TWG: 12/7/1999
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The table below illustrates a comparison between suspended-sand inputs for Water Years 1995 – 1999:

	Suspended Sand Load (> 0.062 mm)				
Water Year	**Measured (Mg)**	**Modeled (Mg)**	**% Difference**	**Relative to 1947-1976 Average**	**Type of Weather Pattern**
1995	300,900	1,000,000	-232	-	Winter
1996	55,000	200,000	-264	- -	"Dead"
1997	1,972,000	3,300,000	-67	++	Pacific Tropical Storms
1998	1,075,000	1,700,000	-58	++	Pacific Tropical Storms
1999	Not avail	1,300,000		avg	Monsoons

Sand Comparisons:

- Measured and modeled sand loads demonstrate the same patterns and relative proportions
- Model is better able to predict sand loads for large storms
- During periods of low flow (few storms), there are significant differences between measured and modeled values. These differences can be partially explained by the way these numbers were obtained:
  - Measured values include suspended-sand loads only from days where water samples were collected either using an automated pump sampler or by a person.
  - Modeled values include suspended-sand loads from days where water samples were collected, (some samples were eliminated during low flows because of potentially biased samples), and it is able to predict sand loads during days when no samples were collected. Therefore, the modeled loads include periods of time that are not represented in the measured loads.
  - The discharge values used for load calculations need to be examined further. The channel where the streamflow gaging station is located is under constant change (filling and scouring).
- Individual storms have been compared and were within 10% of each other
- The attached figure (comparing suspended-sediment concentrations) illustrates the model's performance when discharge is not considered (i.e. concentration data only). The relation is very tight, particularly during larger storms (higher sand inputs).

Highlights and Future Work:

- The model is a work in progress
- Need to better address periods of low flow
- Consider streamgage improvements to minimize loss of data
- Model is very helpful for:
  - finding "holes in data collection efforts" and examining sediment collections techniques (determine collection methods that produce fewer biases)
  - finding problems with discharge
  - predicting sediment input on days when no samples were collected
  - quickly producing storm sediment input estimates
- Measured data are helpful for:
  - calibrating model to better predict sediment inputs
  - verifying model predictions
  - proved a "check" of model predictions when sampling schedule is reduced

Models are very useful tools for quickly producing estimates of sediment inputs. Water samples take time to collect and analyze, and therefore it may be months before measured sediment inputs are determined. This "quick and dirty" comparison demonstrated the importance of model calibration and verification. Ultimately, the calibrated and verified model acts as a monitoring tool, quickly producing sediment inputs. Once a model has been calibrated and verified, the need for water samples decreases – but is not entirely eliminated. Periodic water-sample collection will always be necessary to insure that conditions have not changed significantly, affecting model performance.

Weather Patterns:
Most of the largest sediment inputs from the Paria (this century – period of record) were the result of dissipating Pacific Tropical Storms. This is important because these types of storms can be "tracked" and therefore allow some time to prepare for what may be large storms. This information can be very useful to managers for planing purposes.

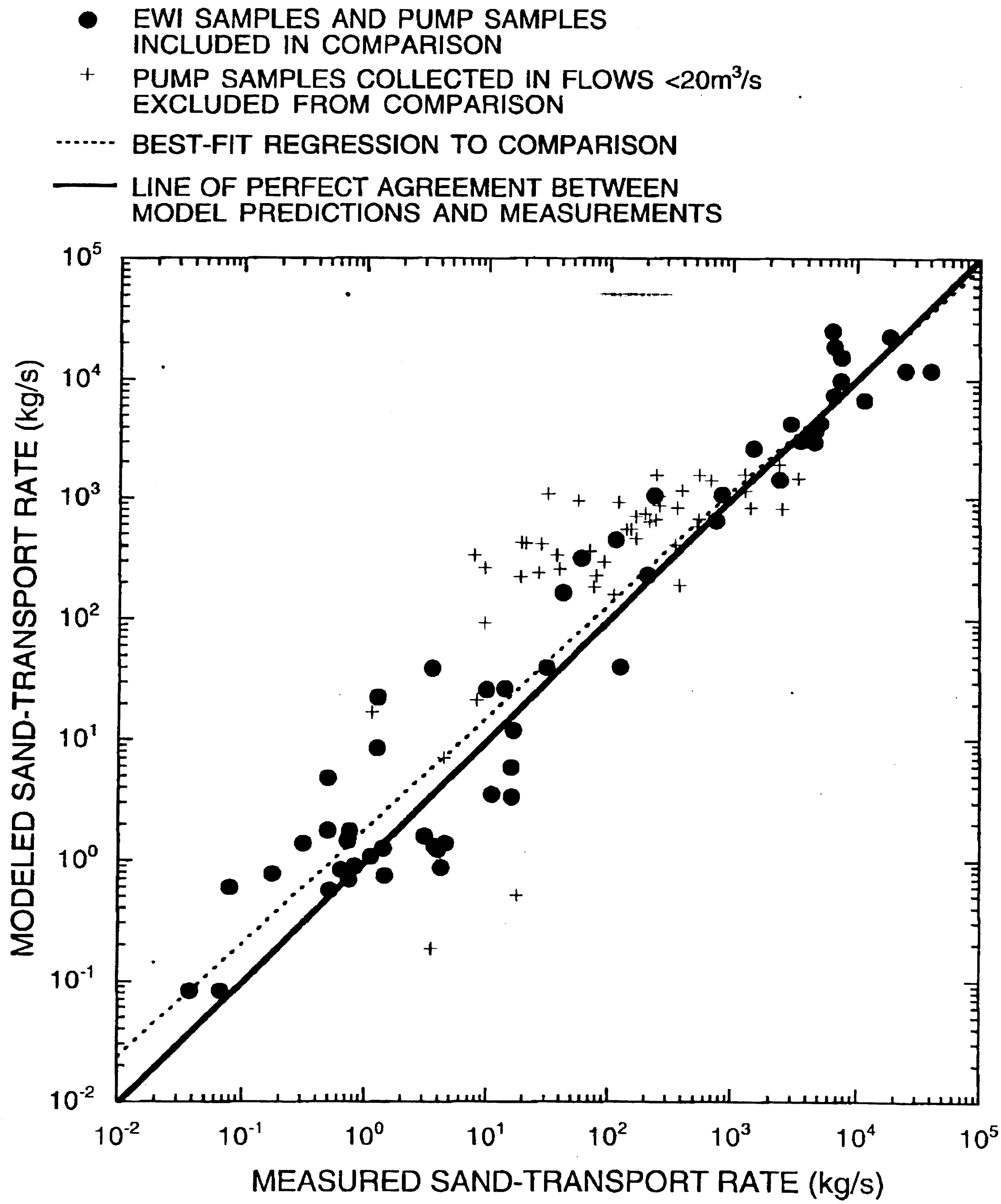
EWI SAMPLES AND PUMP SAMPLES INCLUDED IN COMPARISON
PUMP SAMPLES COLLECTED IN FLOWS <20m³/s EXCLUDED FROM COMPARISON
BEST-FIT REGRESSION TO COMPARISON
LINE OF PERFECT AGREEMENT BETWEEN MODEL PREDICTIONS AND MEASUREMENTS
MODELED SAND-TRANSPORT RATE (kg/s)
MEASURED SAND-TRANSPORT RATE (kg/s)
10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5

Figure 3