Solution 1

```javascript
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// O(n) time | O(n) space
function waterArea(heights) {
  const maxes = new Array(heights.length).fill(0);
  let leftMax = 0;
  for (let i = 0; i < heights.length; i++) {
    const height = heights[i];
    maxes[i] = leftMax;
    leftMax = Math.max(leftMax, height);
  }
  let rightMax = 0;
  for (let i = heights.length - 1; i >= 0; i--) {
    const height = heights[i];
    const minHeight = Math.min(rightMax, maxes[i]);
    if (height < minHeight) {
      maxes[i] = minHeight - height;
    } else {
      maxes[i] = 0;
    }
    rightMax = Math.max(rightMax, height);
  }
  return maxes.reduce((a, b) => a + b, 0);
}

exports.waterArea = waterArea;
```