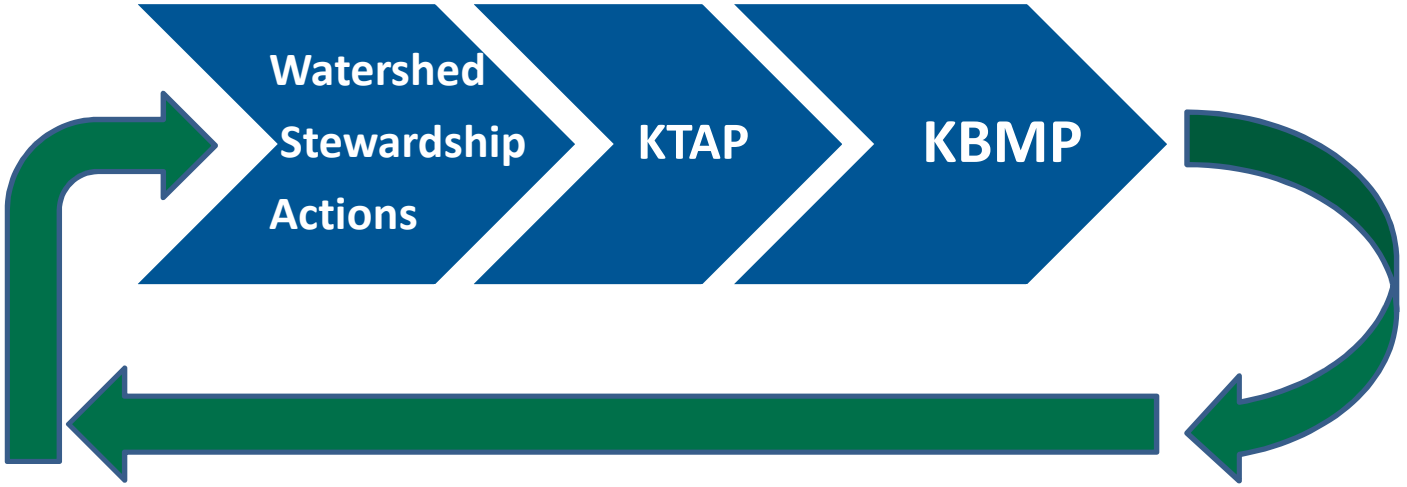
Klamath Tracking and Accounting Program

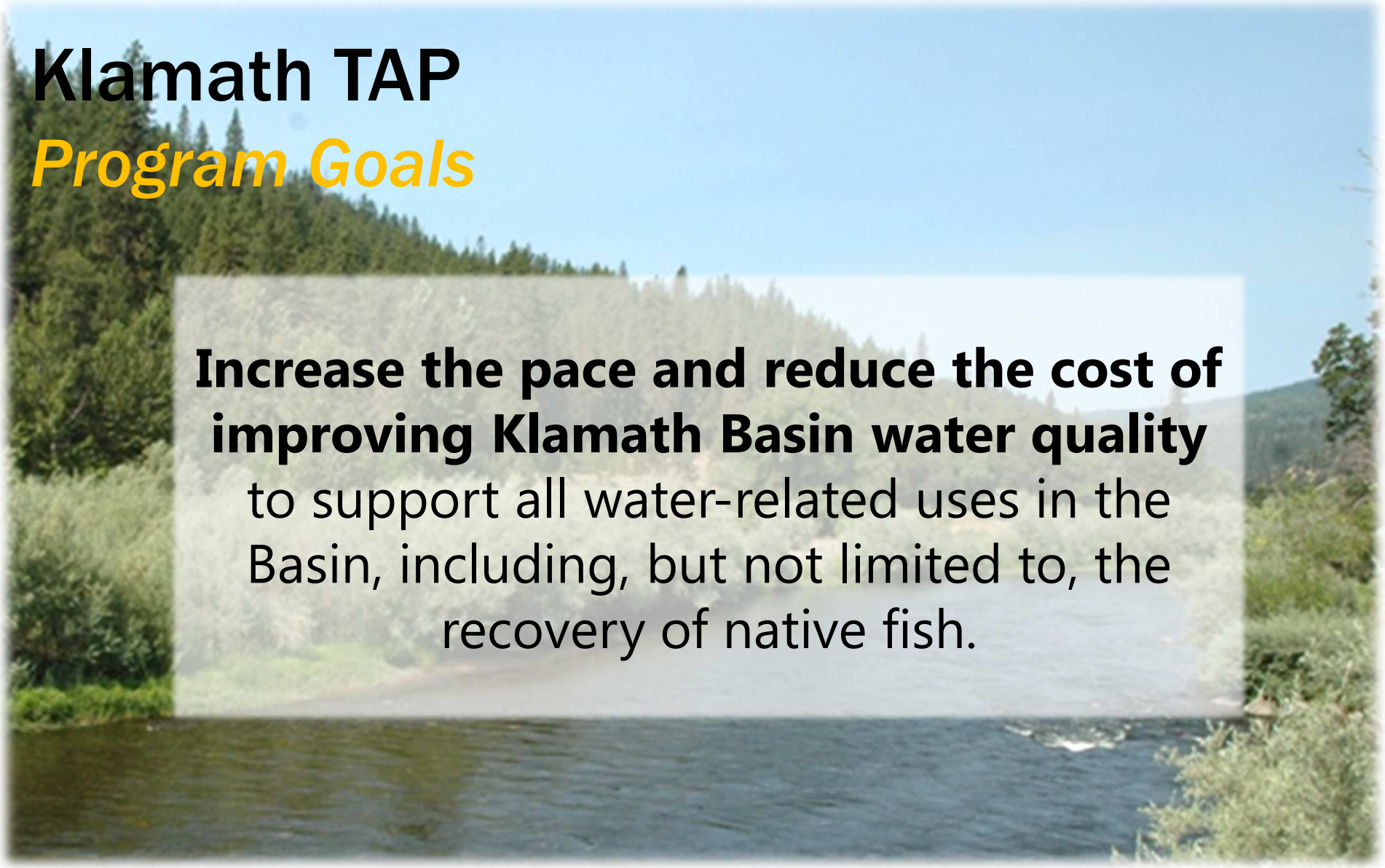
Klamath Basin Monitoring Program 11.05.12

Klamath Basin
Adaptive Management Framework



Klamath TAP

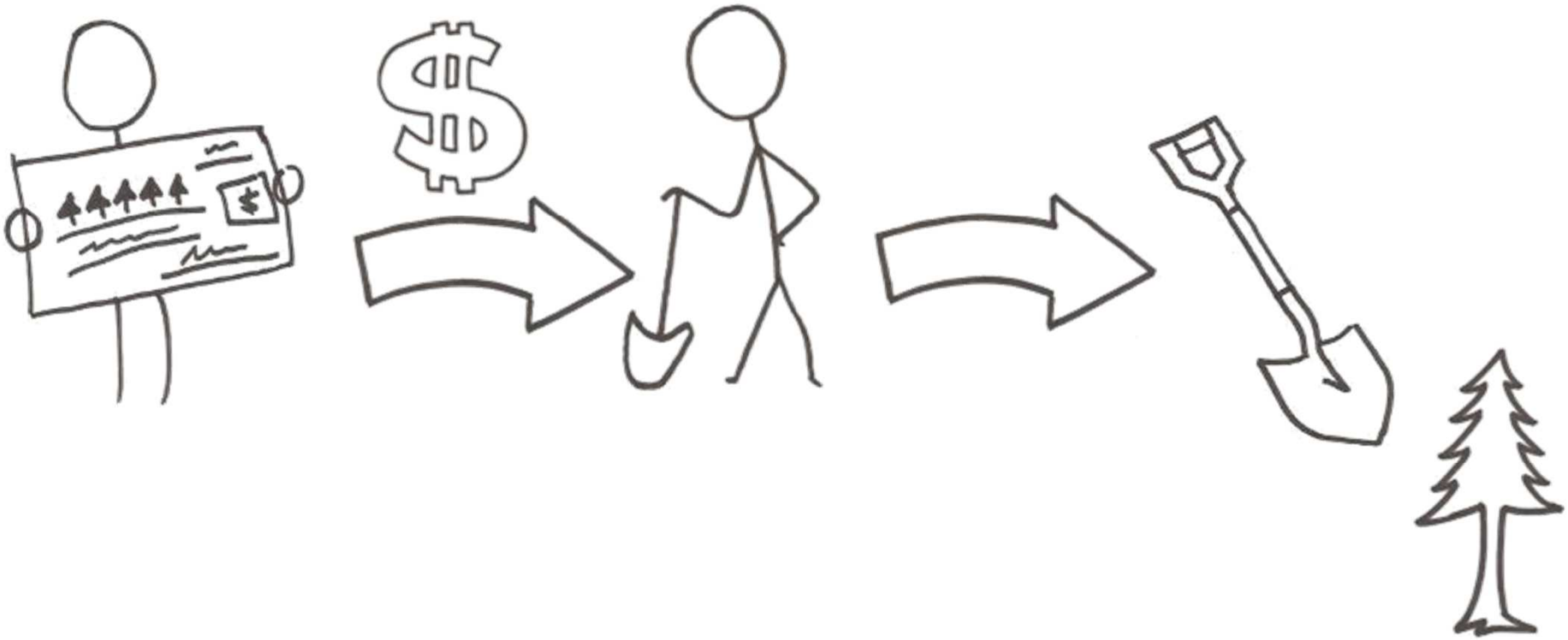
Program Goals



Increase the pace and reduce the cost of improving Klamath Basin water quality to support all water-related uses in the Basin, including, but not limited to, the recovery of native fish.

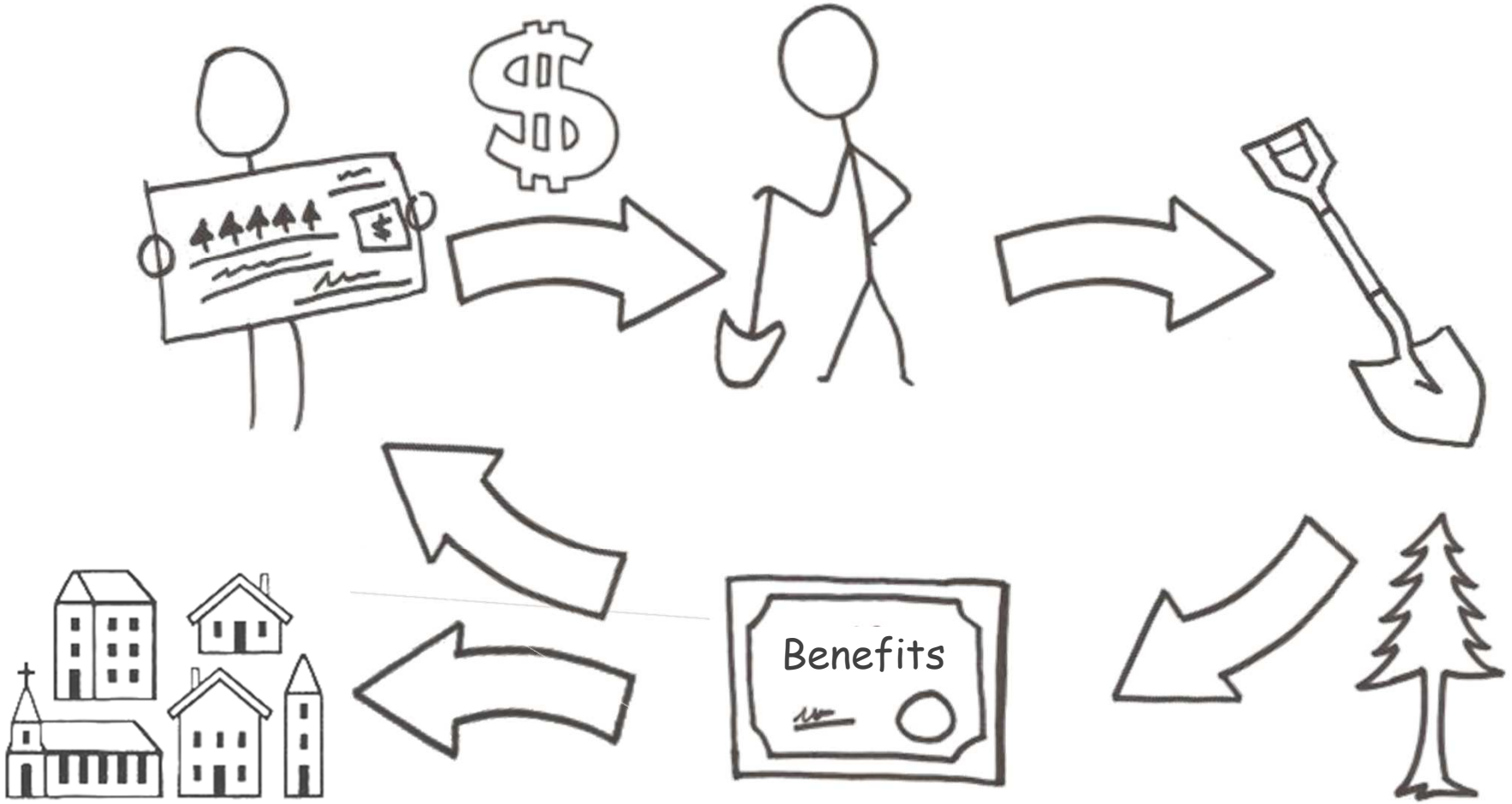
Environmental Accounting

Actions & Outcomes



Environmental Accounting

Actions & Outcomes



Klamath TAP

Why?

- Need to coordinate multiple programs/initiatives
- Desire to track individual and cumulative effect of conservation/restoration actions
- Measure progress towards watershed goals

Klamath Tracking and Accounting Program

Program Participants

Klamath TAP

Program Objectives and Value

- Coordinated, transparent, credible framework for tracking improvements throughout the basin
- Link investments to ecosystem benefits
- Provide assurances for funders

Klamath TAP

Program Objectives and Value

- Framework for pooling resources
- Allow water quality investments through offsets or trading

Restoration for compliance

Where appropriate, convert compliance…

Cooling Tower.

Crediting Protocol

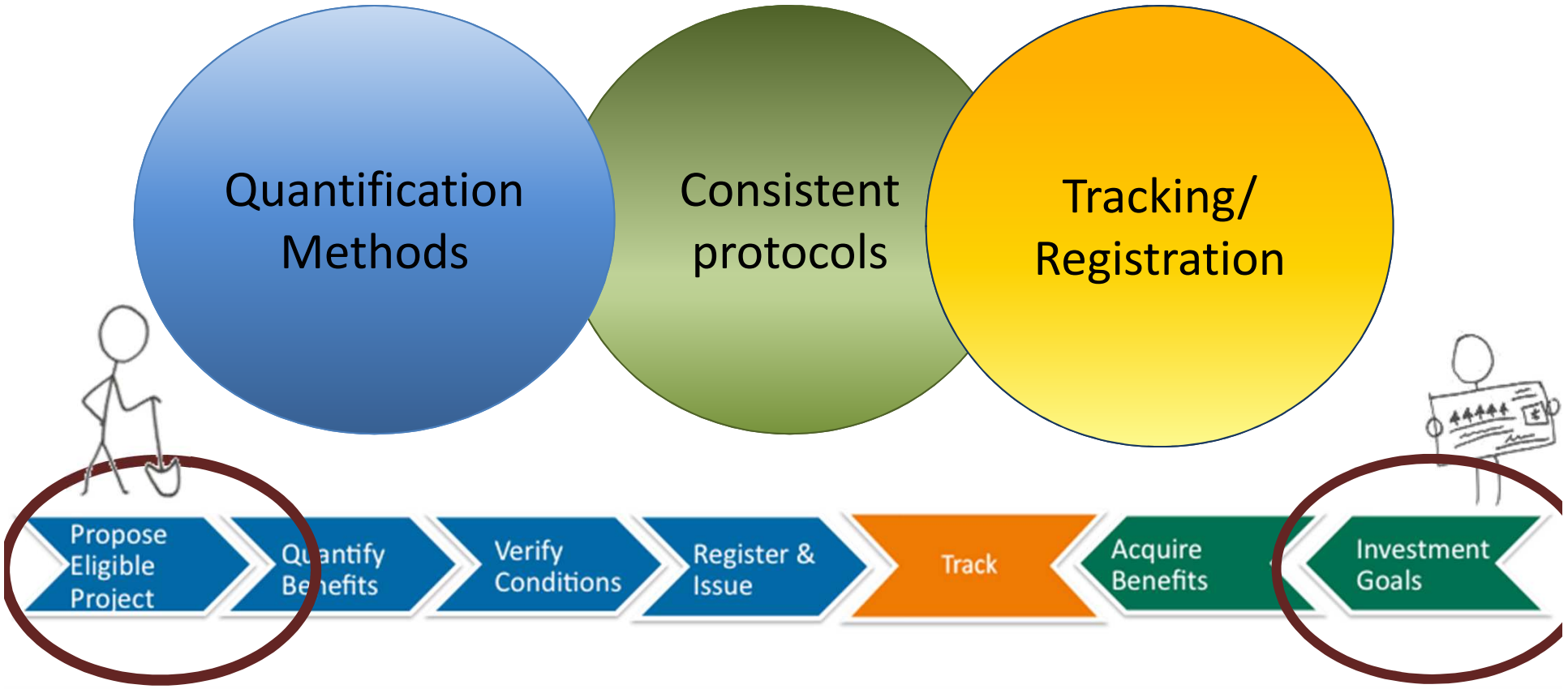
Quantification = Translation = Investment

What did you do?

- Trees planted
- Stream miles/acres treated
- Kilocalories
- Lbs of nitrogen, phosphorus, sediment

Klamath TAP

Program Components

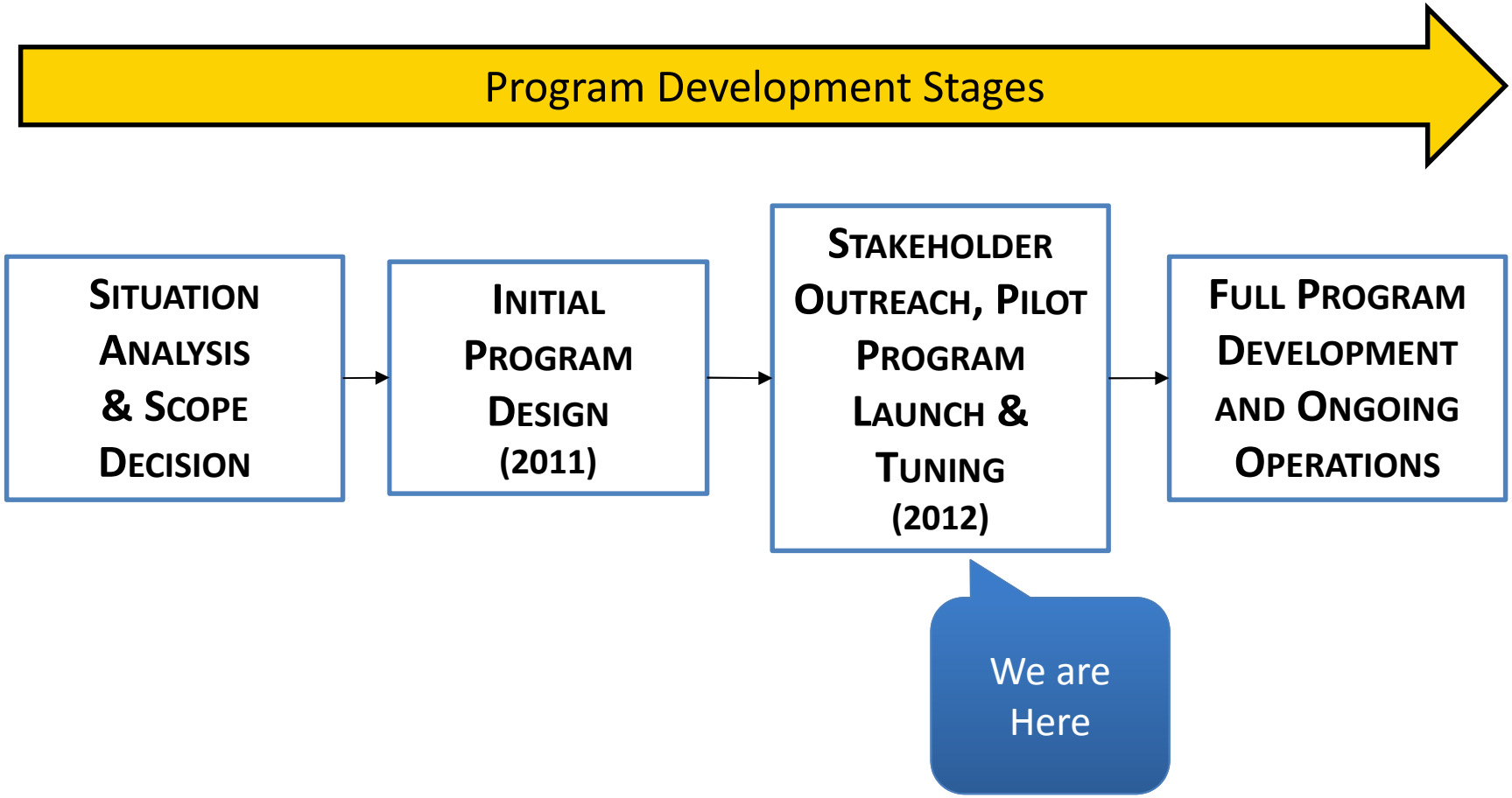


KBMP Monitoring Framework

Program Connections

- Watershed context
- Ability to evaluate progress towards meeting basin-wide water quality goals
- Linking actions to multiple scales

Klamath TAP Development



Klamath TAP

Pilot Phase

- Solicit for and initiate pilot projects
- Test existing tools and protocols
- Adaptive management – targeted monitoring, tool refinement, protocol revision

Next Steps

California 319 (Received)

- Pilot and calibrate the process
- Begin NTT Calibration
- Stakeholder Engagement

Oregon 319 (Pre-proposal phase)

- Complete NTT Calibration
- Stakeholder Support

Questions?

Klamath Basin Monitoring Program 11.05.12

Nutrient Tracking Tool

- Quantifies edge-of-field reductions in nitrogen and phosphorus on farms and ranches
- Developed by USDA for water quality crediting
- Uses information on soils, weather and agricultural practices to calculate the effects of implementing conservation practices
- Outputs for Nitrogen, Phosphorus, Sediment (Lbs/year) Flow and yield.

Soils

- Web Soil Survey
- Includes soil type and slope

Willamette Silt Loam

3-7% Slope

Woodburn Silt Loam

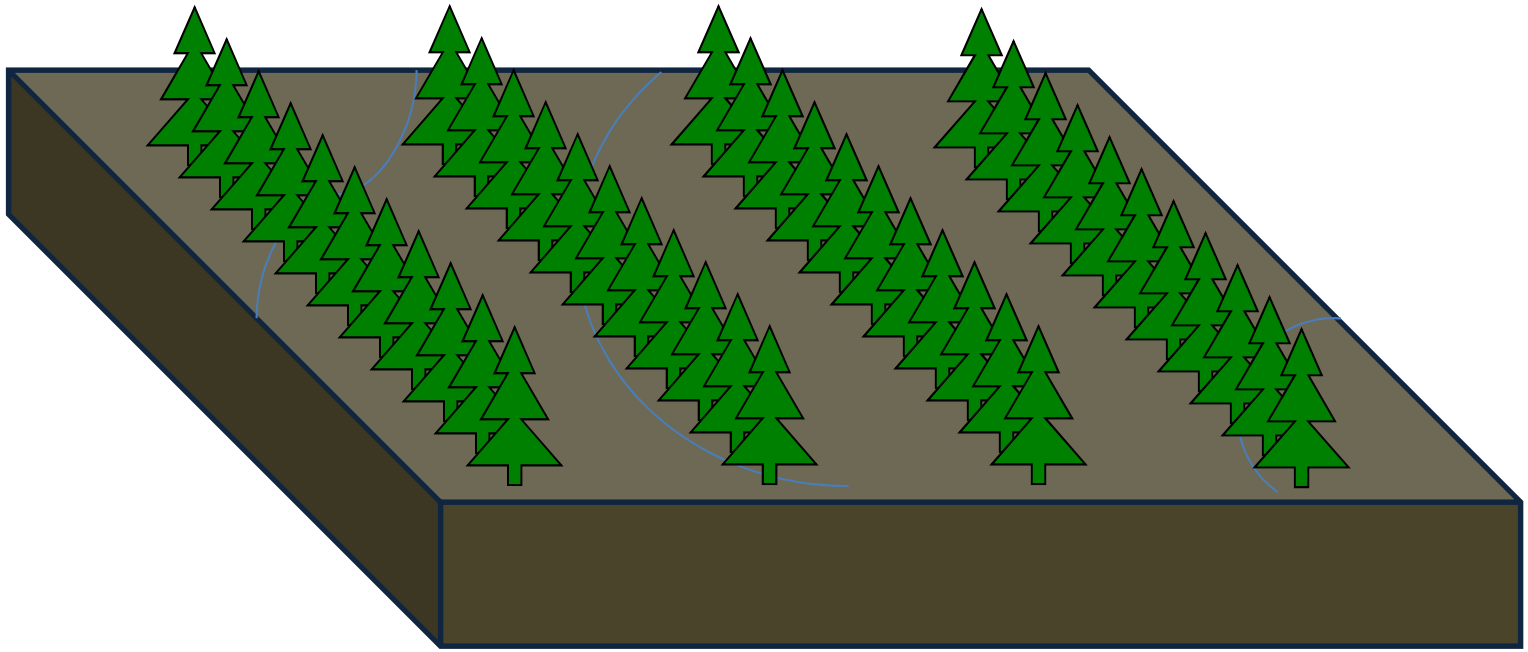
3-7% Slope

Verboot Silty Clay Loam

3-7% Slope

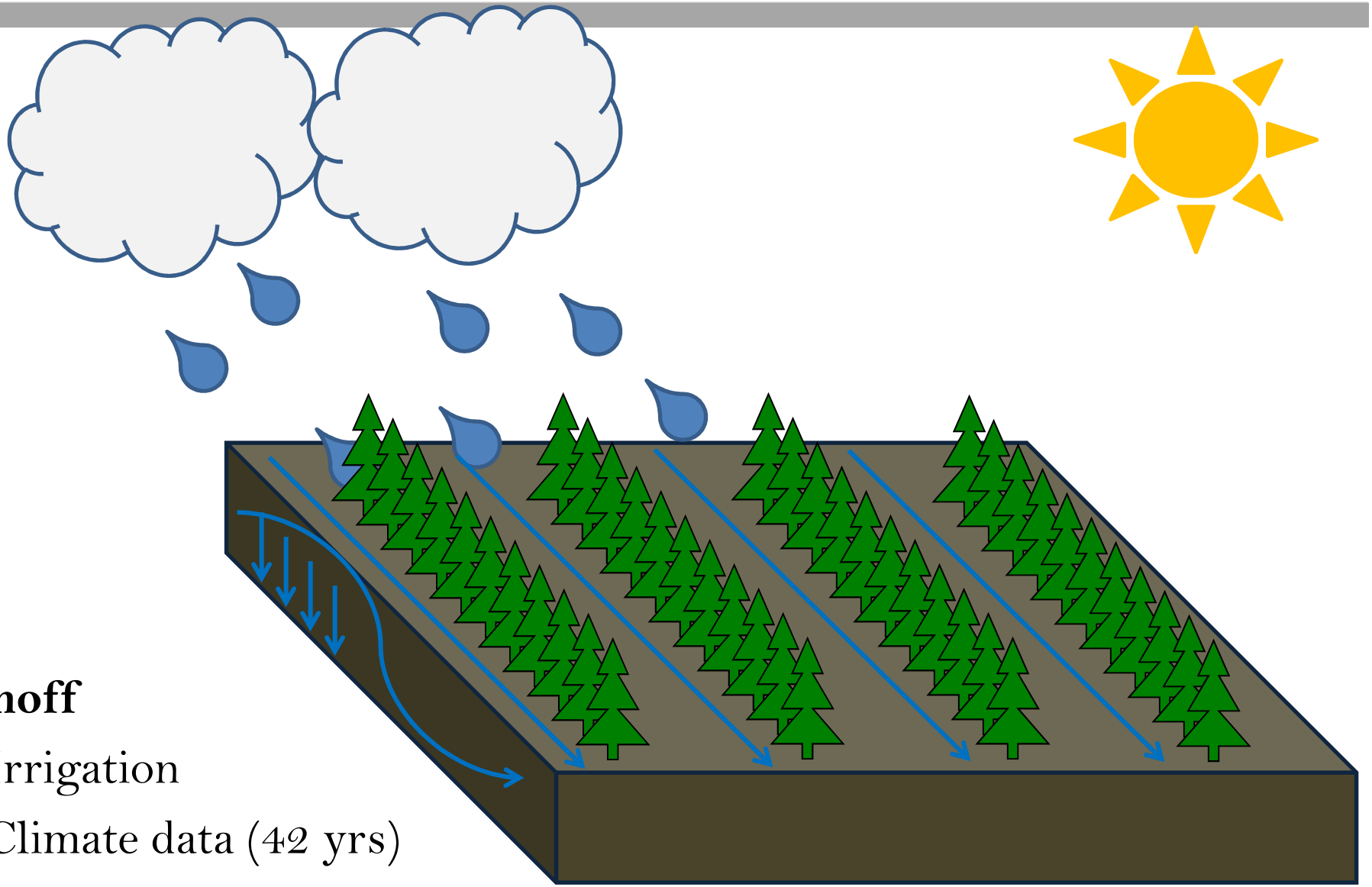
Crops

- Standard set of crop types with management
- Edit management actions and timing (planting, tilling, mowing, harvest, fertilize, irrigate etc)
- Conservation practices (fencing, buffers, cover crop etc)



Assumptions/limitations

- One-directional flow
- No rills, gullies, or direct conveyance
- Field scale: modeled only to edge of field, not through adjacent fields or through the water body
- Not all crops have profile yet



Runoff

- Irrigation
- Climate data (42 yrs)
- Daily time step

Actions NTT can model

- Riparian buffer/restoration
- Fencing/animal exclusion
- Cover crops
- Crop rotation
- Conservation tillage
- Changes in nutrient application
- Filter strips

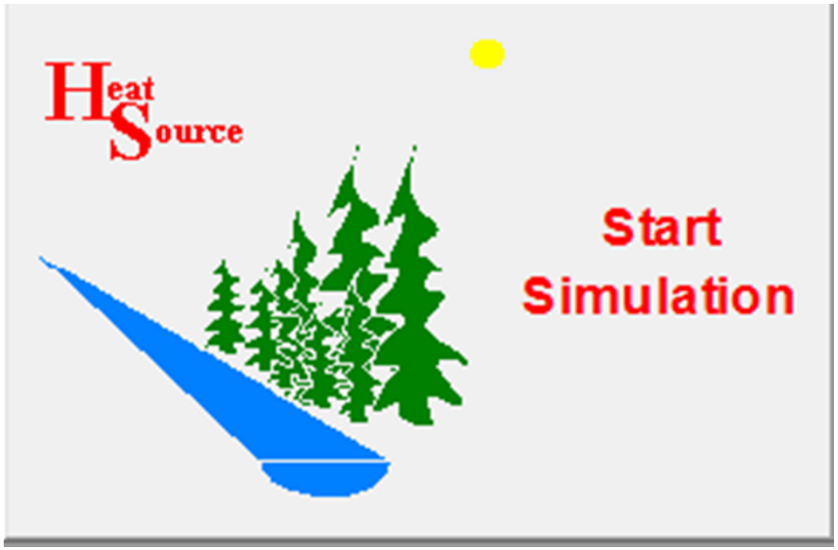
Validation

- NTT runs on 36 projects in Klamath, Tualatin, and Yamhill
- Literature review
- Expert opinion on NTT outputs
- Focus on N and P outputs, not on crop yield, flow, or sediment

Heat Source

- Created by Oregon Department of Environmental Quality to model thermal inputs to freshwater systems

- Shade-a-lator is a component that models solar inputs

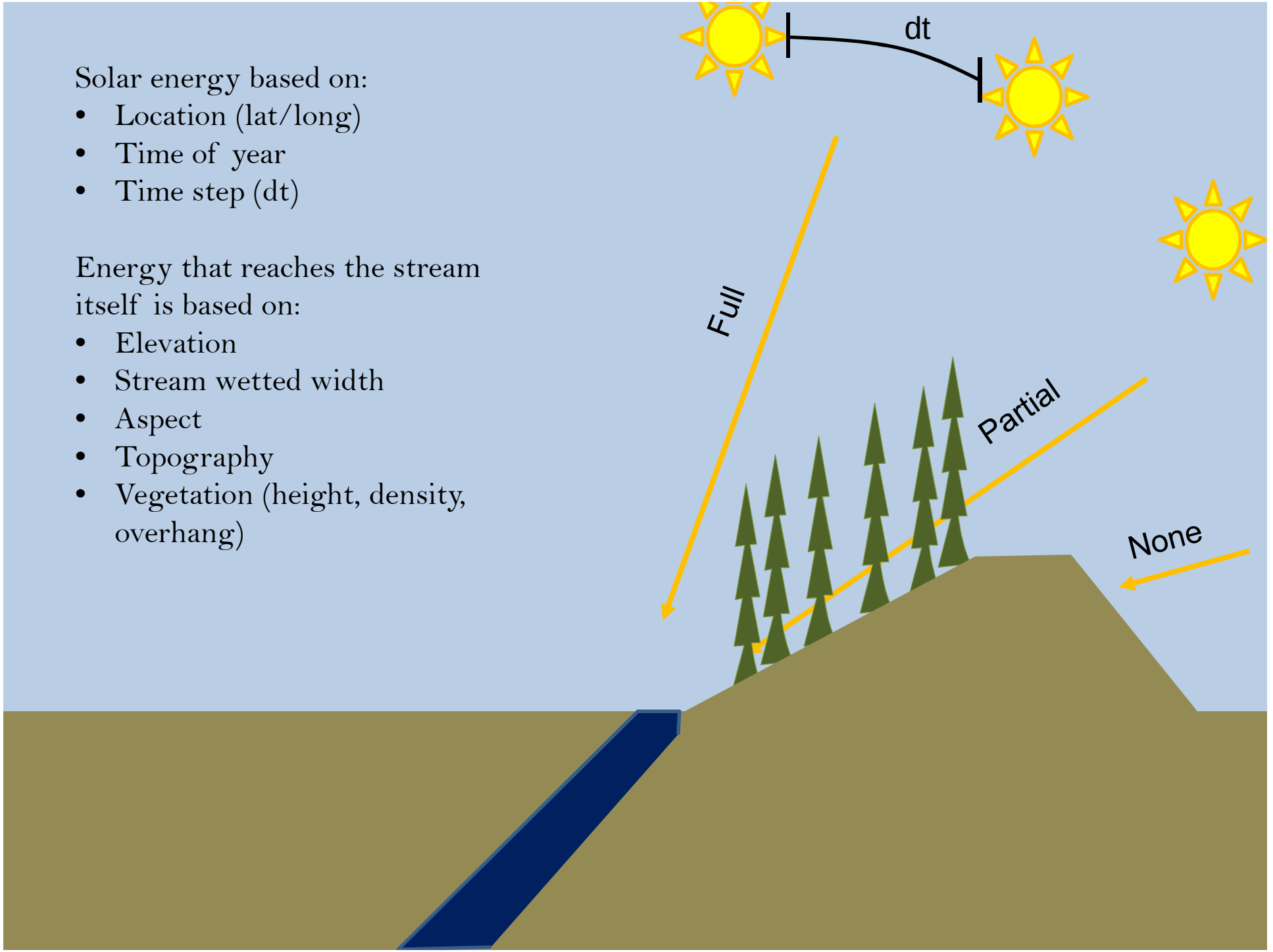


Solar energy based on:

- Location (lat/long)
- Time of year
- Time step (dt)

Energy that reaches the stream itself is based on:

- Elevation
- Stream wetted width
- Aspect
- Topography
- Vegetation (height, density, overhang)



Example

Sprague River Riparian Fencing

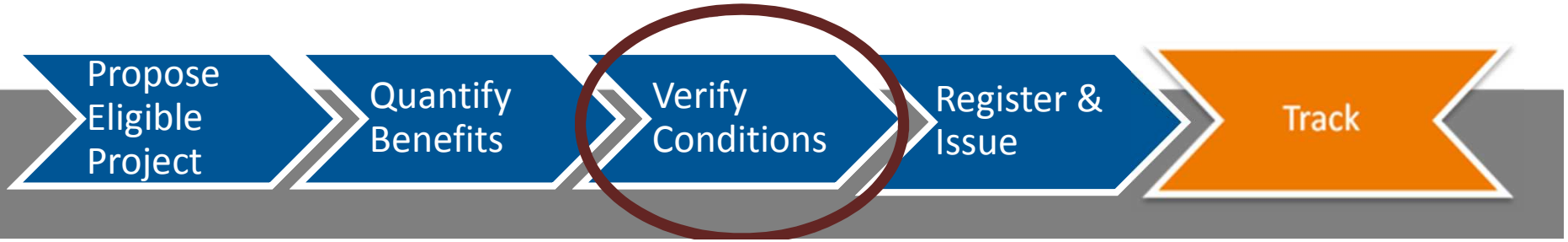
Propose Eligible Project → Quantify Benefits → Verify Conditions → Register & Issue → Track

Sprague River Riparian Fencing

Benefit	Baseline	Projected Post-Action	Projected Gain
Phosphorous (TP lbs/yr)	20	5	15
Nitrogen (TN lbs/yr)	100	60	40

Sprague River Riparian Fencing

Benefit	Baseline	Projected Post-Action	Projected Gain
Phosphorous (TP lbs/yr)	20	5	15
Nitrogen (TN lbs/yr)	100	60	40



Sprague River Riparian Fencing

Benefit	Baseline	Projected Post-Action	Projected Gain
Phosphorous (TP lbs/yr)	20	5	15
Nitrogen (TN lbs/yr)	100	60	40