718,500      | 5.00      | \$0            | 0.00      |

2. Provide 5.0 environmental management SEG positions, placing all positions in an environmental management general operations appropriation.

| ALT B2 | Change to Base |           | Change to Bill |           |
|--------|----------------|-----------|----------------|-----------|
|        | Funding        | Positions | Funding        | Positions |
| SEG    | \$718,500      | 5.00      | \$0            | 0.00      |

3. Provide 2.0 environmental management SEG-funded positions for PFAS-related research and other emerging chemical contaminants.

| ALT B3 | Change to Base |           | Change to Bill |           |
|--------|----------------|-----------|----------------|-----------|
|        | Funding        | Positions | Funding        | Positions |
| SEG    | \$287,400      | 2.00      | - \$431,100    | - 3.00    |

4. Take no action.

| ALT B4 | Change to Base |           | Change to Bill |           |
|--------|----------------|-----------|----------------|-----------|
|        | Funding        | Positions | Funding        | Positions |
| SEG    | \$0            | 0.00      | - \$718,500    | - 5.00    |

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