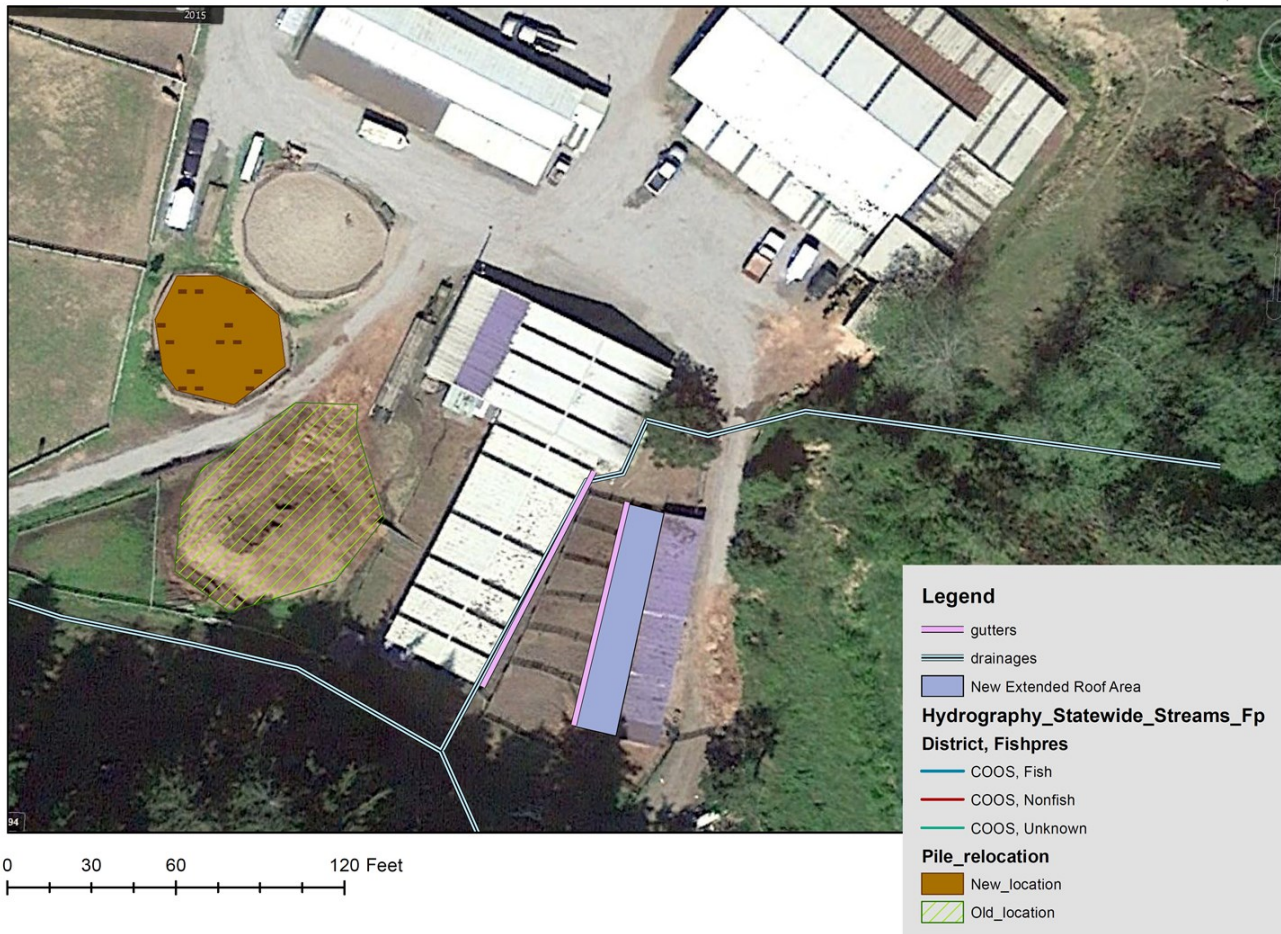


2018 Cooperators of the year AWARD:

Larry and Cindy Johnson

Trillium Stables Agricultural Water Quality Project



Background:

Trillium stables is a small family farm and horse boarding facility housing anywhere between 20-30 horses throughout the year. In addition, the farm is home to numerous ponies, donkeys, turkeys, peacocks, ducks, and chickens as well as several cats and dogs. The property slopes westwards towards lowland (wetland) seasonal pasture through which numerous channelized tributaries of Isthmus Slough join and flow together out into the main Isthmus Slough channel. Several small, unnamed perennial streams drain down from the upper slope (east and southeast sides of property) and run alongside the barn and paddock areas, ultimately draining into the channels which run through the pastures, and out into Isthmus Slough. These streams for the most part flow directly through the barnyard and therefore were running through areas which are heavily concentrated with animal wastes and, during rainy months, mud. There was especially high potential for contaminated runoff from the barnyard area due to the high concentration of animals, lack of groundcover, and large amounts of water draining trough this area and directly into Isthmus Slough tributaries in the rainy winter season. The site also lacked sufficient ground cover and vegetation in some areas to help provide shade, bank stability, and filtration of runoff. Sediments and farm wastes contribute to impaired ecological function in

Solutions:

Larry and Cindy were a pleasure to work with and over a 2 year period they employed a number of creative manure and run-off strategies. With OWEB small grant funds, over 130 ft. of rain gutters were installed on the barn and covered paddock area. The covered paddock area and the rain gutters helps to reduce the amount of mud and manure runoff from the paddocks. Larry also relocated the manure storage pile to reduce potential runoff and spread it over his pastures in the summer for fertilizer. Grass seed was spread on the newly created buffer area between the paddocks and the barn to grow a filter strip, which would help clean water as it drains into the streams and into Isthmus Slough. However the numerous fowl on the property tended to eat the grass seeds and the landowner could not get any grass to grow. The alternative solution was to install a culvert underground for that segment of stream which runs through the paddock area along the barn. Larry also utilized electric fencing in several areas to create setbacks on the streambanks, to allow vegetation to reestablish. These project activities

(Below) Initial site visit, December 2015 shows original condition of the small hillside pasture which was being used as an exercise area, and tributary stream.



(Above) Follow-up site visit, October 3rd 2017 shows improved condition of the small hillside pasture (now retired) which was being used as an exercise area, and vegetation beginning to grow up along tributary stream.

(Right) follow-up site visit, April 25th 2018 shows improved condition of the small hillside pasture (now retired) which was being used as an exercise area, and vegetation grown up along tributary stream.



BEFORE



Paddocks between barn and stables. BEFORE: Highly concen-

AFTER



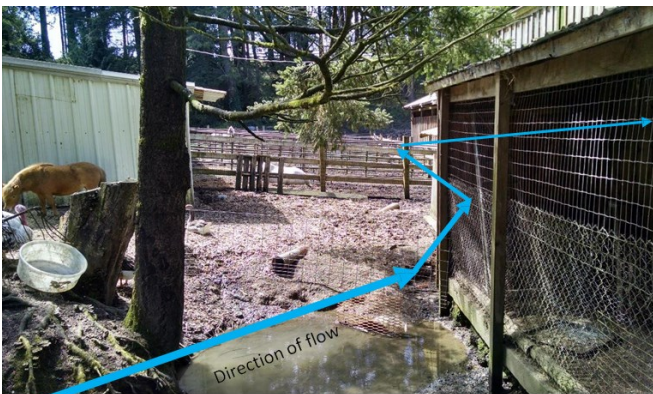
Paddocks between barn and stables. AFTER: Paddocks have been reduced and covered with roofing. Sparsely grassed area in the center is to be used as a buffer. Vegetation has been slow to grow due to



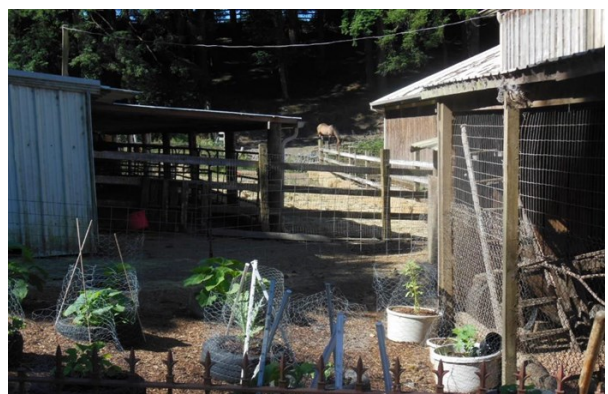
Main Barn, adjacent drainage: BEFORE (6-14-2017)



Main Barn, adjacent drainage: AFTER (8-8-2018)



BEFORE water flows directly through the stable yard and alongside main barn (6-14-2017)



Main Barn, adjacent drainage (facing south). AFTER: Culvert has been installed so that there is no longer any above-ground flow through the stable yard; tree removed and vegetable garden planted (7-3-2018).

BEFORE



Initial site visit, December 2015. Original location of manure pile.



Initial site visit, December 2015. Original location of manure pile.



Initial site visit, December 2015 shows highly concentrated manure- runoff flowing directly into the tributary

AFTER



Final site visit, August 2018. Original location of manure pile (now an exercise area)



FINAL site visit, August 2018. New location of winter-storage manure pile, on a hardened gravel surface overlaid with rubber stall mats, and with telephone pole curbs to further prevent any runoff in direction of stream.



FINAL site visit, August 8th 2018 shows improved condition of the corral area; the pile has been relocated; gutters and roofing have been constructed on the west side of the barn to prevent runoff from the stalls on that side. A vegetative buffer has been established along the tributary stream.