

Project Period: August 1, 2021 through July 31, 2024

A. Senior Personnel:

Principal Investigator: Daniele Tonina, 1 week @ \$67.3/hr, Year 1 (\$2,714); same for Year 2 and 3 with a 3% increase, for 3-year total (\$8,390).

Principal Investigator: Elowyn Yager, 1 week @ \$71.31/hr, Year 1 (\$2,852); same for Year 2 and 3 with a 3% increase, for 3-year total (\$8,816).

Principal Investigator: William J. Reeder, Year 1 @ \$26/hr for 40hr a week for 52 weeks (\$54,080); Years 2 and Year 3 increased by 3%, for 3-year total (\$167,156). Dr. Reeder is a Post Doc at the UI and PI on this project. As such, we have listed him as a PI in the budget and associated documents.

Furthermore, in accordance with section II.C.2.g.(1)(a) of the PAPPG, sponsor approval is required if upon issuance of this Award the Senior Personnel will exceed the two-month limitation for all effort on NSF Awards in the UI's fiscal year. For this proposal submission, we expect that William J. Reeder, who is a Post Doc, will expend 12 months on this Award and that, combined with existing NSF Awards, will put them over the 2-month limit. The proposed level of commitment for this proposal is appropriate to the scope of work and is required in order to fulfill the objectives of this project within the proposed time frame. Per Chapter II.C.2.g(i)(a), of the FY 2020 PAPPG (Senior Personnel Salaries & Wages Policy), the Regents of the University of Idaho have determined the definition of salary year to be based on a calendar year.

B. Other Personnel:

Laboratory manager: 160 hours in Year 1 @ \$40/hr (\$6,400); 120 hours in Year 2 with 3% increase Year 3 no request. for a 3-year total (\$11,344).

Undergraduate student 1: 3 months in Year 1 @ \$11/hr (\$5,280); Years 2 same as Year 1 with increased by 3%, Year 3 no request. For a 3-year total (\$10,719)

Undergraduate student 2: 3 months in Year 1 @ \$11/hr (\$5,280); Years 2 same as Year 1 with increased by 3%, Year 3 no request. For a 3-year total (\$10,719)

C. Fringe Benefits

PI: Daniele Tonina Fringe Benefits Year 1 (\$833) @ 30.7%, Year 2 and Year 3 the same; for 3-year total (\$2,576).

PI: Elowyn Yager Fringe Benefits Year 1 (\$876) @ 30.7%, Year 2 and Year 3 the same; for 3-year total (\$2,706).

PI: William J Reeder as postdoctoral researcher Fringe Benefits Year 1 (\$22,605) @ 41.8%, Year 2 and Year 3 same; for 3-year total (\$69,871).

Laboratory manager: Fringe Benefits Year 1 (\$2,676) @ 41.8%, Year 2 the same; for 3-year total (\$4,743).

Undergraduate student 1: Year 1 Fringe Benefits @2.1% (\$111); Year 2 same; for a 3-year total (\$226).

Undergraduate student 2: Year 1 Fringe Benefits @2.1% (\$111); Year 2 same; for a 3-year total (\$226).

D. Equipment

Year 1: Purchase of a UV-VIS spectrometer with TOC analyzer for multisampling analysis and vial to detect DOC, NO_x, NH₄ and TOC. (\$15,000)

E. Travel:

Domestic

Scientific conference: Year 1, 1 person (airfare \$500), (registration \$500 per person), lodging (\$1200), 8 days per diem @ \$46/day (\$368) for a year 1 total (\$2,568). Years 2 and 3 10% increase, for 3-Year total (\$9,936).

Outreach program: Year 1 (\$200) rental car and gas; Year 2 and 3 increase 10%, for a 3-year total (\$662).

International:

Visiting Universidad de la Frontera, Temuco Chile: Year 2, 1 person travel expenses (airfare and ground transportation) Boise (USA) Temuco (Chile) (\$2,000 per person), and lodging and board (\$3,000) for a 3-year total (\$5,000).

F. Participant support costs

None.

G. Material and supply

Computers: Year 1: 1 computer for numerical simulations (\$3,000), Year 2 and Year 3 No additional computers requested. For a 3-year total (\$3,000)

Computer software: Year 1: Mathematica (\$750), Technplot (\$1,000), surfer (\$400) Year 2 and Year 3, annual upgrade and license renewals of software (\$1000/yr). for a 3-year total of (\$4,150).

Manuscript cost: Year 3 (\$1,000/yr), we are aiming to publish in journals which are not charging publishing fees for most of our publications. 3-year total of (\$1,000).

Flume Experiment:

Year 1: **sensors:** micro electric conductivity sensors (\$1,000), material for water sample collection (e.g., tubing, lure locks etc (\$2,000), N2O Unisens sensors (\$4,500), DOT spots for DO measurements @ \$20/dot for 300 units, (\$6,000), 2 external hard drive 3T (2@\$150); **Material:** sediment supply (\$400); sediment hauling fee (\$400) sediment processing and delivery (\$400); material to modify the flume for the experiment (\$2000);

lab space fee: \$500/week for 20 weeks (\$13,000) for a Year 1 total of (\$30,000)

Year 2: NO request

Year 3: same as Year 2.

For a 3-year total (\$30,000).

Field experiment:

Year 2: material for building the sensors stakes (\$1,500)

Outreach program: Year 1: materials for fabrication of educational flume and for students (\$500)

Years 2 and 3 same as Year 1

For a 3-year total (\$1,500)

Trustee Benefits

No tuition and fee requested

Data management

Cost of data management is \$500 per year, for a 3-year total (\$1,500).

I. Indirect Cost

Indirect cost at the University of Idaho will be 47.5%.